Submitted in part-fulfillment for the Doctorate in Health

(Development of a Clinical Trauma Psychology Service)

Project Title: Integrated Systems Healing: A Unified Assessment and Psycho-educational Approach in Psychological Trauma Treatment

Middlesex University

Date of submission: January 22nd, 2014

Richard Sherry,
B.Sc (Psych.) | M.Sc (Lon) | | Dip. (Psych) | PG Dip. (Lon) | M.Sc (CAPS) | MA. (Lon) | MBACP (Accred.) | MBPsS | DPMSA

Clinical Psychologist & Counselling Psychologist (HCPC Reg.) | Psychoanalytic Psychotherapist (BPC Reg.) | EMDR Consultant | Trauma Specialist | Organisational Consultant

richardcsherry@yahoo.co.uk

Word Count: 136,799 (including References and Appendices)

I, Richard Sherry, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signature………………………………………………………

Richard Sherry
January 2014

ABSTRACT

This doctoral study examines the aspects of psychological trauma and investigates why singular explanatory models fail compared with a holistic approach. Part of this integrated approach includes the development of a benchmarked psychometric test, the Sherry Trauma Assessment Test [STAT]) (Copyrighted © Richard Sherry 2011). The test's reliability was evaluated using Chronbach's alpha (p< 0.001 levels of significance), which these findings were crosschecked with the findings from eleven other psychometric tests to standardise the results. In comparing the data sets, the STAT test project data was used to both answer fundamental questions within the field of clinical trauma psychology and confirm the reliability of the newly developed psychometric test. Furthermore, the information was collected and used to derive a principle component analysis (PCA) to help in developing a model to support current thinking within the social neuro-scientific arenas as well as to better organize clinical psychology assessment and treatment approaches. These findings have important implications on how trauma, in particular, the human neuropsychological learning process, is addressed. This psychometric foundation was then used to develop this newer model and adaptive tele-medicine platform (Zielinski et al., 2006). This multidisciplinary integration of information, expertise and models, has served to clarify the effects of maturation in relationship to traumatic response and helped to refine the understanding of how traumatic phenomena serves to fragment the integration of embedded systems, and what can be done to reverse these problematic processes in order to replace them with positive cycles of development.

The STAT test findings have shown statistically significant results (p< 0.001 level), which provide quantitatively grounded evidence in support of this psychometric measure and improve clinical assessment and treatment approaches. The theoretical model of the STAT test is included in the concept of Integrated Systems Healing, which was developed independently, but has similar theoretical roots in Goetz and Caron's (2005) bio-psychosocial model of the Systemic Healing used in the treatment of sick children. The author describes further conceptual developments within the concept of Integrated Systems Healing (Copyrighted © Richard Sherry 2011) to include the holistic systems approach, which could be used for a large-scale treatment with specific interacting components of Integration, Compassion, Developmentally scaled interventions, and Sustainability or the *ICDS Model* (Copyrighted © Richard Sherry 2011). This project has evolved improved strategies for integrative assessment, feedback, and holistic approaches for learning and programme development to improve people's lives. These foundations of improved internal and external dynamic assessment connect to flexible tele-health approaches, using defined cut-off scores, e-learning modules, and strategies for checking and reassessment. Further work links and integrates processes to identify and reduce vulnerability and strengthen resiliency and support.

Table of Contents

List of Figures

List of Tables

Acknowledgements

Chapter 1: Introduction

Context

Placing this project into context, there are several essential factors that make it a relevant and valuable addition to the professional advancement within clinical psychology as well as the related applications outside of the discipline. Firstly, individual and organisational stress and trauma related issues cost £25.9 billion annually in the UK alone and are expected to increase, according to Sainsbury Centre for Mental Health, in 2007 (in Cooper et al, 2009, p. 3). Moreover, as physical illness related research—such as cardiac and obesity health problems has been accummulating (see Lanius et al, 2010), the extent of this problem is likely to significantly increase to the detriment of an individuals' quality of life as well as their socioeconomic level. Secondly, as opposed to some areas of medicine, there are clear problems with the consistency and agreement of diagnoses within Psychiatry (Spitzer et al., 2005; Mirowsky and Ross, 1989). Improving the assessment method for psychological emotional functioning and well-being could provide a revolution within the psychological field. Lastly, psychological stress and trauma could be modelled using a human neurobiological explanation of conflict; moreover, negative aspects of (aversive) learning could underpin these cycles of vulnerability (Schore, 2012). In being better able to assess and understand these issues on an integrated spectrum of information could help to improve a treatment outcome.

Such psychopathology is a major part of vulnerability and a significant contributor to physical illness (Lanius et al., 2010), unhappiness, job inefficiency, and dysfunctional performance. This negative end of the spectrum does not include positive ramifications of increasing the positive capacities such as creativity and the enjoyment of people's lives; neither are positive gains, made from high performing teams, considered. In sum, the scope of what this doctoral project methodologically hones in on is discussing the issue of psychological trauma, stress and PTSD (glossary of terms is included in Appendix I) and changing how both vulnerability and resiliency are addressed. Additionally, the finer-grained shades of terminology in between these areas need to be acknowledged and integrated.

1.2 Integrating Professional Experience: Why is this a good project for me to carry out?

Previous positions which constitute the author's clinical and leadership experience include: work as the Lead Psychologist for a large English Fire Service, the Coordinator for the National Service for Police Psychiatry and later as the Lead Treating Clinical Psychologist for the European-wide hospital-based in-patient military service. These posts have experientially influenced my training as well as the development of this project. More specifically, these roles each assisted in my learning about the operations of systems and the requirements for complex patient psychological treatment. Together these occupational specialties represent critical areas of trauma research samples that have been studied. In this project, the author's training in clinical psychology and related areas has evolved into this doctoral-level work. The author has undertaken extensive training in each of the areas of clinical psychology, psychoanalytic psychotherapy, clinical traumatology, organisational and systemic consultancy, conflict/disaster medicine, extreme environments, clinical neuropsychology, and medical ethics. This training has helped to examine

inconsistencies within the literature as well as the field itself. In response to this training alongside this research project, the author has developed effective strategies for traumatology and clinical psychology, mainly focusing on addressing critical gaps in assessment and treatment with the goal of significantly improving overall coherence and quality of the human condition across a wide spectrum of complex environments.

One of the larger Fire Services in England was the focus of this research. Firstly, because the author has had a long-standing relationship with this fire service; secondly, fire fighters are known to have a high exposure to traumatic events (Boozer, 1998); and lastly, with experience in this specialty, the author has developed an "insider" perspective (Costley et al., 2010) on the workings and culture of the fire department. The majority of this project was largely based on McFarlane's (1988) classic study Australian Volunteer Fire fighters and predicting rates of PTSD. This doctoral project has expanded some of thinking from this original study. The research sample for this doctoral project has in part utilized fire fighters (in this case professional fire fighters) and the author has studied contributing factors within possible central mechanisms of interaction of PTSD. For example, the crucial question within trauma psychology is why the same event will produce a traumatic reaction for one person, but not for another? McFarlane's (1988) work raised very interesting questions in looking at what could central factors in psychological trauma be linked to? In better understanding these mechanisms, the author was interested if these learning points could be used to improve the field clinical trauma psychology itself, possibly reciprocally improving aspects of well-being and health.

1.3 The Purpose of This Project

This doctoral project is working to bridge many of the previous gaps within the field to offer an improved method of identifying and/or reducing vulnerability compared to standard psychological assessment and treatment (see pages 19-24). The professional knowledge claims are based on a newly validated, developmentally integrated and neuro-psychologically based psychometric test, the STAT (Sherry Trauma Assessment Test). This integrated psychometric tool has been developed from a theoretical base model and systemic practical approach to healing trauma.

By linking the literature review to the findings from the study and the STAT test validation, a holistic approach, addressing psychological trauma treatment, will be offered based on integrating all the methods involved within this project.

Three main areas covered within the literature review will address and integrate the areas of:
Clinical psychology trauma treatment—:
Innovation and leadership—:
Holistic program development—:

The author will look at critical gaps within the field and within this doctoral project; he will quantitatively and theoretically examine this information. The purpose of this task is to improve the coherence and development in the field of clinical trauma psychology as well as to be able to make improvements, regarding the models within the field, which can be used to further resolve other areas of conceptual conflict and incoherence.

1.4 Development of a Fourth-Generation Clinical Psychology Psychometric

Therefore, this doctoral project has been designed in response to the problems seen within clinical practice, including improving clinical diagnosis to better conceptualize underlying issues and organizing their symptoms. These innovations could highlight why patients might show an inability to maintain these positive gains. The author has sought to innovate a benchmarked consistent psychological approach, which is the psychological professional equivalent of a standardized assessment and technology technique, such as an MRI scanner used as a unified diagnostic assessment to arrive at a medical diagnosis. The goal within this project is to systematize this assessment for the personality structure and to reliably examine key areas of developmental maturation and neuropsychological personality functioning. A systematic review, focused on examining the theory and the research of the relevant areas of clinical literature, was carried out. The literature review has highlighted the need for a multi-disciplinary perspective. This integrated and systematized clinical approach helps to reduce mistakes so that a correct treatment can be given to improve a patient's outcome. This doctoral work establishes a claim for a new production of professional knowledge supporting the Gibbons et al., (1994) theoretical methodology of integrative trauma treatment, maintaining a patient's well-being and health. Furthermore, this project has validated a practical psychometric tool linking together a fuller spectrum for awareness of illness and health and improving well-being of individuals, systems, and organisations.

Contextualizing Clinical Trauma Psychology Work-based Learning

These developments are focused on producing individual/organisational sustainable change to improve overall resilience, performance and well-being. These changes can be linked to strengthen leadership and holistic health across one's social network. These innovations in clinical psychological trauma care can lead to large-scale innovations in holistic program development. However, these developments require considerable leadership responsibility to help engage others to establish control over the change process. The author intends to reintegrate these psychology findings into his applied new business venture, Psychological Systems, which is a new Limited Liability Company aimed at designing assessment, developing preventive strategies and service development plans in clinical and organisational health psychology programs for profit and non-profit collaborative business projects. This clinical-trauma psychology framework is working to improve individual/group (social) well-being, quality of life, and performance. The literature review will articulate the different and complex requirements as documentary evidence to the reasoning and significance in the theoretical grounding of this project.

Project Structure

Chapter 1: <u>Introduction</u>: This section contextualizes the scale and scope of the impact of significant issues of trauma on all aspects of life. This paper outlines essential professional expertise focusing on clinical psychology and reasons why this is a good project for the author to undertake. This work contextualizes the expertise within the field, the research focus, and the goals of the project, which in turn brings together a significantly more integrated approach to psychological trauma treatment.

<u>Summaries and conclusions</u>: Due to the wider scope of training and specialization required for this level of multidisciplinary framework, the author's expertise brings a valuable point of professional transformation to provide a critical change in the conversation around stress and trauma. This doctoral project critically examines highly effective strategies to validate a new clinical psychology measure. The aim is to use the cutting edge in tele-medicine mental health approaches (Tracey, 2004) to identify areas of problematic functioning and to work to facilitate (and treat using clear cut-off spectrum bench marking for mental health and online psycho-educational resources) in order to promote higher levels of development within the individual as well as improve the contextualised larger social processes.

Chapter 2: <u>Terms of Reference/Objectives and Literature Review</u>

The literature review demonstrates that unnecessary gaps continue to exist in integrating different areas of cognitive, psychodynamic, and psychometric assessment within the area of trauma research, and even within the core theoretical and ethical theories themselves (Sherry, 2012; Misselbrook, 2004). There is a recognized area of overlap and little completed work that fully addresses the assessment and clinical/therapeutic aspects of holistic trauma prevention and treatment, as applied to psychological traumatology. These gaps in research are especially problematic in conceptualizing the fundamental clinical neuropsychological theoretical underpinning of the human brain and the way these affective-biological processes work together socially. A new framework has been developed that begins to bridge together deficits within these core areas. The central concept the author developed is *Integrated Systems Healing,* (Copyrighted © Richard Sherry 2011), which was independently arrived at, but can also be seen as following a biopsychosocial approach described as "ecosystemic biopsychosocial integration" developed by Goetz and Caron (2005). This independent redevelopment of the term within this work includes a simplified pathway of four core ingredients to help address essential areas of Integrative Compassionate Developmental Sustainability (ICDS) Model (Copyrighted © Richard Sherry 2011). These aspects are contextualised, within a reevaluation of the current field of clinical trauma psychology and within this related literature, to use the Sherry Trauma Assessment Test (STAT) (Copyrighted © Richard Sherry 2011) to look at holistic strategies for sustainable change or development in order to improve mental and physical health and well-being for individuals and social environments. The STAT has been copyrighted to ensure a clear and protected intellectual property providence especially as it is a core part of the author's business and part of his strategic business plan redeveloping a new integrated system of healing.

Summaries and conclusions: A new model of ICDS has emerged from the attempt to ameliorate and significantly improve current difficulties within the clinical psychology trauma assessment and treatment approach. As the findings are similar to the effects of stress on the physical body (Lanius et al., 2010; Goldberger and Breznitz, 1993), these processes fragment the coherent functioning and integration of systems. This project has developed integrative approaches to assist in bringing together information using theoretical approaches to help address and improve how coherence breaks down under these stressful conditions.

Chapter 3: Project Design and Methodology

The design and methodology for a quantitative multiple comparative groups has been carried out, examining essentially three cornerstone questions related to this professional field. Specifically, having analyzed the data using critical theory (Winter and Munn-Giddings, 2001) as a discipline in reflecting on some core issues within clinical trauma psychology, the central thesis of this project is an attempt to compare main models in key areas to develop standardized psychometric testing approaches. These include ensuring the STAT test has the full test properties expected of a recognized psychometric test, including: reliability, construct validity, concurrent validity, and predictive validity. Information was accrued to address gaps in knowledge, and through an in-depth literature and practice review this information was utilized to examine the underlying theory used to explain these processes and to improve the coherence of these concepts.

Summaries and conclusions: By clarifying the gaps in knowledge in the field of practiced traumatology and preventive psychological care, the project hopes to understand more effective approaches to psychological treatment. These include: the development and use of a measured scale for vulnerabilities as well as strengths, comparing clinical and non-clinical groups, developing clearer cut-off scores for these categories, and improved learning methods to help with the psycho-education of managing these problems. This integrated programme can limit the negative impact of difficult experience, and substantially improve quality of life by helping to provide a clearer outcome-oriented and positive maturational framework.

Chapter 4: Project Activity:

This work-based doctorate project attempts to integrate research with development, by engaging in a thorough inquiry and conceptual research. The aim is to synthesize and apply findings from the conceptual research, developing new clinical tools in a professional organisational framework that logically address the critical gaps within this field, to improve on professional practice. This large-scale-project is: 1) the development and integration of a psychometric test (Sherry Trauma Assessment Test, STAT) (Copyrighted © Richard Sherry 2011)[1]; 2) the development of a new computer-based assessment tool (with future possibilities for physiological interface, for example, using heart-rate monitoring paired with questions, timed response, and eye-tracking or pupil dilation integration into the test scoring);

---

[1] The Rights and Copyright of the before-mentioned are the sole intellectual property, domain, and designed practical applications of Richard Sherry. University, Computer designers, Statisticians, and Business Colaborators have no claim over the copyright, patents, applications, any and all outcomes of this work, or renumeration that this testing package or the intellectual or theoretical concepts may hold now or in the future of its development or application.

3) the development of improved feedback and psycho-educational techniques for work with individual (clinical) as well as organisational assessment (by taking the individual scores and dynamically linking these and developing group/organisational computer algorithms), being able to update these as a live document with user participation (similar to Wikipedia); 4) the development of a course and charity to address vulnerable populations linking charities to work more effectively together. The impact of this information can then be used to increase overall psychological well-being, reducing absence from work, or improving healthy group/family/organisational functioning.

Measuring and standardizing the STAT test developed for this project with selected and known clinical psychometrics, deriving a clearer baseline comparison of a full spectrum of very healthy to severely ill functioning patients, can also achieve this result. This project logically following from the clinical needs, careful literature and multi-disciplinary literature review has developed an integrated and psychological assessment and treatment approach that has been created and is currently undergoing the validation process of the British Psychological Society (BPS) Psychological Testing Section and guidance from the Medical Device Manufactures Regulatory Compliance Process (EU Parliament, 1993). All of these aspects link together a knowledge approach that serves to establish effective and innovative strategies for professional change within specialist fields. For example, looking at the gaps in theoretical and clinical application to see if there are clear accounts of the breakdown of information to reflexively treat the field of trauma psychology itself, using its own tools of intervention. The impact of this project is the redevelopment to evolve significantly deeper, unified and vastly improved treatment pathways to reduce vulnerability and improve quality of life (Roy, 2003).

Summaries and conclusions: The critical gaps of problems in coherent integration within the literature have provided an opportunity to examine the effects of trauma and how a psychometric test could possibly resolve some of these outstanding issues: First, by correctly identifying central causative issues and working to address them; Second, by understanding their relation to healthier development (as well as a clearer model for mental ill-health); And third, to identify through psycho-education and, if needed, therapeutic individual and/or group treatment, to work towards positively impacting integrated well-being.

Chapter 5: Findings

Clear sample differences were quantitatively noted between the groups; clinical, fire, and student samples showed significant variance ($p<0.001$ levels). The STAT test was equally validated in reliability, construct validity, concurrent validity, and predictive validity--these scores were significant ($p<0.001$ levels). A model using principle component analysis (PCA) was employed, which found an interactive process between negative and positive factors, and that intelligence is changed by the inter-relationship of these factors. By extrapolating from the scientific data what is known about negative emotions and learning, as well as the interaction with stress and inflammation (Goulin et al., 2011), descriptive links have been made to help assemble a model of what is understood to be happening within

the brain and body. The negative factors appear to be weighted as the most influential, and this appears to be critical in modifying the context, relationship, and environment for experiential learning.

Summaries and conclusions: Clear relationships co-norming this project's STAT psychometric with 11 other standardized psychometric tests (see the Findings Section, pages 85-89). These quantitative findings support the STAT test being significantly validated ($p<0.001$ levels) in reliability and validity regarding an integrated spectrum of illness and well-being, comparing it to widely used clinical psychology measures. There appears to be a significant causal relationship between dynamic negative and positive factors ($p<0.001$ levels). Stress is a critical factor, as information derived from reliable clinical neuropsychological and social processing (Decety and Cacioppo, 2011) have described data and models that support this doctorate's findings, especially impacting the level of social and cognitive intelligence connecting to the human brain's sensitivity for negative (aversive) learning and stress or fear-related responses (Monfils, et al., 2009). Such detrimental experiences would likely influence the predisposition towards vulnerability (Petersen and Wilkinson, 2008) if this exceeded the individual social support structures (Taylor, 2011).

Chapter 6: Discussion

The development of the new, wider spectrum psychometric test and integrated psychological learning environment has helped to tie together a new, clearer theory of the fragmenting effects of trauma and its relationship to creating processes of vulnerability for the individual as well as for group processes. It has also shown that through social support, compassion, and love, this can facilitate integration and a positive vortex of healing, rather than a negative vortex of trauma (Levine, 1997). The practical developments of this new model of *ICDS* examine integrated approaches that aim to reduce vulnerability and increase resiliency in individuals and within larger social structures. This can be attested to by the positive changes seen first-hand in the author's clinical practice, and the increased clarity of clinical formulations of the patients with whom the author of this project has piloted these diagnostic and treatment developmental approaches during this doctorate. Some of these case examples are followed within this project write up. It is important to note this project has endeavoured to rigorously examine theory to create the applied aspects of the STAT psychometric test and approach. Additionally, the theory of *Integrated Systems Healing* (Copyrighted © Richard Sherry 2011) constitutes a fully formed psychological philosophical approach and applied method. Evidence of this includes direct applications of the development of a new ethical approach for disaster relief humanitarian aid, and fully working flexible computer-based psychometric that has been developed to integrate the STAT test. This includes capability and delivery for remote delivery e-learning modules to help address areas of risk. All of these innovations provide a holistic integration that is usually unilaterally missed, especially within the sample of complex multi axis (See DSM-IV_TR, APA, 2000) diagnosed patients. Overall, this integrated model is derived from empirical findings. The STAT psychometric test has evolved to include corresponding computer innovations that have helped redevelop the theory of how trauma affects social relationships, and how to positively transform these processes.

Summaries and conclusions: These validation studies of the STAT psychometric test have been used to prototype and develop a holistic, self-contained system of assessment, feedback, and initial tools to help shift individuals and groups/organisations from negative strategies and learning styles to positive proactive methods to improve functioning and support. This has also helped clarify a model for how cognitive and emotional processing has not only a natural bias towards negative emotions (Schore, 2003b), but also how through stress these processes can be further shifted towards negative functioning and vulnerability thus intensifying traumatic processes. On the other hand, this cycle can be positively changed with compassion, support, and love, to increase resilience and over-all performance and well-being, especially as intellectual performance of all kinds (social-emotional, cognitive, and kinesthetic) appears to significantly increase when negative processes are reduced.

Chapter 7: Conclusions and Recommendations

In summary, this project establishes a model that works to integrate an approach to identify and treat trauma and negativity. These challenges can create problematic gaps of what is likely to happen in the brain of the individual as well as what social groups process within systems. This project examines a process to assemble many of the pieces of the effects of trauma (as this project documents) to help in identify and properly address how these processes can be resolved. Thus, to move from fear-based conflict to flexible problem solving, this dissertation outlines the assessment and treatment pathway that has been developed during this doctorate, which can provide an integrated pathway for strategies to reduce levels of stress response, especially negativity, as well as improve overall well-being by shifting the individual and surrounding group to facilitate greater levels of support and care. This clearer integrated developmental model can be contrasted with the current models (see chapter 2, pages 22—26) where each standardized assessment and treatment approach fails to provide a contextualised and socially accurate link of dynamic social and developmental factors. Further development is needed to look at building up norm groups of specialty samples and to increase the completeness of content or resources for learning modules for the computer-testing package. From integrating the work taken from this project, it appears it offers an important contribution to the professional evolution of the improvement of a reflexive approach towards a sustainable integration of better clinical assessment and treatment, in particular allowing a tele-medicine approach to increase accessibility even to remote areas.

 Summaries and conclusions: This project represents a substantial addition to the professional theory, thinking, model, and applied tools through its integrated approach to identify, treat, and improve issues of vulnerability, transforming these concepts clarifying how resiliency and support within the key aspects of assessment, and first stage of integrated treatment of psychological distress could be understood to work.

Chapter 2: Terms of Reference/ Objectives and Literature Review

2.1 Brief Overview of Current Thinking in Relation to Diagnosis, Assessment, and Treatment of Stress and Trauma Disorders

Many of the questions explored within this doctoral thesis can be summarised with Alexander (1996), who highlighted the individual treatment of trauma:

> "Unfortunately, however, no single [trauma] model has achieved a pre-eminence because none can accommodate all the critical research data that has been accumulated or can answer some of the more challenging questions. This includes why some individuals display psychopathology after trauma and others do not, why some cases of PTSD become chronic and others short-lived, and why some conditions have a delayed onset. At present, the treatment of posttraumatic conditions has little theoretical basis, and literature reviews confirm that there have been relatively few properly controlled trials; even the results from these are modest and make only a limited contribution" (p 2-3).

Alexander et al., (1993) in another important work, also examined the complex organisational impact of stress-related work environments, concluding the police force studies found marked levels of prevailing occupational stress that tended to create a manifestation within the police officer's personal life of poor self-care (e.g. not eating and sleeping well, relationship difficulties, and feelings of anger).

> "Contrary to popular wisdom, exposure to trauma relating to the danger and difficulty of police work–even where it is violent—is not the outstanding problem. The major associations with stress involve issues of job design, human relations and personnel management, the organisation of work, and the structure of the police organisation itself. . . In the face of these findings, it would clearly be a strategic error to consign sole consideration of occupational stress in the police service to the domain of individual psychology and medical care. While the provision of suitable welfare services for officers under stress is a vital function of a modern and humane police personnel department, it will not deal with the organisational and management causes implied by these findings" (p.155).

This doctorate project addresses the challenge of innovating the individual strategies for assessment, treatment and the complex interface of the work environment that is increasingly recognized as a critical factor for work failure and loss of productivity, stress, and other further complications.

In a more recent summary, Alexander's group, researching psychological trauma, has reiterated this problem, as it remains unresolved:

> "The identification of prognostic indicators of psychopathology post-trauma: Currently, there is no established method of identifying accurately those victims of trauma who are at risk of developing post-traumatic psychiatric symptoms and psychosocial problems of adjustment. For this reason, the trauma team has a particular interest in the identification of the possible psychological, biological, and neurological indicators of

psychopathology" (RGU: Research website, 2012).

Psychological trauma remains a hugely complex area, precisely because it occurs across a large spectrum of severity and covers a range of conditions from ordinary stress responses to the extremes, including Dissociative Identity disorder (DID) (Sinason, 2011). This spectrum also includes another layer of complexity, in the environment where these experiences occur, covering a spectrum from quite ordinary to extreme as can be seen with expedition environments (Bledsoe et al, 2009) or disaster medicine (Koening and Schultz, 2010). The understanding that can be gained from the psychological impact of these emotional extremes is sufficient to be included within a classification of disability (Wade, 2010), most particularly, a clinical diagnosis of Post Traumatic Stress Disorder (PTSD) (see Doctor and Shiromoto, 2010), where conditions or experiences impact an individual to the degree that psychological functioning becomes significantly disrupted. This diagnosis can be severe enough to alter everything from one's neurochemistry and physiological processes to social behaviour (DSM-IV_TR, 2000).

Experts such as van der Kolk et al., (1996), Lanius et al., (2010), and Brewin (2003), have not agreed on what kind of triggering mechanism could serve as a catalyst for a traumatic event (Clarke and Clarke, 2000), nor is there a consensus on what events could achieve the level of stress to constitute trauma (see Criteria, pages 20-21). The scaffolding of a trauma has been described as a single experience or an enduring and repeated event, however, there appears to be no solid guidance to help clinicians or researchers understand with any greater clarity the underlying mechanisms to the formation of this psychological disturbance. Usually, if the severity is sufficient enough for the experience to completely overwhelm an individual's ability to cope, their capacity to process a high-level of emotional content is weakened, even to the degree of changing a person's self-concept about themselves, other people or the world. This is a more reliable and inclusive definition of PTSD (Resick, 2001). There is no specific time course and the impact of a clinical diagnosis of PTSD usually constitutes long-term disability in psychological and psychical/health consequences (Lanius et al, 2010).

Some distressing experiences of psychological trauma include: sexual abuse, bullying, domestic violence, catastrophic events, war or other mass violence (Ursano et al., 2007). These factors can all contribute to the development and cause of psychological trauma (van der Kolk et al, 1996). Long-term exposure to situations, such as extreme poverty or milder forms of abuse, such as verbal abuse, is also understood to have possible traumatic effects (Lanius et al., 2010). Researchers within the field of stress and traumatic disorders still have no unified theoretical or treatment approach to account for why the same stress responses can elicit such different reactions between people.

2.2 Criteria

The diagnostic criteria for PTSD, stipulated in the *Diagnostic and Statistical Manual of Mental Disorders IV (Text*

Revision) (DSM-IV_TR), may be summarised as:

Table 1

DSM-IV-TR Diagnostic Criteria

A. **Exposure to a traumatic event**
   1. Response involves intense fear, helplessness, or horror
B. **Traumatic event is persistently reexperienced in at least one of the following ways:**
   1. Recurrent and intrusive thoughts or images
   2. Recurrent distressing dreams
   3. Acting or feeling as if the event were recurring
   4. Psychological distress upon exposure to reminders of event
   5. Physiological reactions upon exposure to reminders of event
C. **Avoidance of stimuli associated with the event and numbing of general response, occurring in at least three of the following ways:**
   1. Efforts to avoid thoughts, feelings, or conversations about the event
   2. Efforts to avoid activities, places, or people that remind person of the event
   3. Inability to remember an important aspect of the event
   4. Significantly diminished interest or participation in activities
   5. Feeling of being detached or estranged from others
   6. Restricted range of affect
   7. Speaks or thinks of not having a future
D. **Increased arousal not present before traumatic event, presenting in at least two of the following ways:**
   1. Trouble falling or staying asleep
   2. Irritability or outbursts of anger
   3. Difficulty concentrating
   4. Hypervigilance
   5. Exaggerated startle response
E. **Symptoms last at least one month**
F. **Symptoms listed above cause significant impairment in daily life**

Source: Reference 2.

Table 2.1 (DSM-IV_TR, 2000, p. 468)

2.3 Research-Based Alternative Symptom Groups

The standard diagnostic approach has received some criticism as newer additions are in the process of DSM_V—May 2013). The DSM-IV_TR version does not sufficiently explain how the neuro-anatomic structures may be applied to the treatment of psychological trauma and PTSD or what the relationship to the experience of the resulting psychological impact is, especially when taking into consideration a full spectrum of human emotions. Further criticism of DSM-IV_TR (see Erikson and Kress, 2005) includes highlighting the lack of diagnostic criteria approach in developmental integration, its inability to understand the dynamic inter-relationships between individuals and its dysfunction when applied to larger social processes and cultural contextualization in consideration with the rest of the person's life experiences. There are different symptom clusters like emotional numbing, hyper-arousal, avoidance and a relatively newer category of dysphonic symptoms. Thus far, excluding the innovations coming from developmental trauma disorder (DTD), which has been endorsed in the new DSM_V (APA, 2013), neither substantial evidence nor

clear explanation for one model over another can adequately explain stress and PTSD existence (van der Kolk and d'Andrea, 2010).[i]

2.4 Assessment

Wilson and Keane (2004) outline the considerable catalogue of psychometric tests to assess psychological trauma and PTSD. The majority of the present day psychometric tools for stress related illness primarily focuses on the clinical diagnosis of PTSD (see Table 2.1). Examples of tests, that are primarily organised in and around the DSM categorization, are the SCID-D (Steinberg, 1994) and CAPS (Blake et al., 1995) (National Academics, 2006), which use the category designation of DSM-IV or ICD-10—categories similar to most of the psychological trauma related tests. Various scales exist to measure the severity and frequency of PTSD symptoms (Blake et al, 1995) (Foa et al., 1995) or somatic complaints, using tests such as the TSC-40 (Briere, 1996) or other screening measures, such as Trauma Screening Questionnaire (Brewin, 2001) and PTSD Symptom Scale (Foa et al., 1995), to detect possible PTSD symptoms. These are helpful as they are systematized and organised (around DSM-TR_IV criterion or earlier). However, there are considerable neuro-biologic (Bremner, 2005b), developmental (De Hann and Gunnar, 2009; Lanius et al., 2010) and social processes (Decety and Ickes, 2011) that have been left out, including the social-emotional attachment processes (Schore, 2012). In light of these shortcomings, this information does seriously challenge the existing psychometric testing in what it is evaluating and valuable material that is overlooked within this assessment process.

The category of symptom-based evaluation of stress related PTSD, described above, is problematic as there is not a workable model to explain the mechanisms of impact for psychological trauma and its relationship to body-based symptoms. It is also unclear, within the symptom-based evaluation, how pre-vulnerabilities actually operate, are triggered, or become operationalised. Understanding is required to determine if these symptom clusters are the result of impacts of distressing experience, rather than how these core elements have a more complicated time course of trauma. These may be psychological re-adaptations of the person's character in the transition from acute reaction to an engrained chronic condition. For example, in the case of child abuse, how much does the trauma change the affected person's personality structure, and in what ways? Furthermore, the psychometric tests previously outlined do not use a diagnostic criterion with an integrated spectrum of illness and health, rather than an implicit concept of a dichotomous relationship of illness or health. In not seeing how this spectrum of illness and health interrelates, the stigma and shame of ill health is compounded (Eriksen and Kress, 2005) and vital preventative strategies, to improve well-being, are undermined by the lack of a clear starting point or goal. The subtle impacts of the compounding nature of psychological distress become clearer as these complex inter-relationships are teased apart.

2.5 Psychotherapeutic Interventions

In addition to assessment tools, psychological interventions need to be examined as many forms of psychotherapy have been advocated for trauma-related problems such as PTSD. Tension continues to exist between much targeted outcome-specific interventions like trauma-focused CBT (Grey, 2009) and more psychotherapeutic approaches which

tend to be richer and more emotionally complex, linking developmental narratives and attachment history with current day symptom-expression (Bromberg, 2006, 2010). Foa et al., (2009) has outlined a very good overview of evidence-based psychological treatments guidelines for PTSD. The majority of research has been largely trauma-focused CBT interventions, but it could be seen as a potential bias as the researchers who have been pioneering this approach have also been evaluating the relevant research. Essential similarities do exist across treatment strategies, including psycho-education about stress responses, provision of safety/support, and help with reduction of symptoms (Friedman et al., 2011). However, understanding the unique quality that each type of therapeutic intervention as well as the similar individual challenges each patient brings to bear on this set of issues is helpful in looking at building up a more coherent picture of improving treatment for stress and trauma related illness.

Trauma focused Cognitive Behavioural Therapy

Trauma focused Cognitive behavioural therapy (TF-CBT) (Follette and Ruzek, 2006) is understood to work by changing the negative thinking and behaviour that is seen to frequently operate on the level of core beliefs, thus distorting more reality-based appraisals. A clinical formulation can address practical and emotional issues, for example how the cycles of distress feeding and maintaining patterns prioritizes goals. A clinical psychologist using a CBT approach might grade fear-inducing stimuli related to the traumatic event and work with the patient to help him or her to recount the traumatic narrative the person may be avoiding, helping them actively behaviourally challenge these fears thereby reconfiguring their cognitive and emotional schemas. CBT interventions for trauma in addition work to cognitively help the person relive and reconstruct traumatizing experiences, reintegrating them so the person can affectively tolerate these upsetting experiences. Specific trauma focused (TF-CBT) interventions have a proven evidence-based research and are the standard of care for PTSD by the NICE Guidelines for PTSD (NICE, 2005). Much of what is understood to be an active component of the CBT psychological treatment is organised in and around stabilization, development of a felt sense of safety, affect regulation, and especially help with de-conditioning the traumatic memories using elements of different kinds of imaginal or in vivo exposure (van der Kolk et al., 1996).

Problems with this Approach

Many patients describe the manualised ingredients as feeling too reductive and overly simplistic, compared to what the person feels the issues actually encompass. Exposure to stressful images, experiences, thoughts, or other critical aspects in maintaining avoidant or dissociative modes of coping is structured to help the person reduce reported symptom severity. There is some question as to how exposure works as an active ingredient in the treatment of PTSD (Joseph and Gray, 2008). Criticism against CBT, and TF-CBT especially, is that the therapeutic demands of what can be re-traumatizing for patients pushes fragile individuals emotionally well beyond their coping capacity. The focus on exposure work either in narrative re-scripting as with Foa et al.'s (2000) CBT exposure for PTSD can feel too overwhelming and there are too high a number of patients dropping out in order to effectively treat them.

Eye Movement Desensitization and Reprocessing

Eye movement desensitization and reprocessing (EMDR) is another recommended treatment for PTSD (Devilly and Spence, 1999) that is increasingly seen as an equally valid treatment option as Trauma focused-CBT, especially when the 8-stage protocol is followed ensuring clear adherence to Shapiro's original method (2001). Shapiro (2001) highlights the adaptive information processing (AIP) aspects of the therapy, utilizing the brain's natural healing process--much like REM and Non-REM brain states—to help adapt emotionally overwhelming information into a more tolerable affective state. Often in life experiences that are emotionally overwhelming or go beyond the capacity of the mind and body to successfully integrate and synthesize them, external experiences are safely within the emotionally contained capacities of the individual (Mollon, 2005). The visual hyper-vigilant scanning and the adaptive learning with the right hemisphere in particular (Schore, 2003b), is more sensitive to negative experiences and learning. It is believed the cognitive focus on both the negative core beliefs about oneself and the disturbing image safely reactivates the intensity of these aspects to help heal. The level of affective distress with more extreme situations is perhaps the most clearly free associative process within any therapeutic process. EMDR has an effect much like a good nights sleep, a healing and restorative function for more ordinary stresses or strains, but works for much more disturbing affective experiences.

Problems with this Approach

Cognitive behavioural (CBT) programmes have the strongest evidence base behind them, however, meta-analytic comparison of EMDR and CBT found both protocols indistinguishable in terms of effectiveness in treating PTSD (Seidler and Wagner, 2006). Methodologically however, "the contribution of the eye movement component in EMDR to treatment outcome" is unclear (ibid). Equally, the method can also have as jarring effect on the patient leading them to abreact in a similar way to exposure-based TF-CBT.

Psychoanalytic Psychotherapy

For psychodynamic treatments for stress related and PTSD symptoms, Horowitz (1976) pointed to psychological aspects of denial, abreaction, and catharsis where the traumatic experience gave rise to an emotionally intense intra-psychic conflict. This conflict could play out in a number of spheres, including physical symptoms in the body, relationships, attachment structures, and acting out. Psychoanalytic approaches use Freud's notions of defensive responses regarding how internal conflict with oneself and others evolves into developmentally pervasive patterns across a life-span. More contemporary psychoanalytic writers such as Bromberg (2006, 2011) highlight the importance of the self-states as it relates to trauma. Mollon (2008), who has melded psychoanalytic therapy with newer energy techniques, highlights the pervasive unconscious psychological impacts that imprint on entire personality characteristics in disorganising and dissociative ways. The goal of psychoanalytic therapy is to facilitate the working through to help much more complex symptoms resolve through the therapeutic supporting framework that in other less intense or shorter therapies could not be matched.

Problems with this Approach

It is clearer when we put CBT therapy with psychoanalytic therapies on a spectrum. Where CBT is very tightly structured and clear about intervention, target, aim, and outcome, psychoanalytic interventions on the other end of the spectrum are comparatively open-ended, about the deeper development of the human psyche, and aiming at changing what can appear to be ephemeral or abstruse outcomes. These outcomes can appear non-measurable or if taken out of context can seem even bizarre. The real difficulty in this potentially limitless focus on human development or change is that it does not sit easily compared with an economically controlled, tightly focused measured outcome for specific symptom-based interventions.

Systemic and Family Therapy

Group-based interventions, especially for a family or cohesive organisational unit, can provide incredibly effective strategies both in outcome and cost effectiveness (Coon et al., 2005) to address multiple role and multiple generation interactions (Bloch and Harari, 2005). Having a better idea of the context in which the person is socially interacting and what relationships may be affecting them cannot be underestimated. One of the most problematic aspects with primarily one-to-one therapeutic interventions is that other perspectives, contextualised information, and better understanding richer narratives of contributing factors significantly widen when key stakeholders in the group process are present and can be positively motivated to help the person seen as "the identified patient" be supported to change. It can be argued that much of the problem of traditional individual therapeutic work is that change or transformation is a multiple tiered process. Social relationships cannot occur in isolation, thus requiring larger social support to truly permit lasting, meaningful therapeutic change to occur.

Problems with this Approach

As with all psychological approaches, group, organisational, or family work functions as a larger entity. If these intense social processes are not carefully managed, they can be quite damaging, especially when working with issues of trauma that can further fragment relational processes within group membership.

To review, the current standard approach for diagnosis, assessment, and treatment is significantly reductionist and frequently takes one or two different key points, but is not sufficiently integrative to holistically take account of critical issues. In mapping out some of the current core approaches, it helps to give greater context to the importance of this project in working to more expertly bring together improved methods for integrated psychological trauma treatments.

Definitions Developed Through the Doctoral Work

In an attempt to begin to reconcile the conceptual discontinuity that is pervasive within clinical psychological approaches to stress and trauma disorders, the author has developed a new integrated approach to improve assessment and treatment. A central concept the author developed independently directly out of this doctoral project is *Integrated Systems Healing* (Copyrighted © Richard Sherry 2011). It should be noted after checking previous literature references that a similar concept was used by Goetz and Caron (2005) who described "Systemic Healing" as an "Ecosystemic Biopsychosocial integration" of clinical practice that effects interventions in how we work with the mind-body. In their case, Goetz and Caron's (2005) research was focused on how to increase the effectiveness of systemic interventions for sick children. The author in this project (Sherry) had independently evolved this concept as a term addressing the inter-dependent social-emotional relationships that exist between individuals and their environment, and how to innovate healthier and sustainable change within these social and emotional spaces. The same could be said about health or dysfunctionality, that they are equally inter-dependent regarding the balance of functioning, and that changes in one aspect can multiply impact the outcome of vulnerability or resiliency.

Through this project the linked concepts of *Integrative Developmental Compassionate Sustainability* (ICDS) method (Copyrighted © Richard Sherry 2011) of assessment and follow up has evolved. To clarify what this means: It requires health to encompass an integration of all of the necessary systems for well-being, that must be to some degree learned and developmentally linked so as to not sustainably outstrip what the external system is capable of supporting for long-term growth. Equally, the components of all of these aspects must be anchored within a compassionate basis to ensure the direction of change maintains a healthy framework and trajectory and not be fear-based responses. This model describes trends towards resiliency and health that could increase as well as emotionally deepen the quality of life by utilizing these tools for development if due care is socially undertaken. It is valuable to understand that both extreme adversity as well as positive elements such as support need to be contextualised. Thus a negative cycle of change needs to be understood as undermining the likelihood of achievement. Specifically, these higher developmental capacities could be considered as also context dependent, i.e. on the employment role/relationship. Due to the difficulty of the environment not everyone is open to what Maslow (1999) describes as 'self-actualization' and is able to be in 'peak experiences.' Equally, helping redefine part of the purpose of psychological work ideally is not only to relieve symptoms, but to assist in the emotional wellbeing and development for those directly within the control of the person themselves. As *Integrative Systems Healing* (Copyrighted © Richard Sherry 2011) addresses the spectrum of problematic functioning as well as the positive end of resaliant high performance, this approach is involved within the transformational sphere, including leadership and how leaders can responsibly be working towards facilitating sustainable change.

Project Aims and Objectives

Integrating and summarizing the key thinking from the assessment and treatment strategies for PTSD has lead to the development of new integrative approaches captured within the idea of *Integrative Systems Healing* and the ICDS approach (Copyrighted © Richard Sherry 2011), a key new outcome of the work developed out of this doctoral project. The main aims and objectives are to produce to date the best integrated account of these updated areas of clinical research assessment and treatment for the condition of psychological trauma.

Part of <u>the aims of this project included</u> having data and a clearly developed strategy to account for differences in clinical and non-clinical samples. Additionally, the project tackles the significant task of innovating the clinical assessment tools to be able to use integrated processes to reliably look at how to accurately pick apart essential assessment factors to be used for more standardized benchmarking for psychological assessment. The other goal was to develop a process, method, and strategy to link up a systemic approach (including developing a method where feedback helps with telemedicine approaches and e-learning) to link up the information from individual tests and distil essential group processes to look at the feasibility for both to assess and to treat mental health.

Findings from Literature Review and Emergent Core Themes

The literature review and later chapters outline the research methodology, which took a two-step approach. First, a high proportion of areas examined were in large part guided by notable problems experienced within clinical practice. Second, these gaps in theory and application, followed through in a systematic research literature, examined the relevant areas and reflected on possible models to clearly examine the pattern of fragmentation within these important areas. The strategy for the overview of the literature search included a review of a survey of 25,000 papers on the PILOTS Database. The papers examined were related and focused on the subject of Post Traumatic Stress Disorder (PTSD). A Pub Med search was carried out on 1045 references. Five central themes central to the subject were derived from this information (listed below, p. 29-31). Much of the research focused on co-morbid aspects of PTSD, early life events, and effects of trauma.

The literature review covered October 2008 to June 2010, to ensure sufficient time to address significant areas of multiple specialist research carried out the literature review. This work includes an updated recent literature check, including articles up to the time before thesis submission, to ensure no essential information was missed in updating the original research. A review and integration of the following sources consisted of 15 years of the *PTSD Research Quarterly*, A review of the Past 9 years of all of the *BPS Clinical Psychology, Psychology and Psychotherapy Journal*, *Psychology Journal*, *Clinical Psychology Forum*, *Journal of Counseling Psychology*, *Applied Psychology*, and three years of *Applied Positive Psychology*, and *APA Counseling Psychology Review*. In addition, a survey of several Clinical Psychology, Counseling psychology, Positive Psychology, and Post-Traumatic Growth core textbooks were reviewed to allow for a significant survey of the field. Please refer to the reference list for further details of books and journals listed, but not cited within the text.

The following four points were the fundamental problematic areas where the gap in integration was sufficient enough to be considered to be worthy of further follow up investigation:

1) <u>Problems with an Integrated Spectrum of Illness and Health</u>: Issues of vulnerability and resiliency. The intensive literature review that occupied the author's earlier manuscript, Clinical Psychology MSc (Sherry, 2008), has demonstrated a considerable split within clinical psychology writing examining illness and positive psychology focused on issues of health and well-being. Therefore, there is a lack of integration between areas of vulnerability, psychopathology, resiliency and psychological well-being. Before this project, no clear model of integration has been found that reliably and meaningfully connects illness and health for psychological trauma. This gap has highlighted a significant oversight within a working model for the field because it polarizes these states rather than integrating these together as incremental points of development especially in describing how higher levels of compassion or empathy might contribute to well-being and a meaningful life.

2) <u>Problems with an Integrated Clinical Neuropsychological Framework</u>: One problem in integrating any standardised approach within different areas clinical trauma psychology, psychiatry, or neuroscience, is having an agreed upon standard model that more accurately describes the extraordinarily subtle dynamic processes that occur with clear ecological validity and accepted normative data. This is especially true of regarding linking clear assessment with suitable and effective treatment. Developing a more coherent model of human neuro-psychological functioning and explaining the applications of this model can provide a substantially accurate account and record of activity in traumatic processes.

3) <u>Problems with an Integrated (Developmental) History</u>: There is little integration as to understanding development, developmental history and its role in psychological trauma and its treatment. For example, critical questions, such as how do earlier life events affect later traumatization still remains largely unanswered. Also, what are the differences between clinical and non-clinical samples? Essential treatment questions remain as to how we define these, and what factors may be the most relevant in determining clinical from non-clinical categories. From the literature review, there is a lack of synthesis as to integrating a reliable perspective of human development to understand more globally how history and experience fit into clinical models and interventions in a way that makes sense to both patients and their clinicians.

4) <u>Integration of Individual and Organisational Processes: Clinical Trauma Psychology—Stress Research</u>: Distinct blind-spots are apparent in understanding the relationship between individual and systemic groups or organisational thinking and functioning (Pearn, 2002)—especially how trauma may dynamically interact with these issues (Levine, 1997). This gap in integration of dynamic social structures has larger implications including the creation and maintenance of larger structures of vulnerability or resiliency for individual/group structures. A key question for this area includes how understanding the systemic context change including changes in neuro-chemistry with oxytocin and

stress hormones can result in a clearer psychometric assessment that can take these wider subtle and dynamic complexities accurately into account. A review of the assessment and treatment strategies has highlighted the need for a greater synthetic integration of these issues.

5) <u>Integration of Concepts into a Coherent Theoretical Model</u>: Development of *Integrated Systems Healing*— Integrative Compassionate Developmental Sustainability (ICDS), and the Sherry Trauma Assessment Test (STAT test) and Positive Feedback Learning (all Copyrighted © Richard Sherry 2011).

There is a lack of integration in different levels of functions (micro to macro) and how the self integrates with the other in order to understand how different clinical concepts may relate to each other. For example, how do attachments (Goldberg et al., 1995), mentalization (Busch, 2009), Theory of Mind (ToM) (Frith and Wolpert, 2003), emotional intelligence (Goldman, 1998), compassion (Gilbert, 2005b), and other mediating aspects affect vulnerability to trauma or resiliency (Carter and Porges, 2011)? How do these concepts work together and could there be any clearer model to effectively link these concepts?

Examining Central Questions Relevant to the Doctoral Project

The literature search was used to look at identifying the problems listed above (see:1-5). Gaps identified within the literature were used to help in integrating competing models and theories to help critically evaluate optimal frameworks to further test the specific psychometrics and to cross validate them to quantitatively examine these problems.

1) <u>Integrated Spectrum of Illness and Health</u>

Review of relevant literature: *A*fter an extensive review of a broad base of integrating attachment, life events, and indicators of psychopathology and positive psychology, this study has concluded there is a lack of an integrated clinical model. Importantly, because an insufficient amount of data exists in building an integrated trans-theoretical approach, this could be understood to be initial evidence to begin to account for these serious gaps between knowledge and praxis. To begin with, the literature relating, never-mind linking, clinical psychology and positive psychology thinking did not seem to be present. This was accompanied by an equally puzzling problem that there did not seem to be clear evidence-based data about what differences separated clinical and non-clinical samples. These types of information could be considered basic requirements to ensure adequate research could be carried out, but upon review was noticeably missing.

More specifically, after an initial summary, Maddux (2008) highlights and seconds this review, finding that there is a clear split between the negative end (of illness) and the positive end (health) where there is currently an absence of clear evidence-based research linking the relationship together in a wider spectrum of health. The research question about examining gaps within the field of clinical and positive psychology originated from practical problems in many

areas of psychological practice. These problems include the need to help patients move from being asymptomatic in order to help them achieve developmental fulfillment and meaning in their lives.

With the advent of positive psychology (Snyder and Lopez, 2007), most of the thinking has been focused on concepts like happiness, fulfillment, self-actualization (Maslow, 1999), or positive states/processes/experiences, which are at the extreme ends of human functioning. In examining this aspect of the literature review, there was clear evidence as to how completely separated these areas are from one another—to the degree that they can be viewed as different fields with extremely few links.[2] More specifically, there is a noticeable dearth of evidence-based findings examining the integration of work for illness and positive processes (Maddux, 2008). Snyder, Shane, and Lopez (2007) highlight the absence of any real analysis of understanding relationships between clinical and non-clinical samples to discern possible crucial differences within these groups that might improve treatment and promote preventative work.[3] One implication is that this separation artificially disavows a normative spectrum of functioning, thus possibly compounding feelings of shame in being identified within a patient (clinical) sample. This aspect is problematic because this dichotomous perspective of ill versus healthy prevents the needs of the entire person from being addressed (both improving strengths and addressing areas of weakness) reinforces vulnerability. Not having a spectrum of well being, especially if there are mental health problems, requires even more work to be done in order to ameliorate these difficulties.

Some rare nodal points measuring both psychological strengths and weaknesses include Houdmont and Leka's (2010) occupational health psychology to evaluate the possible contributions to emotional vulnerability, resiliency, or clinical psychology approaches similar to Maddux's (2008) approaches or Chertoff (1998), and Cheshire and Pilgrim

---

Bremner2 [2] A clear illustrative case example looking at major blind-spots within the field of clinical psychology itself includes one of the best selling authors in clinical psychology and positive psychology in the U.K. (For Clinical Psychology: Carr's writings on Adult Clinical Psychology (Carr and McNulty, 2006) or Child and Adolescent Clinical Psychology (Carr, 2006) [both volumes are an exemplar of a standard approach of assessment, classification and focus on illness and pathology]. From the Clinical Psychology tests no mention is made of positive psychology, or strengths within the table of contents or index. Likewise, Carr's (2004) seminal text on Positive Psychology, with one minor exception [Carr outlined the Circomplex model of emotions (p. 4) and the Positive Affectivity and Negative Affectivity Scale (PANAS) (p. 5) where a fuller list of positive and negative emotions is outlined] otherwise no clear links are made to any clinical psychological models or integrating any approaches. Carr's (2004) book on positive psychology appears as the flipside of Carr's other clinical psychology writing because it is exclusively focused on the other end of the human spectrum of flow, happiness, giftedness, wisdom, and positive processes. Similarly to the problem of a lack of integration within the ethical models, these areas have no clear synthesis between them. From examining the content a clear schism and lack of crossover can be seen within the different areas. This is important because it provides a clear illustration of evidence of the split between these key fields of psychology where there is minimum integration, further supporting the possibility of a fragmented model possibly revealing some effects of the systemic impact of trauma on the field.

[3] Some notable, but rare exceptions, to this split conceptualization between illness and positivity include Snyder, Shane, and Lopez's (2007) "balanced conceptualizations of Mental Health and Behaviour (pp 325-346). Wright (1991) (in Snyder et al., (2007), four-front approach looks at behaviour from 1) Deficiencies and undermining characteristics of the person; 2) Strengths and assets of the person; 3) Lacks and destructive factors in the environment; and 4) Resources and opportunities in the environment (in Snyder et al., 2007, p. 330). This model provides a basis to understand behaviour and functioning as an interactive processes in relationship to an environment. However, Palmer (2009) points out that resilience includes not only a hardiness—an ability to survive in adverse conditions, but a sense of meaningful coherence, that one is able to make sense out of challenge or adversity—where the core sense of self is not undermined.

(2004a&c). These newer positive psychological frameworks for practice (Seligman et al., 2005; Carr, 2004) have begun to challenge the preponderance of work focusing on illness and psychopathology rather than well being (Huppert et al., 2005), but this thinking is clearly in the minority and does not link these ends of human functioning.

However, this integration needs to be contextualised to help the patient move towards a healthier life—arguably best described within the field of positive psychology (Linley and Joseph, 2004; Snyder and Lopez, 2007). There has been little cross-disciplinary research to understand the relation, if any, between these areas of the spectrum of illness and health. We need to take a closer look at the critical underpinning that actually modify these structures within the individual, as well as factors which might be equally at work within their external environment.

Vulnerability and Resiliency in Risk and Protective Factors

Developing the attachment (Jurist et al, 2008) and life events literature (Clarke and Clarke, 2000) requires pinning down essential factors for psychological illness and health processes—especially in their relation to risk or resiliency factors. The relationship of attachment to trauma is clearly illustrated through the example of primary attachment (to the parent or caregiver), which is likely to be reproduced within a maturational interplay of the interpersonal and larger social dynamics. These cycles are in direct relationship with each other, functioning to mutually reinforce each other in opponent process ways in one direction or another towards increasing vulnerability or resiliency (Levine, 1997).

Some conceptual problems that repeatedly have not seemed to be adequately resolved include what factors within the exposure to distressing experiences significantly contribute to making someone psychologically unwell. For examples, with fire service or paramedic crews, who repeatedly attend to similarly potentially distressing experiences, repeated exposure becomes a factor that increases the probability of secondary traumatization (Alexander and Klein, 2001). The combination of the individuality of potential triggers, the meaning of these experiences, and the complex role of the emotional capacity of empathy (e.g. where too much emotional connection or caring) opens the person up to being more vulnerable to traumatizing reactions, or too little (e.g. where the person is more likely to damage social relationships through callousness if not cruelty). This balance of the golden-mean of neither extreme in emotional reactivity provides a more secure-base to manage difficult emotions within challenging experiences.

Vulnerability

Two of the best studies of risk factors for the development of PTSD and contributing vulnerabilities include the meta-analyses by Brewin et al. (2000) and Ozer et al. (2003). Findings point to the most central factors including lack of social support; trauma severity; other adverse childhood experiences; and low intelligence as being critical. Other important but not as significant factors include female gender, the earlier the age of incident potentially the more of an effect it can have on the person, low socio-economic scale; psychiatric history, family psychiatric history, and life stress (Brewin et al. 2000) Brewin, et al. also noted that "Individually, the effect size was modest, but factors

operating during or after the trauma, such as trauma severity, lack of social support, and additional life stress, had somewhat stronger effects than pre-trauma factors" (P. 728). The Ozer et al. (2003) study is a follow up from Brewin et al.'s. (2000) study and in large part tries to respond to possible points of learning that could be addressed from this earlier work.

Ozer et al.'s (2003) reviewed 2,647 studies of PTSD, this was narrowed down to 68 studied that met the inclusion criteria, in a meta-analysis of 7 predictors of a) prior trauma; b) prior psychological adjustment; c) family history of psychopathology; perceived threat during the trauma; e) post-trauma social support; f) peri-traumatic emotional response; and g) peri-traumatic dissociation. All of these resulted in significant effect sizes, but peri-traumatic dissociation was the strongest predictor of PTSD. These authors highlight further research needs to be made examining "good operationalisation of critical variables," these include, " . . . with respect to peri-traumatic dissociation, emotional and psycho-physiological arousal, and the underlying brain activities in the HPA axis and the limbic system." "The mechanism that peri-traumatic dissociation occurs may be influenced not only by arousal, but also be temperament, prior experience, and other genetic or environmental factors, including factors at the level of plasticity and learning in individual neurons" (p. 70).

To help clarify measurement purposes for the STAT test, vulnerability can be defined as a collective measure of human welfare that integrates environmental, social, economic, health, and political exposure to a potential range of harmful aspects (Petersen and Wilkinson, 2008). It describes circumstances that place people at risk while reducing their means of helpful response or denying them protection. Therefore, it is a multi-layered and multi-dimensional space defined by the determinate capabilities of specific groups of people in specific kinds of experiences. Vulnerable groups or individuals include: children, disabled people, people who have experienced loss (for example, lost their home as in a disaster), or people who have been involved with previous disasters (Wisner et al., 2003). Groups with dependents such as families, older people and women are also at greater risk (Sphere, 2011).

A history of prior psychological trauma is a factor for later stress responses (Bremner, et al, 2000), female gender is a risk factor (Breselau et al., 1991), and environmental and demographic factors—like family history, constitute a significant risk factor (Yehuda, 1999). Macklin et al.'s (1998) research helps to show low pre-trauma intelligence is an important risk for increasing the probability for a traumatic stress response similar to personality influences, like negative subjective perception (Klein et al., 2003) and pre-trauma personality (Miller, 2008). Coping responses (Semmer and Meier, 2009 in Cooper et al 2009), biological, and genetics (Caspi et al, 2003, p 111) are also understood to be important contributing factors of vulnerability.

One key research insight (Briere et al., 2008) includes understanding the complex and entrenched nature of traumatic stress symptoms. These symptoms might effect a relatively small percentage of the population (Resick, 2001), however the impact is often debilitating. Intrusion, arousal, and avoidance are central traumatic indicators (Resick and

Miller, 2009).   Decreased social support has been found to increase stress responses and depression (Brown and Harris, 1978).   These factors are helpful in addressing correctable aspects using specific assessments and interventions. Posttraumatic adaptation (Calhoun and Tedeschi, 2006) includes interplays of all of these risk factors in a dynamic with protective factors. The constituent ingredients to move to a more accurate understanding of who is vulnerable and why a person or group may develop a psychological stress disorder (e.g. why are they vulnerable?) requires the precision of not looking simply at what has been outlined within this section on vulnerability as a separate list of factors. Instead, examining these causative elements need to be understood as linked in with more precise mechanisms and underlying processes that could potentially redefine both understanding the issues of the vulnerability as well as what could be done to address these issues to better clarify the present theory of stress related disorders. From this clearer perspective psychological interventions could now be employed and better understood as preventative assessment processes and more definitive intervention for care.

Resiliency

An important literature review on resiliency includes the 2011 Rand Paper (Meridith et al., 2011), which summarised the complex interactions of social and individual factors for greater psychological robustness. Definition of resilience includes an individual's ability to generate biological, psychological and social factors to resist, adapt and strengthen when faced with an negative environment of risk, generating individual and social positive coping as well as adaptive coping strategies.

As a concept, resilience fits within a process that includes several aspects of response to psychological trauma including: resistance, resilience, and recovery. Resistance is a concept that describes the persons stress response with minor or relatively no change within their disposition or psychological perspective of themselves or others. The NATO (2008) document on psychosocial care for people affected by disasters and a major incident conceptually separates resistance and resilience as separate processes. Resilience can be applied two ways, first is how people respond to the challenges, and e.g. "is dependent on their personal characteristics, repertoire of knowledge, skills and capabilities (inherent and acquired), the qualities of their relationships, and their life experiences and circumstances (NATO, 2008) p. 1-39). Second, is the capacity to adapt to adversity or challenge. This is defined as, "the person's capacity for adapting psychologically, emotionally and physically reasonably well, and without lasting detriment to self, relationships, or personal development in the face of adversity, threat or challenge" (NATO, 2008, p. 1-39). This maps onto the concept of hardiness, which includes three main components: commitment, control, and challenge. The NATO document defines, "Commitment implies that hardy people view potentially stressful events as meaningful and interesting. Control means that people see themselves as being able to change events, Challenge means seeing change as normal and as providing opportunities. Hardiness, therefore describes some of the features of personal resilience" (NATO, 2008, p. 1-40). A critical aspect of hardiness is sense of coherence (SoC), which describes events as, "comprehensible, manageable, and meaningful," "there is support for the SoC having a role in both mediating and buffering the impact of adverse experiences on psychological well-being in adulthood" (NATO, 2008, p. 1-40).

Recovery is the final aspect to the psychological and emotional response to adverse events. Recovery as defined by NATO (2008) is a "dynamic and continuing interactional process that involve each person's strengths and vulnerabilities, the resources that are available to them and the positive aspects and constraints of the environment around them" (p. 1-40).

In critically examining these concepts together these need to be taken as an inter-relating set of processes that have the potential to reframe a person's or larger social group's coping response to adversity where the external situation can be identical but the personal or shared perspective and resultant response can vary dramatically. Together better understanding these collective psychosocial responses open up opportunities for improving these coping capacities, which forms an important constituent aspect of psychological interventions. For example, within disasters or personal trauma perceived experiences of support have been known to mediate stress responses (Ozer et al., 2003), however, what kind of support, for instance, critical incident stress debriefing (CISD) (Mitchell and Everly, 1995) may strongly be contraindicated (Bisson et al, 2009). Support could work to reduce the distress or physiological stress response. These definitions highlight how stress works by breaking down factors like hardiness into more specific and testable concepts that can be examined as well as coming together to build a coherent theoretical model of physiological response that in the end can aid in prevention and treatment of psychological disorders.

To summarize, some of the factors that can comprise resilience for the individual-level factors include: positive coping, positive affect, positive thinking, realism, and behavioural control. Family-level factors were also considered including the importance of emotional ties, communication, support, closeness, nurturing, and adaptability. Military environments were also studied looking at unit-level factors, these modifying factors including a positive command climate, utilizing a teamwork approach, and cohesion. Community-level factors affecting resiliency included a sense of belongingness, cohesion, connectedness, and collective efficacy (Meridith et al., 2011). Over all, factors that promote resilience included: the ability to cope with stress effectively and in a healthy manner; having good problem-solving skills; seeking help; holding the belief that there is something one can do to manage your feelings and cope; having social support; being connected with others, such as family or friends; self-disclosure of the trauma to loved ones; spirituality; having an identity as a survivor as opposed to a victim; helping others; and finding positive meaning in the trauma (Williams and Alexander, 2009; Tull, 2007).

What is understood to be one of the central most important aspects of resiliency is social support, which can both decrease a stress response and increase positive coping behaviour (Solomon et al., (2008). Social support remains one of the most robust findings over all other resiliency factors. Similarly, Yehuda (1999) found that other environmental and demographic factors are influential—particularly in a supportive family situation this positive social relationship decreases distress and provides a protective component that in turn can prevent depression and other psychopathology (Haslam and Mallon, 2003). Like empathy, the central idea of the attenuating factor of positive social-neuropsychology forms the basis for healthy group processes as a protective factor (Decety and Ickes, 2009). For

example, emergency workers with their prior training, preparation, previous experience, and perhaps most importantly, a positive group support (or esprit d' corps) contributes to the health of the group (Alverez and Hunt, 2005).

Determining Factors

Even with evidence to support the value of these factors, there are problems in seeing how these factors relate in a much more applied real-world dynamic and meaningful way. More specifically, how can these protective qualities be identified and accurately measured. It is valuable to look at what kind of dynamic model of risk factors is at work in vulnerability and resiliency, If all of these layers of integration are not properly connected much of the power of these models will be lost. Miller et al., (2008) reviewed some central trends in traumatic stress research as well as personality research and established Positive Emotionality (PEM) as a protective factor and Negative Emotionality (NEM) as a vulnerability risk and impulsivity/sensation seeking as a constant along with social seeking or avoidance, which modify the outcomes of these dynamic factors. Wichers et al's (2012) recent findings of the dynamic shifts between subtle daily life patterns between negative and positive emotions are powerfully predictive more than just more gross positive or negative responses. However, both are significant factors in fundamental emotional psychological processing and subjectively framing how events may be experienced.

Risk factors, which have been psychometrically established include Foy et al's (1984) findings that a dose dependent relationship between trauma and the characteristics of the reported nature of the trauma exposure. However, Goenjian et al's, (2001) study found that no significant difference could be seen when comparing natural disaster and victims of violence. This is important as it measurably demonstrates no real difference between the mechanisms for developing PTSD, severity, course of illness, or symptom profile between different types of traumatic exposure (ibid, 2000).

A significant psychological refinement to the concept of negative or positive emotions was helped by Baron-Cohen's (2011) model examining human cruelty where a notable absence of empathy has been connected with a reduced emotional intelligence and an increased likelihood for creating stress for others. Three aspects of different dimensions of cruel personality presentations include: Type N—narcissism (empathetically self absorbed); Type B—borderline (impulsive to the degree one is not capable of empathetically mediating one's actions); and Type P—psychopathic (where one is not capable of empathetic response because one fulfills one's desires—usually to the detriment of other people) (Baron-Cohen, 2011). Each of these types uniquely changes the personality dimensions of care or empathy and can, in certain people or group-behaviour, progressively layer to form greater gaps in empathetic relating. These "types" or deficits in different aspects of empathetic capacities focus on cruelty because this is an emotional behaviour negatively impacted from the neuro-chemical level to the social/societal level, and can be understood as causing high levels of distress as well as lack of regard for others well-being.

The implications and applications of this research include the identification of significant levels of leadership including pathological characteristics that have been found within the heads of many companies (Hogan and Hogan, 2001). These findings are significant as they point to the importance of understanding the creation of increasingly problematic and vulnerable environments leading to greater layers of systematic vulnerability within this fearful and attacking leadership style, where others are seen as 'foe' or 'food' rather than a potential collaborator. Levine (1997) describes these reactive animal responses as types of traumatic environments or 'vortices of trauma.' Cruel behaviour can be seen as both a marker (or indicator) and also as a mechanism of trauma. Therefore, cruelty reinforces and negatively organizes much of these pathological processes thus creating increasing cycles of resource inequalities, which can increasingly lead to further vulnerability. This negative cycle results in further compounding emotional fragmentation and opportunities for stress reactions to occur. In this way the repeated structures of problematic functioning frequently repeat and vulnerabilities can become exacerbated.

These destructive processes have macro as well as micro levels of connected processes that ultimately disturb the balance of the deeper healthier ecology of systems (Capra, 1996). Part of the complexity of these pathological processes is that they occur in many subtle ways and the impacts are cumulative and can become severe. Ogden et al., (2006) have all pointed to trauma being a major contributing factor for disturbing every level of operating system within an individual as well as the larger social system Levine (1997). Critically, this is an important reason to study the wider perspective on the impact of psychopathology and its affects it might have on positive psychology or well-being (Levine et al. 2009). Further exploration of this will help with the understanding of critical differences between clinical and non-clinical samples and provide clarity on the issues of possibly vulnerable or resilient samples. The finer-grain detail of the neuro-architecture, will be outlined (in Appendix III), the biological processes of earlier layers of the more primitive part of the brain (Panksepp, 2004) have a significant effect on how stress and vulnerability are emotionally organised. Because of the level of integration, non-clinical samples think, regulate, and behave in significantly more integrated and positively regulated ways compared to clinical samples, which are comparatively more deregulated (Schore, 2012, 2003b) these effects have a multiplier effect influencing and positively or negatively impacting the person's social environments.

Complicating factors for positive and negative emotional behaviour include: Shalev et al., (1996) found that peril-traumatic dissociation accounted for 30% of the variance in psychological symptoms and can mask accurately measuring symptom severity of distress. This could also be a marker of brain and body disconnection. Linking some of the repeated themes of dissociation to memory and abuse could prove helpful (see Appendix III for comparative brain imaging for frequency of papers for neuro-anatomic areas of activation) as Gilbertson et al, (2002) has proposed. What is apparent is that there are neuro-toxic effects noted (in Appendix III) with cortisol, these can be mitigated with social support (in Appendix III).

Vulnerability markers of chronic symptoms and depression both appear to be important indicators of recognizing risk factors for stress disorders. They may be also helpful in clarifying the frequent entrenched nature of the progression of the illness and to predict future stress responses if not of de-facto PTSD (Friedman et al., 2001). Pre-morbid personality factors appear to be a significant contributing factor for traumatic responses and anxiety, depression, and substance abuse. These are often co-occurring and known indicators for personality and traumatic risk factors (Klein et al., 2003). Longitudinally evaluating key psychometric properties of the patient's subjective perception of experience was found to account for 70% of psychological dysfunction and played perhaps the most significant modifying effect compared with other factors (Gilbertson et al, 2002). This is important, as events do not seem to be completely static neutral experiences, but appear to be significantly subjectively modified. This self-monitoring process includes both positive and negative emotions and can adjust the individual's subjective perspective to modify these belief systems.

In connecting the findings from the neurobiology research, a relationship between stress and pathological behaviour appears. While under duress the individual neurobiology distorts sufficiently the organisational processes, reacting against the individual and further reinforcing the ways that facilitate this subjective distortion. These transformations of perception can powerfully alter self-experiences and therefore impact behaviour in a reinforcing and interacting process. What becomes clear after looking at the considerable literature on stress (Bremner, 2005b; Lanius et al., 2010) is that reoccurring patterns of pervasive effects of cortisol have a detrimental effect, breaking down resilient supportive social systems, one's capacity to trust, and the confidence to undertake important developmental transitions. These dysfunctional interactive issues combine to devolve into unhealthy attacking systems both internally biological, as well as external social problems.

In not only summarising, but critiquing this section, several questions emerge as to if any relationship could be understood between vulnerability and resiliency. There conceptually appears to be an inverse relationship between these processes. Therefore, are there any clear differences between clinical and non-clinical samples—and what might account for these differences? The answer following from the literature findings suggests that these differences appear to have a neuropsychological explanation and models to help account for these aspects.

Integrated Neuropsychological Framework: Three Central Concepts of Relational Clinical Neuro-Psychology
There are certain similarities to how the human body experiences pain or distress and how trauma is emotionally and physically stored within the body (Rothschild, 2011; Scaer, 2005). Part of the importance of carefully outlining the neuro-anatomy, neuro-circuitry, and functionality of key areas of the brain is to clarify the relationship and the terms to eliminate unneeded confusion. Equally, the issues of vulnerability and resiliency, especially as it relates to the neural-hormonal tendencies and their corresponding trends in behaviour are essential to understand how humans appear to be neuro-psychologically built.

From reviewing the clinical psychology, clinical neuropsychology, neuro-psychoanalytic, and neuroscience data three key areas emerge as relevant. These include three aspects that appear to significantly impact negative and positive emotional processing.

Organising Conceptual Categories

(The following A-C include the key topic questions examined within developing an integrated neuropsychological framework.):

First (A), is there a likelihood that the neuro-anatomy and functionality are organised around negative and positive responses?

Second (B), can the complexity of neural processing be understood from the core brain levels interacting with higher brain cortical structures—for example, linked by poly-vagal gating (Porges, 2011)?

Third (C), does the neural wiring appear to change with environmental and social experience?

Why this is important within the paper's context:

These questions are important to the paper's line of argument as these three aspects contain clear essential points that can helpfully and accurately organize ways to characterize how neuropsychological systems work, especially as part of a critical process within PTSD (Vasterling and Brewin, 2005) and how these can help build a more accurate and truer psychometric model of human individual and social functioning.

A) Negative and Positive Perspectives on Emotion

Why might it be important the brain is wired for negative (aversive) and positive (affiliative) conditions? The short answer is that survival has been evolutionarily laid down so the organism's learning to avoid difficult and risky situations is paramount (Baron-Cohen, 2011). With this in mind, one of the more complicated aspects is that it appears that the impact of difficult or traumatic experience does have multiple effects both on the individual as well as social processes (Siegel, 2010a). Furthermore, these fearful experiences may be learned (Monfils et al., 2009) and even evolutionarily or at least inter-generationally passed down (LeDoux, 1997). The neuronal processes are constantly reevaluated with the variances of negativity or positivity (ibid). For example, the right hemisphere tends to have a greater role in non-conscious and negative emotion (Schore, 2003a&b). Competing brain states and modes for protection and survival are weighed up against the need to be socially affiliated, protected, and supported (Behrendt, 2011).

The brain's sensitivity for negative experiences and responses occurs all of the way to the core of the neural wiring. For Panksepp (1998), his conceptualization of these processes focuses on the Pariaquaductal Gray (PAG) which was essential in how we can understand the emergence of emotional affects from core sub-cortical neuro-circuits and the organisation of fear performed by the Panic System and the Seeking System (Busch et al., 2010). The most important neuroanatomy to survival of the organism were highly correlated in Panksepp's research in organising fear and

sadness. This earlier stage of how negative and positive processes organize experience is summarised in another model by Craig (2010) who highlights that in rats and humans the left and right insula are involved with positive and negative feelings respectfully as well as organised in an opponent process where the left insula produces a pressor response and the right a depressor response (Oppenheimer et al, 1992). Damage to the right insula can undermine one's capacity to have an awareness of one's own bodily experience. Damage to the same area can undermine the capacity to understand other person's emotional states (Heart, 2005). It is possible to see how these earlier elements not only undermine one's functioning as they also dramatically impact one's sense of identity and coherence in an interactive process down to the cellular level (LeDoux, 2002).

Northoff et al., (2000) describes another model based on his lab's research. They found a complex and important set of relationally linked processes: Specifically, the mediodorsal thalamic nucleus and the anterior cingulate cortex (ACC) appear to be functionally involved in both negative emotional processing and affective reaction to alien stimuli (Moorcroft et al, 1992). This pathway is early to develop and according to Northoff et al., (2007) it assumes distinct neural pathways in prefrontal cortex for negative and positive emotions where negative emotions are centered in the medial orbit frontal cortex and marked negatively correlated activity in the lateral prefrontal cortex focusing. The positive emotional stimulation showed an inverse pattern. Patients with dissociative functioning had an increased connectivity between the anterior cingulate and the ventrolateral prefrontal cortex, giving greater evidence to the function of these areas in conflict, defensive functions, and how processed or blocked negative emotions affected the surrounding neural modules and systems. Northoff et al., (2007) further emphasized "Consequently, negative emotional stimulation may be processed in medial prefrontal cortical areas, whereas positive emotional stimulation uses lateral prefrontal cortical structures" (p. 104). Damasio (2000) articulates that somatic events link with cognitive ones, and negative or positive emotions are saturated with further salience and therefore prior emotions (and experiential learning) are then transformed into actions. These examples provide evidence of the opponent process lateralization and contrasting inter-connectivity as critical to building the understructure to more recognisable higher order aspects of human functioning like shaping how self-concepts (or subjective experience) come into being. Even more challenging leaps exist such as holding in mind relational understanding of other's minds (Siegel, 2010a).

In critically examining models based mostly on animal research and human fMRI findings, taking these preeminent researchers in their fields, sub-cortical activation appears fundamental to the dynamic development of higher states of consciousness (Koziol and Budding, 2009). This then regulates perception and experiences. One's relationship with these interactions also appear to be concentrated on emotions and is relatively neuro-anatomically specific. These findings have implications for learning, especially the sensitivity to negative events or fearful stimuli (Monfils et al. 2009) which could form the cornerstone of human development as the cascading pathways of negative emotions, stress immunology, and inflamation (Gouin et al, 2011) can be understood to profoundly shape human phsyiological processes. This author sees this as potentially linked to learning under adverse or stressful circumstances. The key

point includes the likelihood that intellectual maturation by these menchanims can be potentially blocked, especially if a number of repeated stressful or frightening experiences is matched with neural hormones and lack of social support.

B) The Layered Brain: Integration or Non-integration for Emotional and Social Intelligence (facial, body, and social cues):

Damasio (2010; 2000) has further elaborated a layered model of neural functioning looking at a three layers to these proto-stages. The first is the proto-self, the second is core self—which is the relation between the organism and the object in much the same way that images might be sequenced with some feelings— and the third is the autobiographical self. This third stage occurs when the core self is subjectively linked in a large scale coherent and meaningful neural pattern. These systems need to be reconciled with Panksepp's affective system or the emotional action system (Panksepp and Biven, 2012). This includes negative emotions such as fear, sadness, and anger, as well as positive emotions such as playfulness, caring, and seeking. There is an interactive core emotional spectrum of feeling states. Panksepp's affective neuroscience personality scale (Panksepp and Biven, 2012) uses a conceptual model where experience plays an important part in wiring reward and punishment in the external environment. Additionally, a connection with internal neural circuitry plays an essential part in the process of behaviour. This system does look at self and the other, thus profoundly negotiating how these internal and external relationships shape (if not directly sculpt) neuronal structures where each layer occupies very different levels of emotional intensity.

Siegel (2010a&b) emphasizes the importance of integration of emotion for human health and well-being (he describes this as "mindsight") by understanding emotional and social intelligence. A question emerges, what may influence this integration? It is very possible that as Northoff et al., (2000) describes, a model focusing on medial and lateral parts of the brain process act as positive and negative emotions and form a gating system or a polarizing system, much like the poles of a battery with inverted fields. When these are crossed they give a shift in elector-chemical potentiation. These models are organised on neuro-architectonic layers with different functions. What was described before could be understood as a dichotomous opponent process system of the brain on macro levels, for instance with the differentiation and specificity of the hemispheres, as well as with smaller sub-modules like the left and right amygdale (McGilchrist, 2009) that work in interaction with higher layers. This is important in this area of integration because similar to a canal system, the gating system works well when traffic flows well; if there are problems the system becomes congested. If the system becomes dysregulated and stuck on negative emotions, then the neurological system will loop within earlier sub cortical layers of neural processing, thus cellularly reinforcing these maladaptive aspects of processing, even neuronally pruning some of the more positive pathways as these become neglected. This model and its function and malfunction share commonalities at all different levels of functioning with other systems described in this document.

As a brief overview, much of this gating system could be understood to be linked to this core level of experience of self, which is very much linked with the peri-aquaductal grey (PAG) (Damasio, 2000) part of the human neuro-

anatomy. Along with this the Insula and ACC branches over to higher orbito-frontal cortices. Increasingly, these brain regions articulate in finer gradations a deeper sense of self (Lanius et al., 2010)—especially developing a sense of coherent self with the medial-frontal cortex. The lateral prefrontal cortex helps to evolve a sense of another (Northoff, 2007). These increasingly more refined 'blends of blends' of emotions, the author would argue, blend the feeling of self and other's feelings and minds. Each is a critical dialectic in establishing the reality of the other's existence and 'being.' These relational experiences are structured by all of one's core brain and integrate into higher brain structures (i.e. the orbito-frontal cortex), which are critical in interpersonal attachment (Schore, 2003b). The medial and lateral orbito-frontal cortex is essential in the capacity of one to understand another's perspective (leading to a theory of mind (TOM)) and to feel empathy (Northoff, 2011). Taken as a whole, these maturationally nuanced models acknowledge a theory of mind that articulates much of the power and dimension of cognitive/emotional capacities and are significantly more complex than most neuro-cognitive experiments to date. This is especially true for emotional relationships (Cuyler and Ackhart, 2009). This sense of self and other with more rudimentary and higher levels of process appears to be part of a developmental spectrum that is only just beginning to be appreciated (Seigel, 2012).

After careful review of the literature (most notably Craig, 2010; Etkin, 2008; Northoff, 2011) it appears that throughout the layers of the brain this anterior and posterior relationship with detection and integration (or blocking of emotional with cognitive integration) occurs in many of the most important parts in the brain (e.g. the Anterior Cingulate Cortex (ACC) (Vogt, 2009). The other sections related to these layers of the brain have more specifically related to these particular neural modules (the Appendix III has considerably more detail related to these modules and how these area inter-relate). The key thought presented here is that the same neuronal structures operate with facilitating processing. If there are difficulties, these same modules can interfere with neural integration—especially if these are saturated with intense fear or are anxiety provoking (Monfils et al., 2009). These principles could represent the neuropsychological substrate of how conflict is organised within the brain, especially regarding the interaction between fear and panic neuro-circuitry and threat detection (Busch et al., 2010) rather than an emotionally connecting process.

Along with the brain stem, much of the most primitive and essential layers of the brain include the insula that connects many levels of integration within the body (kinesthetic, sensory, temporal), as well as outside socially-linking these systems (like social monitoring and feedback to others) (Behrendt, 2011). The foundation of how self is developed, constructed, and known is linked with the insula. With co-occurring increasing activation with the anterior cingulate (together known as the "core network") the awareness of the interoceptive sense of one's own body is linked with the awareness of the outside world. Craig's (2009, 2010) neuro-scientific model of the insula outlines the impressive catalogue of primary substrata; this module generates neural activity that guides behaviour, homeostasis, and may help to provide an explanation of why the insula encompasses so many central functions of subjective integration (or self-awareness). More specifically this includes: a felt sense of negative emotions (right insula) (Critchley et al., 2004),

awareness of body movement, self-recognition, emotional awareness within the viscera, vocalization and music, time perception, attention, perceptual decision making, risk—uncertainty—and anticipation, performance monitoring, and an overall embodied sense of interproception (Craig, 2009). It is worthwhile to highlight the relationship the insula has to the body and numbing or dissociative processes (Daniels, 2010a&b), which is explored later in this thesis (Craig, 2010).

Craig's (2009) model collates the essential purpose of the insula as helping to integrate the networking of these different maps of these bodily states combining (or integrating) them with a template of time (a felt sense of past, present, and future) to synthesize them into what he describes as a "global emotional moment." The importance of this is that multi-layered bodily and experiential maps move the processing from the posterior insula (the primary interoceptive representation) to the anterior insula (the collated mapping of the motivational, social, and cognitive conditions linking the ACC and higher brain control functions like the dlPFC—which can down-regulate or override this more autonomic responses) (Craig, 2009, 2010). The insula helps to assemble the different maps to give more of a subjective sense of coherence within bodily states as well as within a felt sense of time.

Etkin's model focusing on the Anterior Cingulate Cortex (ACC) plays an essential role in layering this subjective felt sense that augments mapping by a capacity to shift attentional focus. The emotional meaning that is attributed and behavioural motivation to engage with the environment is synched together with neuro-endocrine [hypothalamic-pituitary-adrenal (HPA) responses] and a critical conflict processing neural modular model. This begins to further shape experience and behaviour. It could be seen with some of the attentional and perceptual inputs of facial emotional perception that this brain layer links together vital key systems such as amygdale (fear and rage circuitry), the hippocampus (memory), insula (body maps), thalamus (neural routing circuitry), and hypothalamus (bodily regulation). It is possible to see the cingulate as an external perceptual layer of awareness that just like other cortical layers builds and further blends emotions, bodily states, and cognitions, helping to organize them.

Prefrontal cortex | Cingulate cortex | Somatosensory cortices

Insula | Basal ganglia

Amygdala Hippocampus

Thalamus

Brainstem PAG

Spinothalamic tract

A-delta afferents
C-fiber afferents

Spinal cord

Schematic diagram of the main anatomical components of the "pain matrix"
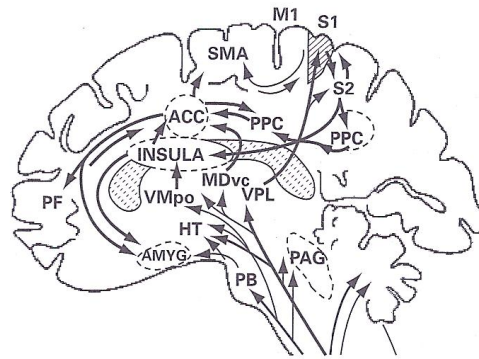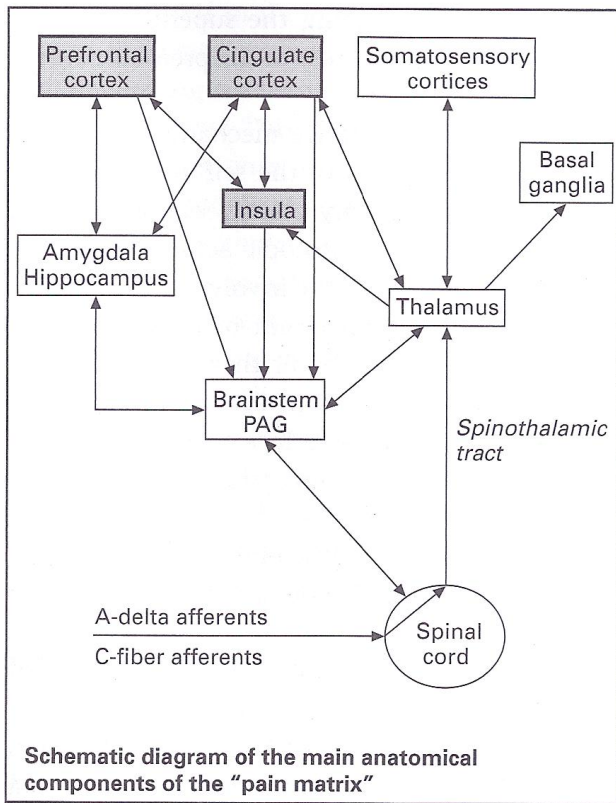
→ **The primary (S1) and secondary (S2) sensory cortices** are involved in the sensory-discriminative aspects of pain, e.g., the bodily location and intensity of the stimulus.

→ **ACC and insula** subserve the affective-motivational component, i.e., the evaluation of subjective discomfort and response preparation in the context of painful or aversive stimuli.

Figure 15.1
Neurophysiological research on pain points to a distinction between the sensory-discriminative aspect of pain processing and the affective-motivational one. These two aspects are underpinned by discrete yet interacting neural networks.

Figure 2.1 Social-Neural Pathways (Decety and Lamm, 2009, p. 202) (Permission has been granted for the use of this image.)

The ACC holds a crucial function in both attentional control and mediating spatial-temporal aspects of auditory and visual input (Crottaz-Herbette and Menton, 2006). It works as an activity monitor with other different parts of the brain processing (Baars and Gage, 2007). The different sections of the ACC together form some of the crucial areas linking reflexive emotional regulation and self-reflection processing. In other words, this is a core cognitive and emotional relational conflict in processing and linking essential areas that is activated by affective arousal and emotional conflict. The rostral aspect of the ACC area appears to be a central component in the resolution of emotional conflict and helps decrease the activation of the amygdale (Etkin et al., 2006).

The ACC is further crucial in being one of the essential brain areas responsible not only for integrating individual self-regulation, originating all the way from genes and neural network development (Posner et al., 2007) including complex social processing, which also directly affects behaviour (Behrendt, 2011). This social attachment system is

connected to the hippocampus, which relates to several aspects of memory, to the amygdale, which organises intense emotional reactions—especially intense anger and fear (and being able to mediate these), and the basil ganglia, which works as a filter and relay station to many of the other crucial areas of the brain. This neuro-anatomic area is an essential point of integration for much of the essential aspects of human cognition, attention, and emotional processing.

C) Neural Wiring as Modified by Environment and Social Experience: The Midline Neural Structures—Medial Prefrontal Cortex

The higher brain regions, in particular the core of the midline structures for the medial prefrontal cortex including the prefrontal cortex can be divided into three segments. From the top, the dorsomedial prefrontal cortex (dmPFC), medial prefrontal cortex (mPFC), and the ventromedial prefrontal cortex (vmPFC)—these structures are essential in the attribution of ourselves and others (Baars and Cage, 2010). Northoff and Bermpohl (2004) have looked at the midline structures working from the front of the brain backwards, starting from the representation modules with the orbito-medial (omPFC), evaluation (dmPFC), monitoring (ACC), and integration using the (PCC). This section can be modified through perceived conflict from detecting a threat or a problem to facilitating processes including problem-solving.

The medial Prefrontal cortex serves to link up several layers of neuropsychological modules, each containing different capacities for self-referential reflective awareness. Together, this dynamic system helps monitor and modulate higher levels of emotional processes as well as inhibiting responses by the emotional limbic system (Lanius et al., 2010). The mPFC is activated for example when one's own body is experiencing pain as well as when seeing someone else in pain, especially if that person is a loved one. These types of processes form the rudimentary levels of theory of mind. Mitchell's et al., (2006) researched how participants make inferences about people who are either similar (activating the ventromesial prefrontal cortex, vmPFC—which is a larger section of the front) or focusing on subjects with differences. This is important because the vmPFC level of cortical processing plays an important part in decision making in uncertainty, especially in regulating emotions through the amygdale. It plays a key role in the construction of one's self, reactivating one's past emotional experiences and events thus connecting to Craig's (2010) global emotional moment. Craig's concept contains the rudiments of a perceptual shifting, dynamic capacity for significant object and self-reappraisal. Most importantly, the right vmPFC regulates the cognitive and affective production of empathetic responses that are essential in both relating to others and in constructing the sense of one's self. These can be shifted towards negative modes of threat detection and/or appraisal.

It is possible to see these midline structures as key to helping create essential qualities of the subjective sense of self. The vmPFC is different from the dorsomedial prefrontal cortex (dmPFC) because of its connection with the medial prefrontal cortex (mPFC), self-referential processing, and because it relationally organises the "default mode network". The default mode network (see Daniels et al., 2010a; Mickleburough, 2011) represents a model that is

believed to be present with meditation and can be seen as similar to an idle for a car, in that it permits attentional processes without having any specific focus or specific neuro-behavioural drive engagement. Also, it can facilitate an emotionally neutral response in regards to the processes outlined in relationship to self and other. However, as Mickleburough et al., (2011) outline, in patients with PTSD the default-mode network has greater and more dysfunctional connectivity, thus possibly explaining a great deal of the increase of dissociative processes rather than a healthier reflective meditative mode of thinking.

The medial prefrontal cortex play an important role in emotional generation and regulation. Perez-Cruz et al., (2009) wrote:

> *"[T]?he reaction of the mPFC [medial prefrontal cortex] to stress is lateralized, in that responses to minor challenges stimulate the left hemisphere [the predominant language centre] whereas severe stress activates the right mPFC [the negative emotional processing hemisphere]. Our recent investigations indicated that hemispheric structural lateralization might exist at the cellular levels in the mPFC. . . These findings highlight the importance of analyzing the two hemispheres separately and suggest pooling data from the two hemispheres may confound reliable effects of a treatment"* (p. 728—in Schore, 2012, p. 146)

In other words, the subtle differences between each of the structures and morphology for these divisions are wired for stress reactivity in entirely different ways. The right hemisphere, which has more to do with negative emotions, is greatly more reactive and impacted by cortisol stress hormones then the left, which is better equipped to link up words to reflect about the bodily and emotional experiences.

Lateral Prefrontal Cortex

Dorsal (regulating) system: Working Memory; Meta-Memory; Memory Strategies; Prospective memory (Moscovitch's model in Baars and Cage, 2007, p. 290).

Ventral (activating) system: Semantic Memory; Extinction Learning; Conceptual Priming; and Autobiographical Retrieval (Moscovitch's model in Baars and Cage, 2007, p. 290). The ventrolateral prefrontal cortex (vlPFC) mediates some of the cognitive responses to negative emotions, it facilitates the capacity of individuals to control attention focusing on sequence responsible for working memory space and it attempts to limit distracters. This area underpins the control of higher-level attentional processes and its output increases as the demand for working memory increases as well. This neuropsychological area mediates vigilance (Kaufer, 2007), inhibits social exclusion [their related feelings and equipping pro-social behaviour to manage it], and modulates the interactions between emotions and social cognitions. An issue critical to the clinical treatment of patients such as rumination about social rejection, mistakes or criticism is a critical issue (Doctor and Shiromoto, 2010) that can be overlooked within clinical assessment and patient treatment.

The Dorsolateral Prefrontal Cortex (dlPFC)

The dlPFC appears to be involved with "willed actions". The stronger the dlPFC, the greater the down-regulating factor—effortful (intentional) control. This internal feedback loop in intentional focus is a critical organising factor changing the relationship of the person to their environment and their emotional/practical understanding of how to bring about change within these systems, even when they are linked to earlier drives for survival and social needs (Schore, 2003a).

Summary

In summary, regarding the modules and neuroanatomy of the brain, it appears that understanding the effects of trauma and even aversive or negative learning experiences can have multiple scalar effects upon the brain, and therefore the body, in many different aspects. Most especially, the balance between negativity and positivity can be disrupted giving predominant importance to negative experiences and expectations, about oneself as well as others (or the environment). The neuronal capacity to effectively process and successfully integrate all aspects of the world and experience appears to be compromised thereby making highly conflicted emotional states. The different layers of the brain—where higher cortical levels and regions are capable of deeper reflective capacities—are disconnected, forcing earlier and more instinctual (or reactive) modes of responding.

One of the more complicated aspects of neuronal functioning includes the relationship between the cortical midline structures that are involved with a greater sense of self (Lanius et al., 2010) and the lateral structures that appear to hold a top-down control providing relatively more of a third person perspective. This shifting perspective--much like language--can modify self-state experiences of primary right hemisphere neural firing. This is important as it provides a possibility of the brain being largely relationally organised and thereby both the understanding of our own mind, as well as our perception of others could be disrupted in particular neuropsychological organised ways of operating. For example, if the relational attachments are undermined and become conflictual instead of emotionally in tune, this can complicate the experiences of understanding and trust, thus contributing to a cascade of negative emotions and experiences. Neural microstructures as well as social macro-structures reinforce neural pruning through cortisol and stress responses globally damaging the brain—especially in specific cortisol sensitive areas (Bremner, 2005b), which further reinforce this erosive and detrimental cycle.

Some important questions can be taken from considering these examples—particularly, can a clear model of conflict begin to account for how negative vs. positive cycles of relating occur and how stress responses may impact different layers of the brain to effect cognitive and emotional processing? It is important to highlight that much of the neuropsychological functioning has a significant experiential component to it.

3) Integrated Developmental History

An important component to understanding the effects of conflict as well as problem solving is linking how experience may function in emotional learning. There are several components that are important to understanding the complete concept of development. Some of these include development as a sense of emotional, physiological, biological maturation and not necessarily as a discrete event or series of experiences in time. There is inner development, also as with Vygotsky's work (1986), most notably, the zone of proximal development, one's maturation and learning can be assisted through the holding space of a compassionate other. Development can be constructed as a sense of life history and an assessment of quality in relationships as well. Even though there are multiple ways to examine this word, a pivotal point to understanding development is to view it as a linked up continuity of related time that contextualize life events or maturation into an integrated objective and subjective meaningful mapping of experience. To highlight some of the related problems in psychology we must mention the struggle to make sense of the relevancy of experience. The question of attachment and the impact of real parental/caretaker relationships is another similarly complex problem regarding the formation of trust and a stable sense of self (Bowlby, 2005). The next section of the doctorate thesis will examine how experiences can be linked in conjunction with development.

Models of Experience

Brown's (1974) model of life events can be conceptualized, first, as ipso facto the cause of the stress or trauma. Second, life events are a possible indicator for both an increased risk factor and/or a possible pattern of affective relating that can be emotionally and behaviourally learned. Rather than earlier descriptions of life events being seen as the 'culprit' of causative agent for the traumatic stress response (Homes and Rahe, 1967) newer ways of thinking emerged as more developmental markers (Dohrenwend et al., 2007). An important innovation on traditional perspectives and attachment was the ability to observe the structures of relationships within a systematic context and a network of other inter-connecting attachment systems and structures.

Some of the most compelling detailed scientific evidence includes a microbiological explanation and model of what occurs with stress and the body (Caspi et al, 2003). In Selman et al's (2007) review of PTSD, a presence of genetic inheritance supports a strong gene-environment interaction, which was further corroborated with Koenen et al, (2009). True et al's., (1993) research into genetic inheritence comparing 4042 male monozygotic and dizygotic twin pairs, both of whom were in military service, found the genetic heritable influence, shared family environment, and unique environmental factors on PTSD could be calculated with similarities within all of the symptom clusters of respnses on trauma related questionnares. The authors' (True et al., 1993) found that shared family experience was not a contributive susceptability factor and there was a reluctance to compare the generalizability of these findings to non-military subjects. True et al, (1993) felt they could not comment on this aspect of generalizing it to non-military samples. Overall, their data suppoted genetic inheratable influences were significant within post traumtic symtoms.

This conclusion was echoed with Caspi et al's., (2003) findings in the genetic study of life, stress, and depression. Caspi found that shorter alleles in combination with three different gradations of no maltreatment, probable, or severe maltreatment had an exponentially increasing probability of a clinically depressive reaction with the genetic vulnerability. This proved to be particularly true as the genetic vulnerability was paired with charting varying reported levels of early life maltreatment (Sanchez and Pollak, 2009) where the higher levels of stress or trauma, aggression, behavioural acting out, and dysregulated immune system, had been reported to cause even more damage on the genetic level (Caspi et al, 2003). Taylor (2011) provides some clearer indication that early life stress has genetic and early environmental impact and can comprimise emotional regulation as well as significantly contribute to chronic negative emotional states. These stresses dysregulate autonomic functioning, immune responses, and can contribute to exaggerated aggressive and depressive behaviour that have prolific impact on all levels of functioning and adult health.

Wheway et al's (2005) study is critical in being able to model many of the difficult physiological stress responses that like Caspi et al's. (2003) paper has found that life events are not only a risk factor for increased likelihood of trauma, but can be understood as a marker for dysregulated processes or earlier patterns of maltreatment (Selman et al., 2008 and 2006). It is important to highlight that these are not just single incidents, but layered and recurring (much like Kahn (1974)—describes as cumulative trauma), patterns of experience that would alter the expression of genetic and environmental processes (Koenen et al., 2009).

Yehuda and Flory's (2007) study of second and third generation holocaust survivors showed PTSD symptomatology in the parents and a much higher proportion of severity of PTSD in their offspring. Intergenerational research has shown that traumatized children, for example second or third generation holocaust survivors can still develop PTSD from one or both parents having PTSD symptoms (Yehuda and Flory, 2007; Yehuda, 1999). It is debatable how much genetic vs. environment factor effects the presence and hereditary transmission of PTSD or if an increased external sense of safety permits the expression of PTSD symptomatology. The author highlights that one possible explanation that could account for this rise in pathology is that after a traumatizing or severely aversive experience the parents fears about one's child/children's welfare would increase the likelihood of the parent(s) inculcating a much more negative focus to learning related to the avoidance of punishment (Berhrendt, 2011) (and as a self-protective survival mode) in an attempt to teach the child to protect themselves from danger. This in a nutshell could contain one of the essential challenges to human attachment relationships—how do fear, love, and protection interact together?

Life Event Research
Thus far, this research has outlined some of the problems, or gaps, in assembling a clear and coherent model of assessment, and connecting the research to usable clinical interventions. In particular, having an integrated picture of how the wider perspectives of psychological illness as well as psychological health connect has been problematic. Development and linking life events is another area where significant gaps in coherently assembling a clear picture are

missing regarding the clinical research. As one possible solution to understand how experience could affect later human conditions, Krinsley et al's (1995), found that the full range of traumatic events across the lifespan should be included and analyzed in relation to the individual's vulnerability factors. It is important to understand that these vulnerability factors related to the protective factor/resilience promoting factors. This development could be invaluable in understanding "the optimal prediction of the impact of trauma," "the prevalence of different kinds of trauma," and "understanding individual differences to trauma" (Krinsley et al, 1995, p.3).

Issues of early trauma exposure are believed to be a strong causative factor in later development of PTSD. Davidson et al, (1991), Bremner et al. (1993), and Foy et al. (1984) have noted a dose dependent correlation between trauma severities in PTSD depending on the life events where the nature of the exposure (the more life threatening the greater likelihood of a traumatic response) was seen as one of the most important variables (APA, 2000). Schore (2003a) has highlighted the earlier the dose of trauma there is, the greater the impact it has on the developing person. There is increasing speculation that many different disorders have their roots in traumatic origins (Clinton, 2008, Katz, 2005). However, much of the research on trauma, stress, attachment and emotional development described within the project can be contextualised under the holistic impact of aversive learning. This paradigm of aversive learning can integrate and explain many of the negative biological aspects of stress, the behavioural conditioning, and the manifestation of a spectrum of symptoms.

However, one of the major clinical questions remaining in the psychological literature today the importance of the experience over the salience of the intra-psychic processes (including ego-defense mechanisms) (see Northoff, 2011) throughout the spectrum of unconscious and conscious processes (Fonagy et al., 2004). This psychological question can trace some of its origins back to Freud's conflicting theoretical models (Sandler, 1998). Masson (1984) among others has questioned Freud's intellectual honesty and ultimately his interpretation of the evidence of the relevance of life experience, described in Freud's writing about the issue of real sexual seduction or sexual abuse. This debate about what forms the basis of psychopathology (Surgarman, 2010; Surtees, 1989) has been a longstanding issue within the field of clinical and counseling psychology. Moreover, the subtlety of trying to measure the ephemeral nature of internal psychic events has caused tremendous upheaval within the field of psychology (McFarlane and Girolamao, 1996).

Longitudinal research and life events have helped highlight the significance of some of the correlations of life events (Miller, 1993). McFarlane (1988) helped develop some of the key methodologies observing life events for later exposure. The larger perspective of longitudinal life risk, as Wingfield et al., (2009) postulates, should include the influence of types of events, time periods, and significant others in relation to (suicide) risk. This clear marking-out of actual events and what experiences have occurred offers a strategy to document these developmental occurrences. On the other hand, confusion abounds as to the contribution and significance of the relationship of life events with psychopathology and what actual impact objective events may have on the person.

Studies such as research pioneered by Dohrenwend and Dohrenwend's (1974) model found evidence that supports "stressful life events playing a role in various somatic and psychiatric disorders" (p. 313). Miller's (1997) work epitomized by Green et al's (1997) study of the Buffalo Creek Disaster, found high levels of disturbance at a two year follow up and again 17 years after the incident could still be seen, especially within the children who were sampled. This investigation and others like it (Kessler et al, 1999), whose large scale epidemiological research found trauma exposure to be a significant contributing factor for PTSD Brown and Harris' (1989) studies on life events and illness pointed to the possibility that experience does impact psychological functioning by forming patterns of expectations and learned behaviour. By looking at the effect of experience on psychological functioning we can begin to construct a more definitive psychological model especially designed for clinical treatment. This perspective is in line with Gerheart's (2004) description of high stress environments creating high-cortisol arousal in infancy resulting in vulnerability in stress in later life, including health difficulties such as depression, addiction, or anti-social behaviour.

Evidence against: There are other important studies that do not find any clear correlation to the exact underlying factors which are the cause of life events are or how vulnerability factors operate in the pathogenesis of PTSD. Brown strongly cautions against significant sources of misattribution and invalidity in relying on data from life events in data collection methodology—particularly in the contamination of meaning and measure of stressful life events (1974). The complexity of clearly sifting through subjective memories versus more objective documented comparisons has been one problematic aspect of this area of life event research. Brown emphasizes that contamination and spuriousness with recollecting any memories, especially those that are emotionally complex and loaded, creates a serious methodological problem that makes the measure of stressful life events problematic in a logically deducing patterns with clear motives and ends (1974, p. 226). Most notably, Yehuda (1998) points out that in the DSM_IV-TR Manuel for the diagnosis of PTSD it is the exposure to the traumatic event that is central to the disease/diagnosis. No distinction or further refinement to the clarification of pre-traumatic exposure or vulnerabilities is drawn to its contribution to pathologic outcome. This de-contextualised and isolated perspective of the influence of experience has been at the heart of ferreting out what can be seen as a core part of the basis of psychopathology and what might be done to help correct or treat these difficulties.

Snell et al, (1974) found: "There is considerable disagreement among them [researchers], however, as to the nature of this role [of life events]" (1974, p. 313). What was not delineated was how much early life events (or lifetime exposure did the person experience, and what kind of attachment pattern and style of psychological mindedness did the participants have? Do these issues relate and if so how can we begin to understand the possible implications for their relationship? Clinical psychology is increasingly confronted by the need to include the attributes of the entire person (strengths and deficits). Brown also highlighted how experience, in this case early depression, can work as a risk factor in a number of ways. These include: 1) experience (early depression) as a marker for environmental factors; 2) as a mediating variable—for example leading to drug addiction or a chaotic way of life; 3) as a marker for

constitutional/genetic risk, and: 4) as a risk factor in its own right—sensitization factors or kindling creates a structure that could be then reproduced (Brown, 2000, p. 299). Brown is including a contextualised understanding of the person's experiences, personality and social environment and how this internalized subjective meaning is able to structure the interpretation and scaffolding of later events and memories.

Overall, specialists such as Gordon (2009), and Schore (2003a&b), who argue that the clear contribution early environment plays in babies/children's development is at odds with Clarke and Clarke's (2000) research that this is predominately not significant in overall developmental outcome. These contradictory views regarding the relevance of experience and what constitutes stressful or traumatic aspects, takes both the research methodology and the theoretical dogma and places it into a seemingly irresolvable gridlock. From the exploration of this area, it appears that these areas of confusion necessitate disentangling and resolving in order to answer one of the major clinical questions remaining in the psychological literature today. This question can be traced back to Freud's original conflicting theoretical models where he was unable to clearly resolve what role actual life events play in neurotic manifestations. Freud's formulation was rejected by Ferenczi (1994) as failing to support his female patients who were likely to have been abused. It is possible that Freud sided in favour with the men who were funding his patient's treatment. This debate regarding objective and real causes of distress versus subjective and phantasy-based causes has been a longstanding issue within the field of clinical psychology. Even though PTSD is the only diagnosis where aetiology is part of the criteria, it remains unclear how the mechanisms and contributions of what occurs with these processes. Therefore, it is important to understand the developmental timeline is at inherent risks of being misinterpreted concerning its causality or objective veracity.

It is important to note one serious flaw in many of these studies reviewed within the paper, with the exception of Brown and Harris's (1978) study on depression: these studies miss the predominant emotional tone or a sense of personal meaning that these traumas might have impacted upon the person and the interaction with personality factors. In other words, what is not discussed draws together the red thread of emotional experience, such as the parents' powerful emotional layered experience projected onto their child. With concepts like aversive learning—with the familiar sense of being impinged upon, disliked, or mistreated, these are critical emotional experiences that go well beyond a 'happening in time or space' to create a real and meaningful emotional sense to them. These aspects of emotional intent are likely to have possibly been present before the traumatic experience and would be likely to change the quality and type of support the person finds to comfort or reassure them on many emotional levels of their felt experience.

Attempts at Reconciling Life Events Models

Some notable attempts to reconcile these problems have included life-event research where a technique emerged as one means to try and quantify adverse human experiences with the purpose of grading the severity of stressful phenomena. During the late 1960 to the 1980s, a concentrated group of researches using new technical approaches

studied stress. Homes and Rahe's (1967) study helped move the field from experimental stress research to look at life event stressors. This was important because they attempted to quantify the degree of intensity of stress by using the Social Re-adjustment Rating Questionnaire (SRRQ), to collate and systematize these life experiences into a hierarchy of normed intensity of stressors. Their study found even positive experience, like getting married, was widely recognized as stressful. Meaning of the life event became contextualised more holistically within what researchers were studying rather than simply looking at these as separate objective events.

Brown's earlier work on life events (1974) attempted to move this research forward to include not just the circumstances surrounding the event, but the meaning of the event for the individual person and the context of the experiential structures operations within that individual. Brown and Harris' (1978) work on depression using psychometric measurement proved that methodology went further with qualitative evaluations. Brown and Harris' (1978) model employed in-depth interviews, which expanded the longitudinal complexity both during and after the life event that was being measured. An attempt was made to investigate life events within their contextualised meaning.[4] The level of detail and personalized meaning took a "universalized" approach to experience and accessed more clear methods to reconcile the objective/subjective interaction.

However the cumbersome and labored nature of this approach may be, the overly rigid framework of using life events became so fraught with technical problems that it was seen as an unmanageable system in clinical care. On the other hand, researchers have kept returning to this model of using clinician recorded life events to try to examine these questions. For example, Beaton et al, (1998) has repeated these similar ranking processes focusing on fire and emergency workers, which found the degree of emotional attachment and level of personal threat as key mitigating processes, which could develop into a stress related illness.

Glaring gaps in systemic integration of Developmental History

One problem that continues to plague researchers in this area of developmental history is that glaring gaps stop systematic and complete data analysis comparison from producing meaningful results. Some studies were better looking at the external experiences, but others needed to examine what was happening in the participant's bodies in reaction to these experiences. This gap encouraged a generation of physiological research of stress and trauma vulnerability, which began to account for much of the problematic methodological issues. Brown's (1974) model cited the reasons for abandoning his research into life events because of the spurious bi-directionality or contaminated causality. As Brown comments on the problem of measurement and meaning he says; "We are faced with the problem of the translation of an event into an internal representation. And in doing this, we need to bear in mind that for methodological reasons it is highly advantageous to place as much weight as possible on the characteristics itself" (1989, p. 14). Dohrenwend et al, (2007) found a strong dose relationship between life event exposure and rates of

---

[4] For example, if a spouse died, if that spouse was the only breadwinner this would have major consequences for the woman over and above simply the bereavement.

PTSD in combat exposed individuals where 18.7% onset and 9.1% current rates of PTSD related to combat exposure, but there was a need to see this within a context of pre, during, and post issues of life event experience and how each of these phases affected the body (Ursano et al., 2007).

Brown (1974) criticized many of the approaches of life events as not contextualizing development and life experience in a meaningful way. There appears to be a perspective taken that there is an accumulation of singular events, which is not organised by a unifying narrative or where there are meta-level principles that organize the person's perceptions of experience. The present traumatic/stress-related issues do not seem to be linked in a cohesive pattern and understood from their possible origins.

However, there are still other important studies that did not find any clear correlation of underlying factors behind life events or how vulnerability factors operate in the pathogenesis of PTSD. Most notably, Clarke and Clarke's (2000) model reviewed early life events as a contribution to effecting life-path or as causative in the development of psychopathology. They concluded that: 1) Theories ascribing overwhelming concentration to early years are pre-deterministic and erroneous; 2) If early life events are given credence this will lead to an underestimation of what help can be given for deprived children; 3) Early experience is merely a continuity of other additive life experiences between individuals in the context of their life (ibid, 2000, p105).

Brown (1974) strongly cautions against significant sources of misattribution and invalidity in relying on data from life events in data collection methodology. Yehuda (1999) points out that in the DSM IV_TR Manual (2000) for the diagnosis of PTSD it is the exposure to the traumatic event that is highlighted as most important. Therefore, the pre-traumatic exposure, vulnerabilities, personality-factors, or other experiences besides the overt trauma are not given value as contributing to a mechanism of PTSD symptoms when exposed to traumatic events. The psychiatric diagnosis is founded on the conscious observable impact of a stressful experience and further, more nuanced relationships with a connection to its contribution of pathologic outcome are ignored. It could be described that the life event is not held in any context or greater meaning other than a literal and singular mechanism of impact or trigger. From the author's perspective, this highlights a clear breakdown of an integrated approach and synthetic clinical reasoning, especially when looking at issues of earlier patterns of experience, their meaning or emotional resonance, and whether these traumatic experiences shape intergenerational patterns. Jordan, (2010), as well as Brownescombe-Heller's (2010) research points out most accounts of psychological trauma may miss the meaningful subjective nature or trigger of how events are interpreted. They question is if there was a way these life experiences could hold any substantial patterns of meaning, how might clinicians be able to more accurately access this type of potentially rich self-experience?

Examining How Developmental History and Attachment Theory Relate

There is a need to examine the clinical utility of using an attachment-based categorization system model (Grossmann, 1995) with traditional clinical psychology psychometric measures for illness or psychopathology (Foa et al., 2000), and positive measures for emotion and well-being (Lopez and Snyder, 2007). The hypothesis questions if attachment can serve as a framework to understand the relationship between the spectrums of illness to health. Further, it questions if relationships might ultimately offer a clinical utility to influence psychological practice.

A significant amount of the roots of attachment theory could be traced to Freud's clinical writings (1926) on anxiety and its relationship to the maternal relationship. Bowlby (1982) and Ainsworth's (1978) model of how relationships form, develop, and what happens if things go wrong such as death or separation (Bowlby, 1980) drastically alters these attachment structures. Bowlby (1980) has served to revise this theoretical and clinical-based explanation within a more evidence-linked ethological perspective.

This ethologically, psychoanalytically, and cognitively derived system classifies and understands human relationships providing insight to more clearly define healthy (secure) and ill (anxious, avoidant, or disorganised) ways of behaving. In doing so, we do not only develop strategies to look at outward functioning, but internal working models (Bowlby, 1982) assisted in evolving frameworks of the inner emotional life of the infant/child and the adult. Crittenden (1985) examined the effects of maltreatment of infants and the parental relationships. The natural resiliencies created by the loving and protecting relationships with parents have a relationship with the child's security and quality of mind, while a dysfunctional caretaking undermined the child and created vulnerabilities in all aspects of his/her life. These concepts have been modernized and updated (Jurist et al, 2008; Auerbach et al, 2005) where aspects of self-representation now look at the reactions one has to facial expressions (Ekman and Rosenberg, 2005), or pain, versus a kind of simulation of understanding what may be happening in one's own mind in contrast to the feelings of another (Goldman, 2006). New work summarised by Obegi and Berant (2009) highlights the innovations of attachment process in utilizing these classifications derived from rigorous assessment and leading to specific evidence-based clinical treatments including developmental-maturational attachment frameworks. Perhaps most impressively, Siegel (2011) has developed the theoretical concept of mind-sight, which has some relationship to empathy, specifically mind-sight conceptually describes the process of understanding the first-hand perspective of another's emotional thinking. However, Crokenberg (1981) has found no straightforward relationship between social support and attachment stability/security. One way forward includes research into parent-child conflict (Lyons-Ruth et al., 1990) where the dynamic interplay between different personality and motivational factors can be used to explain breakdown in trust within the relationship often with deleterious impact upon the well-being of the child.

Much of the leading developments within the field of psychology and increasingly within trauma treatment attachment has become vital tool in investigating how relationship difficulties can co-evolve between parent and child within the

traumatic spectrum (Benamer and White, 2008) and how these can become elaborated or even repeatedly entrenched. Secure or insecure attachment and the array of attachment outcomes including Secure (B); Avoidant (A); Resistant/Ambivalent (C); Disorganised (D); Other (not classified) (Goldberg et al, 1995. p. 11). These classifications form equally a spectrum of response to trauma with evidence showing that the trauma can be passed from parent to child (Schore, 2003a&b). There is some relationship between child attachment patterns and the later manifestation of adult attachments where some notable singularities as well as differences are seen (Jordan, 2010) across the life cycle. For example, the following graph highlights some of the overlapping risk profiles within the interplay of early attachment. These include that attachment can be broken down into interacting subsections contributing to the aetiology of childhood mal-adaption. One criticism is that most attachment research, similarly to the problem posed by clinical psychology, looks at the negative maladaptive end of the spectrum, rather than including an integrated spectrum of the negative as well as positive aspects. However, it is valuable to contextualize that even insecure attachments (e.g. like avoidant and ambivalent) are organised in their behavioural system and reasoning to provide a defensive-adaptive function to a dysfunctional environment. Crittenden (1985) also argues that attachment behaviours have evolved to serve similar survival or adaptive functions to manage negative or extreme experiences.

CHAPTER 21. *Attachment and Psychopathology in Childhood*
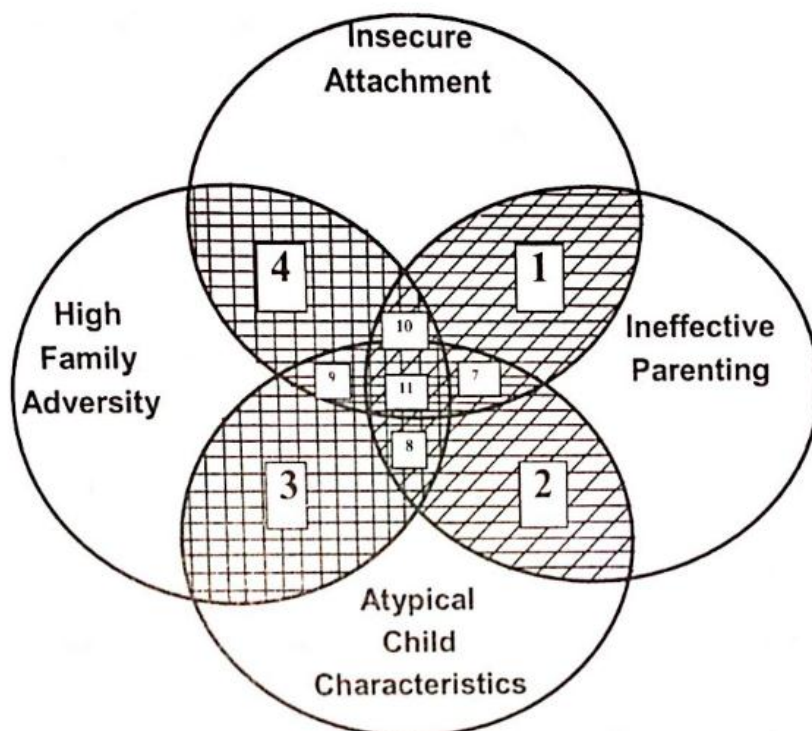
FIGURE 21.1. Factors in the etiology of childhood maladaptation. Areas 1 through 4, two-factor intersection (visible); Area 5 (high family adversity and parent management), two-factor intersection (invisible); Area 6 (insecure attachment and child characteristics), two-factor intersection (invisible); Areas 7 through 10, three-factor intersections; Area 11, four-factor intersections.

Figure 2.2 Attachment Parent/Child Interactive Factors (Greenberg, 1999, p. 485) (Permission for use granted.) Attachment to a parent, caretaker, partner, etc. is a relational process of interaction that subsequently shapes learning and how other later experiences are organised. This conceptual shift permits life events to be understood as more of a clinical risk marker of vulnerability, or a style. This conceptualization can include a style of relational processes (Black et al., 2005). These four domains of attachment difficulty could also be included within aspects of negative experiences or aversive caretaking and include trauma-related and personality disorders (Fonagy et al., 2004).

Some critical questions are rooted with the thinking from this section—namely: how does life experience change attachment relationships? Is it possible that most psychological illnesses could have a basis in early or lifetime life-events, and could there be a clearer model to understand how subjective and objective reality might work to help the treatment of clinical and traumatic disorders? van der Kolk and Andrea (2010) have made a case for developmental trauma disorder that repeated negative emotional experiences so shape the evolution of the child's personality that it dysregulates sufficiently to cause major personality-behavioural problems such as suicidality, physical health problems including diabetes or coronary heart problems, an inability to tolerate stress as well as a reactivity against this type of distress. Furthermore, these individuals lack the capacity to trust others or oneself, have no stable sense of self, and frequently have a host of co-morbid psychological disorders such as personality, ADHD, and substance disorder. (van der Kolk, 2012).

Integration of Concepts into a Coherent Theoretical Model: Psychometric Study of Life Events

Homes and Rahe's (1967) model introduced life events measurement, opening the door to a more systematic study of stressful life experiences permitting a more structured comparison of rating life experiences. Lazurus and Folkman's (1984) model examined the relationship between resources and demands from the occupational psychology field and how this interaction contributes to stress responses. Returning to some of the essential problems with the clinical diagnostic (DSM) definition of trauma, (NICE, 2005) views life events as not specific enough to cause disorder. However, the symptoms for PTSD require participating events that are exceeding the normal range of experience (ibid). One possible reinterpretation, like an adaptive emotional development (similar to evolutionary adaptation), is that harsh life experiences will change the personality structure towards survival capacities, which could come at the cost of emotional health or well-being. There is continued disagreement regarding how the environment is factored into the criteria and the developmental aspects of trauma (van der Kolk, 1996). The organisational environment or context appears to affect social relationships, well-being, and the social relationships of the employees along with the quality of their social support (de Carvalho-Leite et al., 2011). These are critical aspects, which contribute to clinical or non-clinical outcomes. The lack of definitional clarity understandably negatively impacts every aspect of assessment and treatment of traumatic illness.

4) Integration of Individual and Organisational Processes: Clinical Trauma Psychology—Stress Research

Integrating many of the fine-grained models previously outlined provides the reader with being in a better place to appreciate what has been missed or confused in developing clearer terminology and explanatory models, especially within dynamic layers of individuals and groups. This project clearly maps out the overview of terms and concepts, attempting to correct many of the traditional ways of describing psychopathology that is confusing for clinicians, patients, and researchers. Additionally, this project integrates many of these concepts into one over-arching conceptual map of these terms. The possible importance of this project's conceptual linking and evaluating these along with its findings, it permits examining the common features of what might relate these ideas into an underlying essential way of structuring many concepts into a more fundamental process.

Previous conceptual approaches include, one of the most useful formulas for stress related illness, summarised by Palmer (2009, p. 352):

'Event (stressor) + Meaning ([to the person]) = Stress reaction.'

Palmer continues, "Meaning is served from your background, life experiences, coping strategies and abilities, and the psychosocial environment before, during, and after the event. Cultural aspects are also another useful approach" (ibid, p. 352), but can be frequently overlooked (Eleftheriadou, 2010).

Pedersen (2006) summarises the complexities and knowledge gaps within researching stress and coping by highlighting problems with defining "culture"; cross-culturally defining and measuring key concepts like stress or coping; and philosophically grappling with difference between not only societal definitions of difference, but also of individual concepts of self within these contexts. This author (Sherry), postulates that by aligning human bio-physiological processes, this in theory could help improve some of the inherent complexities articulated within cultural psychology (Kim et al., 2006) thus developing a clearer cross-cultural model of illness and health. It is possible conceptually this model will be replicable across culture and across development so it can focus on the neuro-affective emotional processes of positive and negative brain systems articulated in Panksepp's research (Panksepp, 1998; Panksepp and Biven, 2012). In deriving a biosocial model that both includes human functionality that is trans-cultural in nature, it is possible, in theory, that this kind of approach improves on many of the shortcomings from existing trauma models. Specifically, as well as offering a potentially cleaner way to understand and assess cross-cultural differences in symptom presentation (Fernandez et al, 2007) this methodology can better conceptualize underlying core neuropsychological human modes of emotion.

This integrated cross cultural model of trauma is valuable because this wider perspective on how individual experiences change how events are interpreted, permits perhaps a more ecologically valid applicable model of traumatic stress then may be currently held (see Wilson and Tang, 2007). Looking at traumatic patterns (Katz, 2005), especially cross culturally, and holding these principles in mind of the neuro-biological underpinnings of how the affective window of tolerance (Ogden et al., 2006) is relationally co-constructed (Schore, 1994), also helps contextualize and answer some of the cultural differences in attachment patterns of psychological health and resiliency (ibid) for wider social processes. However, these examples (as with all models examined for the literature

search) describe the discipline of cultural trauma psychology without necessarily including a clear model that coherently holds these different dimensions together.

Problems with a Clear Interconnecting Model of Trauma from Micro to Macro Processes:

How Stress and Trauma Sculpt the Brain and Behaviour

Stress occurs within a social context and must be understood within this kind of dynamic. Actually getting to a clear interconnected cycle of processes of vulnerability or resiliency is difficult. However, Schore (2003b) posited a speculative model of the effects of stress on the 'devolution' of the rostral limbic system where the reverse developmental process of orbito-frontal loss, anterior cingulate, and finally amygdale (and perhaps hippocampus) causes cellular loss. A situation where the system is being washed with corticosteroids could begin to account for some of the changes and disconnective trends seen with unreasonable levels of stress hormone (Bremner, 2005b). Protective/survival processes ensure that negative stimulus have an incredibly salient effect on processing learning as a positive experience. This is important because this model demonstrates the possibility that the stress response is a neural protective defense. This defense is similar to economic cutbacks designed to carry on the minimum processes rather than have a greater expense of everything to ensure basic survival during extremely difficult times. In examining central neuro-endocrine processes particular emotional responses start to become evident.

Biological Factors and their Link to Key Emotions: Cortisol and Cruelty

The relationship of vulnerabilities to resilience (Kilmer, 2006; Alvarez and Hunt, 2005; Brailey et al., 2007) appears to require that the field of traumatology is understood in relation to stress research as well as development. It seems logical that attachment and stress research are related to each other on a spectrum of an interaction of severity and life course. It follows there is a relationship of physiological effects on the body as well as the psyche that includes levels of affect and autonomic response (Porges, 2011). What is important to conceptualize is the physiological connection to the person's biological response to stress and potentially how this is integrated within their biological system-- especially how emotions are processed and reciprocally affect this feedback. For example, D2-receptor, Neuropeptide Y gene, GABA B3 subunit gene, and different sub-units affect gene processes—they all appear to be relevant factors at work within PTSD and relevant in the context of how these processes can be heritable (Selman et al., 2007) and somatically organised.

One different way to evaluate the same factors is to see Mckay et al's., (1996) work where these processes extend to the peptide level. With an incredible speed, these processes effect the Hypothalamic-Pituitary Axis (HPA axis) (De Haan and Gunnar, 2009) and the autonomic nervous system (ANS) (Porges, 2011). This is important because there is a route that affects both the hard-wiring of experience through stress as well as causing alterations to the person's subjective meaning and access to these experiences. It is possible that these micro-molecular interactions additively structurally change the brain to eventually alter the hard-wired pathways (Grawe, 2007; Ellison et al., 1994). These changes include temperament and behaviourally condition the person to respond in certain set patterns regarding the stressful stimuli (Hart, 2006). Much of the theoretical thinking that examines stress research originated largely from

an experimental research, for example Seyle's work (1976) on animal studies and the effects of stress on the human body (Bremner, 2005a&b).

Early Research into Stress

Some of the key researchers in the area of stress have included early pioneers in the field Yerkes and Dodson (1908), whose observations about deteriorating performance following a point of increasing pressure were ground-breaking. Cannon's (1939) model examined homeostasis of the individual regarding stress in emotional processing (e.g. "flight" or "fight"). A major development regarding stress research came from Seyle's (1976) triphasic model or general adaptation syndrome (GAS), where the system's alarm phase (sympathetic adreno-medulary activation), stage of resistance adrenal-cortical activation), and finally exhaustion (where the physical body is stressed to physiological breakdown and development of disease processes) all helped to map a more global physiological stress processes.

Several key aspects have been emphasized in stress research: personality profiles such as, Type A and B behaviour (Friedman and Rosenman, 1959), "the hardy personality," and general findings from stress research which modify positive or negative outcomes including: coping (Cooper, 2009); social support (Brown and Harris, 1978); and locus of control (HSE, 2000). In other words, both the personality style and the degree of negative or positive affect can change coping, social support, and how someone perceives their own control. These factors constituting individual differences appear to relate to organisational specifics as well (Cooper et al., (2009). In review, many of the historical perspectives on stress research have found differences between groups of individuals; these differences changed their stress profiles as well as their vulnerability to the impact of events. However, much of this work has not been adequately integrated into a systematic theory that could accurately account for or predict stress vulnerability and resiliency.

Newer Research into Stress

An integrated perspective on hyper and hypo-arousal (related to freezing responses) is an example of a hybrid, which accounts for stress and presents us with tolerable clinical models (Ogden et al, 2006, pp. 21-28. This new mode allows for hyper-vigilant and dissociated reactions to be evaluated in a contextualised manner. These findings have further been refined with Porges' (2011) poly-vagal theory, which posits an autonomic neuro-defensive threat responsive system. Porges' (2011) model can be compared with preciously held models as significantly innovating the precision of how neuro-cognitive systems organising emotional perception and how these relate to triggering overwhelming somatic stress responses regulating physiological reactivity. Porges (2011) writes:

> "These autonomic subsystems are phylogenetically ordered and behaviourally linked to social communication (e.g. facial expression, vocalization, listening), mobilization (e.g. fight-flight), and immobilization (e.g. feigning death, vaso-vagal syncope, and behavioural suppression) (p. 203)." Porges, states earlier, "These neuro-circuits provide adaptive defensive behaviours before we are consciously aware of what is happening. When on the other hand, neuro-reception tells us that an environment is safe and that the people in this environment are trustworthy, our mechanisms of defense are disabled" (p. 19).

These are important because separate survival systems are integrated at the neuro-developmental junction to ensure threats can be adequately managed. However much of this closing down is influenced by the stress hormone cortisol which can override significant aspects of the holistic—supportive functioning.
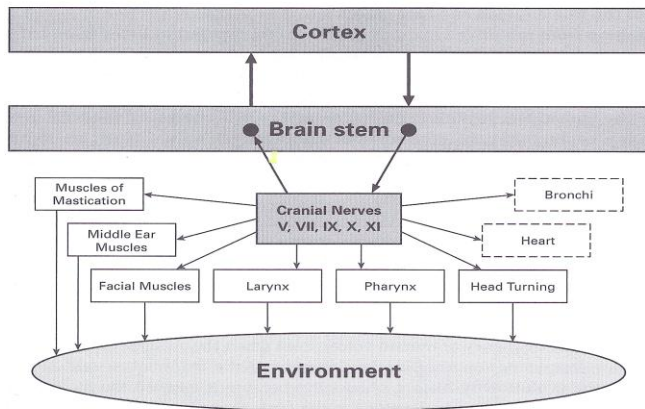
Figure 13.1
The social engagement system. Social communication is determined by the cortical regulation of medullary nuclei via corticobulbar pathways. The social engagement system consists of a somatomotor component (i.e., special visceral efferent pathways that regulate the striated muscles of the face and head) and a visceromotor component (i.e., the myelinated vagus that regulates the heart and bronchi). Solid rectangles indicate the somatomotor component. Dashed rectangles indicate the visceromotor component.

Table 13.1
Phylogenetic states of the polyvagal theory

Stage	ANS component	Behavioral function
III	Myelinated vagus (ventral vagal complex)	Social communication, self-soothing and calming, inhibition of sympathetic-adrenal influences
II	Sympathetic-adrenal system (sympathetic nervous system)	Mobilization (fight/flight, active avoidance)
I	Unmyelinated vagus (dorsal vagal complex)	Immobilization (death feigning, passive avoidance, behavioral shutdown)

Figure 2.3 Poly-vagus nerve interaction (Carter, Harris, and Porges, 2009, p. 171. Permission Granted for reproduction.)

Integrating Neural Psychological Framework: Locating Processes within the Neural Architecture
--Cruelty

Tops et al., (2007) highlight the likelihood that cortisol can be linked to emotional experiences of rejection, separation, loss, and inhibition of positive emotional expression. Social bonding when leading to social attachment is facilitated by the release of oxytocin and this acts as a counter-balance to much more manageable feelings like rejection or loss. These negative emotions are likely to expedite protective responses as well as similar self-attacking internal responses. van der Kolk (2012) outlines that these are largely (if not exclusively) learned processes. Cruelty is one example, in which a complete collapse of trust results in a situation where one is indifferent or gratified by another's suffering. Psychoanalytic concepts like Klein's sado-masochistic processes or even Winnicott's false self, to some degree, capture aspects of these erosive relational processes within emotionally laden language. It is possible this cortisol hormone surge, probably connected to a fear response, could trigger cruel behaviour as a type of rage response (Panksepp, 1998). Understanding the nature of these systems and some of the central features that organize both in quality and outcome (Capra, 1996) gives a framework of unique properties of units like the special forces in the

military (Kennedy and Zilmer, 2006) who are renown for their group cohesion and outstanding social support and significantly better resources, training, and corps de esprit to deal with exceptionally challenging environments.

Oxytocin and Compassion and Empathy

Fonagy et al's. (2011) mentalization model, building on a continously growing literature, begins to outline a possible role for oxytocin and stress hormone (cortisol). The model explains that the oxytocin seems to reduce the behavioural and neuroendocrine responses to social stress by reducing avoidance behaviour and increasing approach or social bonding behaviour. Furthermore, Shah et al., (2011) postulate that this hormone has a connection with a dynamic maturational and social model, where social intelligence and the oxytocin neuro-peptides interact to facilitate higher order brain processes and emotional regulation. Moreover, oxytocin is understood to be a counter-regulatory vagal (parasympathetic). One of its attributes is that is has been observed to reduce the role of fear in the face of stress (Dreifus et al., 1992). Also, cortisol can be seen as a neural-hormone that increases confidence in one's own capacity such as parenting skills as well as its ability to increase trust, or more precisely confidence in oneself and within others (Panksepp and Biven, 2012).

Oxytocin has been linked with positive effects on social learning and social memory (de Weid, 1997). Especially in women, oxytocin has been shown to reduce stress and increase affiliation (Taylor et al., 2000). Most hormonal and behavioural components function in consortium with many of the others. However, it appears that oxytocin seems to be a neuro-chemical substance that increases psychological mindedness as well as social interaction (Heinrichs et al., 2003). This hormone plays an essential role in behaviour and stress management and its complexity relates to oxytocin's function in neuro-biologically facilitating the emotional experience of bonding that is expressed in human's capacity to trust. This state can be described as an emotional connectedness (Zak et al., 2005) as well as social relatedness on both specific and global levels in human relationships. The essential element to this hormone is that it could be a crucial component to more resilient processes, for example, facilitating a reward for the attachment system. Oxytocin can inhibit hypo-thalamic-pituitary (HPA) stress activity, increase sensitivity to social cues and mitigate against lack of trust.

Many of the spectrums of positive emotions, like compassion or empathy, are linked intractably to the social bonding emotions and a reduction in some of the negative emotions like 'stranger anxiety' in animal models (Witt et al., 1992) and human studies (Chatterton et al., 2000). As Lanius et al., (2010) describes, these processes in turn are activated when there is a greater social support work as a protective buffer to facilitate a cycle of further resiliency and greater social relatedness.

Wang's (2005) model argues that the value of synchronicity in caregiver-infant interactions helps develop many essential aspects like self-regulation, sense of safety, pro-social behaviour, and management of distressing emotions like fear and anxiety. These developments can likewise be followed throughout the human lifespan (Lewis, 2000).

Central emotions and emotional-lined behaviours like compassion and empathy serve to dramatically attenuate difficult experiences. The quality of depth in these feelings can dramatically improve treatment outcomes with super empathy. For example, outcome research with considerably more empathetic therapists dramatically increases positive patient outcome (Norcross and Goldfried, 2005).

Ethical Thinking Requires Compassion and Empathy

Understanding the differences between neural structures helps map the strengths and susceptibilities within the person. For example, Braum et al., (2002) highlights, "The right and left human brain hemispheres differ in macrostructure, ultra structure, physiology, chemistry, and control of behaviour" (p. 97). Schore's considerable work (2012, 2003a&b, 1994) focusing on the essential "primary" emotional aspects of the right hemisphere, which is responsible for activation within this region, processes negative emotions and can contribute to a negative reactivity/vulnerability response (Davidson et al, 1990 in Schore, 2003b). The detail to the neuro-psychological system is refined enough so its sub-sections, like the right amygdale, have a stronger activation for the negative responses of the right hemisphere. These areas are similarly much more sensitive to being attacked by stress hormone. These essential components of trust[5] form the neuropsychological bedrock of ethical thinking (Churchland, 2011) as well as the behavioural neural components of confidence (Panksepp and Biven, 2012).

These chemical cascades are important because the co-evolving interaction between experience and the neural circuitry (Hart, 2006) places the maturational process as central to learning and affective regulation (Schore, 2003a). This can occur in a positive resilient direction, or, in the case of the cortisol, these neuro-chemical interfaces can detrimentally affect the connectivity of these networks. Brown and Harris (1978), McFarlane (1989) found that a history of psychiatric disorders and extreme adversity was found to strongly contribute to depression and anxiety, but neuroticism was most highly correlated with psychiatric cases. This is likely to indicate key negative parental emotional-stresses that play an organising framework in the formation of the personality character structure. All of these elements significantly undermine the subject's meaningful capacities to trust and relate. There appears to be a strong relationship between brain and environment, especially linked to the concept of cortisol related neuro-toxicity/chemistry (Bremner, 2005b) and its impact upon human behaviour, especially in threat detection and cooperation (Churchland, 2011) in all aspects of human social relating.

The important implications for these research findings equally affect the organisational field. In developmental social neuroscience (De Haan and Gunnar, 2009; Behrendt, 2011; Decety and Cacioppo, 2011), evidence suggests the affective structure of the individual person reacts within a dynamic environment of a social or organisational context (Smith, 2009), both of which generate a dynamic feed-back loop and intermeshed physiological/neuro-psychological

---

[5] This dynamic trust relationship even extended to the mixtures of stress hormone released, where lower cortisol was found to be related to exaggerated cortisol response to stressors. The mPFC along with the hippocampus, and amygdale are brain regions are especially vulnerable to cortisol and stress hormones—usually connected with early traumatic experiences (Bremner, in Lanius et al., 2010).

processes of negative or positive stress reactivity. Much of this process can adaptively become negative and neurotoxic when danger is present, perceived or ameliorated amongst nurturing support. Therefore, this perspective is understood to be much less concrete. Stressors now can be seen to be much more subjective and unique to the person (Seigel, 2010) or the system (including as an historically linked pattern). The individual and organisational interrelationship, for example, (Argyris, 2000) describes self-awareness, a felt sense of competence, and self-esteem are all individual ingredients in managing challenge/stress.

These linked positive characteristics that appear to assist in managing task-related anxieties form part of the problem solving and organisational effectiveness that can generate similar capacities on a group or organisational level. However, Argyris (2000) points out that frequently organisational and individual development are often constructed in opposing directions where the employees self-development is at odds with the companies and therefore their well-being is perceived as a threat. In relation to organisational ineffectiveness, these can be marked by fears that often relate and extend throughout the organisational system—including affecting the unique characteristics of the professional task (Menzies-Lyth, 1988). Therefore, the moral and ethical dilemmas summarised by resource allocation, care, and trust place an exceedingly complicated demand upon the person and his/her neurobiological system (Churchland, 2011) as well as with the organisations. Festinger's (1957) cognitive dissonance theory establishes how the schemas that are used to explain or frame one's beliefs can change conflicting experiences. Decety and Cacioppo's (2011) outline emotional experiences and feeling states provides another valuable layer to how social processes can further intensify the conflict between thought, feeling, action, and behaviour especially as all of these aspects are usually socially mediated. On the other hand, Moon's (1999) analysis on moving from surface to deeper learning structures helps explain Argyris' point (2000) that not only by noticing, but by actively working to make sense of a "double-loop" learning system (that questions underlying assumptions and goals) both the individual as well as the organisation can escape the trap of pseudo-effectiveness and pseudo-health. This can be replaced with a more meaningful and positively-interdependent structure.

The neuropsychology of central modules in the brain neuropsychology of central modules in the brain (as well as supporting this data with a much more detailed in the Appendix III, on page 233 to ensure adequate evidence is mapped out) organises layered evolutionarily more socially complex outer layers. Digesting and integrating some of the most progressive thinking within and around the fields covered within this literature review provides a much clearer account of what can be seen within the spectrum of healthy as well as dysfunctional processes. Ultimately, much of this account supports a relational perspective that links body, self, and other within a social, supported environment.

Part of the task of the doctoral literature review has been to establish findings regarding the functional modules within the human brain that can be understood to play a crucial role in the operations of healthy systems as well as what happens when these systems become dysregulated. These neuro-modules highlight essential concepts, which describe

how trauma dynamically inter-operates within the human neuropsychological and social system. The new developed model serves to better understand gaps within clinical trauma psychology to help give a clear picture of how these neural modules play a part in mediating some of the complex neuro-chemistry—for example, cortisol or oxytocin.

When critiquing the present main models it is observed there are distinct blind-spots in understanding the relation between individual and systemic or group or organisational thinking. These difficult points function in a way that interferes with how we can clearly understand where the individual as well as the group begins and ends. The problems that occur like poor performance, bullying, emplyee-turnover, or absence including accidents or menatal health problems like depression all reciprocally interact on organisational performance (Jex and Britt, 2008). This complexity is especially true regarding how trauma may dynamically interact within the individual and organisation processes. These networks of interacting structures ultimately reinforce processes of vulnerability or resiliency for individual/group functioning and should be conceptualized as mutually interacting and synergistically layering upon and influencing each other.

The following is the author's visual map to organize this important integration of the spectrum of interaction to link up a holistic approach for Clinical Trauma Psychological care:

POSITIVE PSYCHOLOGY SPECTRUM

RESILIENCE

Actualization (flow)

Resiliency

Health

ORDINARY BASELINE STRESS

INDIVIDUAL SPECTRUM OF PSYCHOLOGICAL APPROACHES

ORGANIZATIONAL (GROUP) PROCESSES
SPECTRUM OF ORGANIZATIONAL AND OCCUPATIONAL FACTORS

| Trauma Psychology | Clinical Psychology | Counselling Psychology | Health Psychology | Positive Psychology | Coaching Psychology |

VULNERABILITY

ILLNESS

SR

TR

TSR

PTSR

Acute PTSD
-Hypervigilance (Anxiety)
-Disassociation (Avoidant)
- Mixed
- Chronic PTSD
- DID / MPD

Figure 2.4 Project—Integrated Clinical Trauma Psychology Treatment Model. (Author's diagram)

From this section some fundamental questions emerge: Is there a relationship between individual and group or organisational processes, and are there key differences between how these function, especially between healthy and vulnerable individuals/groups? This diagram helps clearly organize a much wider spectrum of illness and health and looks at how these can begin to potentially cluster towards the individual or the organisation in directions of vulnerability or resiliency. It is from this dynamic perspective of interaction that we can begin to look at developing a newer more integrated model of human functioning.

5) <u>New Integrated Model and Approach</u>

In summarising the findings from the literature searches, we return to Alexander's (1996) questions regarding why some individuals display psychopathology after trauma, others do not, why some become chronic, others do not, and

why some people have a delayed onset. One possible integrated model this paper puts forward as an explanation is that negativity both operates within a social-emotional systems and can trigger an adverse spectrum of reponses that may not ordinarily be present. This doctoral project quantaitively examines the basis of this hypothesis.

This project has outlined there is a lack of an integrated spectrum of illness and health, a poorly conceived neuro-psychological dynamic model in relation to psychological trauma assessment and treatment, a lack of an integrated developmental model within psychological tramatology, and a previously poorly conceived of working social dynamic model for how stress impacts social systems. As well as not linking a clearer assessment, psycho-educational model, and treatment approach for individuals as well as for larger social structures, this project has examined these areas and how these problems necessitate an integration of different models and thinking to develop an improved multi-spectrum model and treatment approach. Deriving from problems faced in clinical work it becomes apparent that concepts are not adequately explained. From the theoretical explanations, the aforementioned five areas listed in the beginning outline where significant gaps in clinical trauma thinking became highlighted as not being sufficiently integrated. These oversights impede innovation within the clinical field. A central idea within this section is that the conflict mediated in positive or negative directions changes the capacity of the subject to think, thus it can transform trust and thus significantly alter a subject's behaviour. This principle guides us to reconsider the field of clinical trauma psychology by helping to integrate positive change and well-being on a number of different levels. Realizing that in many circumstances fundamental splits can occur may undermine this integrative standpoint.

A significant departure upon traditional approaches includes the reflexive examination of the field of clinical psychology requiring a much more thoughtful review in working to understand the vehicle of treatment itself from an integrated perspective—if the cure is faulty so shall be the outcome of the treatment. Numerous critiques including Foucault (2001), and Laing (1960) have criticized the mental health field in its dysfunctional and sometimes cruel treatment of patients. This doctorate works to link together many of these commentaries along with gaps within the literature and the models within the field itself.

During the lengthy development of this project the author has evolved the core concept of *Integrative Compassionate Developmental Sustainability* (Copyrighted Richard Sherry © 2011) or (ICDS). This project's redeveloped use of the broader concept of *Integrative Systems Healing*[6] as a vehicle to work beyond the limitations of the techniques or thinking outlined within the gaps of the stress and trauma psychology field. The *ICDS* method, through the overarching concept of *Integrative Systems Healing* aims to change the supporting architecture of consciousness itself by adjusting how we are thinking about and working to resolve the problems in society. The *ICDS* method works by helping identify where there is significant fragmented thinking, functioning, and by employing compassionate

---

[6] The Rights and Copyright of the before-mentioned are the sole intelecctual property, domain, and designed practical applications of Richard Sherry. University, Computer designers, Statisticians, and Business Colaborators have no claim over the copyright, patents, apllications, any and all outcomes of this work, or renumeration that this testing package or the intellectual or theoretical concepts may hold not not nor in the future of its development or application.

strategies to improve upon these areas of difficulty it is easier to sustainably work towards achieving positive change by analising the balance of composite scores for vulnerability and resiliancy.

By working with empathy and compassion, as described with Gilbert's (2005a) compassionate-based therapy (CMT), or Kabat-Zinn's (2001) acceptance and mindfulness approach increases positive aspects of support. These models of compassionate care employ a much more integrated neuro-behavioural model, such as how cortisol and oxytocin might affect key functioning in the dynamic social-brain modules, especially in relationship to conflict. These concepts need to be developmentally understood as including ways to identify vulnerabilities such as fragmented links. The goal of this compassionate work is to incrementally build towards sustainable positive interventions using leadership to promote integrated, resilient, and sustainable individual and social structures in order to facilitate these positive changes in all aspects of global improvement on a spectrum of well-being. Assessing the treatment needs for individuals and for the larger social structures requires both identifying and then moving these systems from the high levels of distress and dysfunction, strategically working towards developing improved health and leadership to sustain these gains. Strengthening these systems further encourages the development of a positive protective element for stress reduction in both the individual as well as within the person's related group(s).

Moreover, within the area of the majority of clinical or medical environments the primary focus is on symptom reduction rather than on actualized well-being or human flourishing. The author feels neglecting this deeper and potentially more meanigful aspect of assessment, planning, and integrated treatment is a significant failing of most more singular focused therapeutic approaches. Many of the finer developmental changes such as developmental maturation or fullness of being or emotional presence are left behind in standard clinical models within this less holistic approach. This project raises the question as to why much of the responses to trauma or illness are lopsided, focusing on illness rather than effectively working towards developing higher levels of actualization and development (Maslow, 1999). Also, as the literature on post-traumatic growth clearly outlines (Joseph and Linley, 2008; Calhoun and Tedeschi, 2006) there is an examination of the rich developmental learning that can emerge when trauma is correctly understood. This understanding in turn can facilitate a significantly richer emotional and developmental unfolding process once the difficult issues are addressed.

Initial Definitions of *Integrated Systems Healing*

When setting out the terms of reference, for this doctoral project it was noted that the most important concept is *Integrative Systems Healing* which was arrived at independent to Goetz and Caron's (2005) concept. This approach was chosen and redeveloped in treating chronic trauma because it provides the most emotionally advanced integrated synthesis of research and clinical technology to bring about the best outcomes in assessment and treatment approaches. Some of the basis for this concept that is also innovative is the more systematic neuroscience grounding linking approaches originated in clinical trauma psychology, especially through examining Freud's thinking, more applied aspects of behaviourism, and the modern thinkers like van der Kolk (1996, 2012). Lanius et al's., (2010), or

Porges' (2011). This more recent neurobiological work demonstrates vital pieces of the picture that can also change clinical treatment effectiveness as a new model allows for us to look at the field differently by being able to critically compare and contrast the best and the worst from different models and approaches. The aforementioned works were prerequisites to be examined/reevaluated in this work. They are highlighting what is missing when the same methods improve the compassionate treatment of the individual, and how this reflexive learning could be thoughtfully applied to improve every level of human experience and consciousness from the individual levels to large social groups.

This concept of *Integrative Systems Healing* is derived from integrating the literature and thinking from the established perspective of clinical fields of psychology, psychiatry, traumatology, post-traumatic growth, health and well-being research. In addition, the author began with the insights derived from neuropsychology, neuroscience, social psychology, social neuroscience, psychoanalysis, family therapy, energy psychology, cognitive behaviour therapy, conflict and disaster medicine, organisational and occupational psychology, organisational consultancy, health psychology, counseling psychology, positive psychology, ethics, moral philosophy, history, history of human consciousness, and public health to look at integrating the best insights of these fields into a useful applied clinical approach. This methodology works to improve individuals and social functioning and performance by identifying areas of weakness (or gaps in integration) and working on strengthening them.

During this doctoral project, the author has spent considerable time and energy researching these areas to help create an informed global picture of what is presented within and between these areas, to arrive at the concept of *Integrative Systems Healing* and *ICDS*. The picture that has developed when these disciplines were carefully integrated has included noticeable blocks in integrating and representing multiple perspectives in examining these issues. This helped clarify a larger unity of the deep need to have a corresponding meaningful integration of findings within this field. It has helped clarify that in traumatic situations, a sliding scale of impact trauma does disrupt clear linked and cohesive thinking or feeling states. This doctoral research is looking to how to successfully find a way to understand what is happening on as many levels as possible within these fields and to help positively develop strategies to help heal distress and reduce vulnerability.

The project aims to heal fragmented systems, where it is necessary to understand how vital gaps drive and re-create these incoherent processes. The hope is that this integration fosters far reaching positive consequences to their applied field as well as working to facilitate and improve sustainable compassionate change in wider areas. *Integrative Systems Healing* is a process of reintegration that is looking to stop cycles of vulnerability and instead to create processes of resiliency. This project began by looking at linked strategies to dramatically improve the processes of support and compassionate care. These evolving new holistic frameworks begin to take account of the larger interacting system, instead of working with fragmented parts of the whole.

Integrative Systems Healing is a valuable conceptual and practical tool to help transform vulnerabilities to strengths and to encourage leadership in those who are involved to promote health and well-being in a multitude of environments they are able to positively affect. This positive healing capacity of the individual, which the author likens to a kind of well-being leadership, or a process of strengthening within the individual and helping them increase this positive development in others and in their surrounding environments. This positive support is a crucial part of the conceptual underpinning in this aspect of positive change transformation management (Bass 1985). Healing therapy supports Alimo-Metcalfe and Alban-Metcalfe's (2000, 2005, 2006) findings of the central importance of empathy or emotional intelligence (Goleman, 1998) for successful leadership. Adair (1988) in his study of great leaders beautifully summarises the importance of how these men and women are able to brilliantly integrate different systems and tasks to work together. One of the newest and potentially most cutting-egde theory of leadership the author has researched includes Senge et al's., (2004) and Scharmer's (2007) work on Theory-U. The theoretical approach is complicated and direct reading of the refernces provided is recommended. However, Scharmer's (2007) work helps to evolve excellent solutions to leadership problems by increasing the levels of listening and understanding to overcome unneccesary conflict and miscommunication that could prevent novel and workable solutions to emotionally or practically develop. In this form, great leadership helps profound emotional environments to emerge with the benefit of improving well-being and development for everyone within this system. In this form, leadership becomes a tool to help create health and an investment in well-being. This notion of emergent properties is pushed to a new conceptual level with the integrative systems healing by potentially operating in a more connected way of linking the responsibility of leaders in measuring, and working to ensure the emotional health and well-being of its members.

A sub-definition that emerged from the research (see pages 25 and 70) also through some aspects of this work was the concept of core compassionate sustainability, which is the conceptual approach that underpins much of the patience and perseverance to work through areas of difficulty towards greater levels of maturation and meaning. This is based on ethical framework like Seedhouse (1998). The author's own innovations in improving and integrating the central ethical frameworks (Sherry, 2012) have evolved a newer and more complete ethical model. All of the ethical thinking needs to be contextualised so it can be integrated into other complimentary areas like the neuroscience data about compassionate mind and how Zen- like (meditative) states operate to heal the human brain (Austin, 2001; Gilbert, 2005a), and thinking such as Capra's (1996) interconnected environmental models requisite for sustainability, all look at a more interactionist description on a global level to reduce unbalanced and problematinc processes like over-population or unsustainable polution. These individual or global models suggest that this linked-up capacity to understand one's stewardship (e.g. leadership), including developing the expertise in and around one's work or professional life provides a rich area to create valuable change. Improvements within the care of self and other(s) in an empathetic way can make critical positive impacts on multiple levels of health and well-being (Capra, 2002), which appear to also carry more global capacity to spark further positive change. Throughout this study, the logical analysis of these trends within vulnerability or resiliancy offers a transition in understanding total systems healing as critical in reversing much of this process of destructive negativity and its effects on all of life. From the analysis of the

centrality of the type of impact that negative or aversive learning is likely to make, to actually change much of these destructive cycles of behaviour, critical changes need to be put into changing social learning environments and greater understanding is required to tackle the implications in the directionality of these negative versus positive cycles of change. Much of this project works to integrate the different scales and direction that influence these processes.

Justification for *Integrative Systems Healing* and Compassionate Sustainability

As is outlined in the body of this project, the splits and significant shortcomings within the standard approaches of clinical psychology, psychiatry, and traumatology demonstrate gaps within the thinking that upon closer examination reduce the effectiveness of treatment, as well as the over all quality of life. Furthermore, with further investigation, these gaps can be understood to reproduce traumatic patterning across the levels of interaction. Where these inconsistencies are studied clearly enough, it is possible that this could provide important feedback that could be used to improve overall functioning and meaningful positive change.

The professional and organisational learning that the author has undertaken has involved drawing together all of the project's significant previous work and the modules to articulate a specific question about the relationship (if any) that might exist between an exposure to trauma and vulnerability/resiliency factors. Following this research is working to look at what are some of the key factors and how these elements interact. The research questions outline critical gaps within the field of psycho-traumatology looking at how an integrated model this of clinical trauma psychology can specifically improve approaches to addressing multiple fragmented processes.

Ultimately, these gaps in integration across systems undermined the clarity of the interventions and multi-disciplinary thinking and consequently were unable to understand the complex problems faced in clinical psychology, specifically problems that a clinician who specializes in the treatment of psychological trauma could be faced with. The challenges offered within the clinical treatment context has guided how, the research question was derived. These questions then captured the narrative thread of integrating holistic developmental treatment and in depth research. In integrating the ethical challenges created by thoroughly examining and working to treating complex problems a pivotal factor emerged which was the need to understand *compassionate sustainability* in balancing individual needs and rights with those of the contextualised system or organisation which the person is a member. The multiple cross-disciplinary method of working across the entirety of the developmental spectrum in a number of axis points and across disciplines opened up much richer information than the author had anticipated in beginning the project from the outset. Moreover, there was also a sense of wanting to more fully collect the gems of understanding that could help the field identify what are the needs to best address and provide the move towards healthier levels of functioning for both individuals and for systems. The information collected had to be carefully reviewed and edited to ensure that the vital ideas and thinking could be integrated together, but hopefully provides the first template to then be reexamined in the light of the quantitative data to support or reject the findings from the large literature review.

Development of an Integrated Psychometric Test for Psychological Trauma: the Sherry Trauma Assessment Test (STAT test) and Feed-back Learning Modules

In developing the systematized literature review that logically lead to this concept of psychological systems integration, this process has established a clear need to develop a more reliable cross-disciplinary psychological measure that can reliably validate psychological vulnerabilities and ill health. This paper has documented the thinking underlying the need for a state of the art psychometric in order to accurately assess multiple key spectrums involved in creating, triggering, maintaining, or resolving psychological trauma and other closely allied aspects of distress. If a method to successfully integrate fragmented ways of understanding could be developed this could be an important innovation to changing and healing individual and organisational processes.

From the literature review, it is important to begin to see the possible points of overlap. Life events measurement examines possible points of cross-over where experience moves from being something overwhelming for the individual to where the event functions on an organisational dynamic (Senior and Butler, 2007) to the point when it becomes traumatic (Breslau and Davis, 1987). It is possible that these two different fields of stress and trauma are part of a larger field of a continuum of human responses to challenge (Goenjian et al, 2001 and 2000) and perhaps different ways of looking at what has occurred either from a more detached objective vs. a more embodied subjective perspective (Solms and Turnbull, 2002). However, like Bush et al.'s (2007) research on fear and the formation of identity (LeDoux, 2002), the area of life event research critically examines some of the disparity of human response and its impact on functioning. The research considers the contributions of the previous studies, which hone in on the aspects describing differences in the relationship between clinical or non-clinical samples.

Ohan et al. (2002) performed a ten year review of trauma focused rating scales which concluded that because of the wide range of tools in psychometric measurement it necessitates the test user to clearly define the goals of assessment and see the tests as part of a limited measurement process. One critique against this view was that if there are essential factors available that would holistically ground the trauma assessment within a fundamental processes as Resick (2001) has examined in relation to PTSD symptoms, this could greatly focus the testing process on the most clinically relevant framework. To be able to better create this type of psychometric trauma factors, it would require a clearer relationship between sample differences. This would entail including possible underlying experience, attachment, personality-dispositional/genetic factors that are normally not trans-diagnostically accounted for. In critiquing the findings from this area of trauma psychometric research it could be said that there are a few validated measures that have strong internal, external, and constructive mechanisms. Careful analysis demonstrated that many of the same underlying factors are psychometrically similar.

Life events instruments exponentially appear to hold clinical utility, Brewin's (2005) model in a systematic review of trauma screening instruments concluded,

"There are as of yet no published screening instruments that have been shown to meet all of the criteria put forward at the beginning of this article, but it is likely that the next few years will confirm that the existing measures do offer good predictive across a range of trauma populations" (Brewin, 2005, p.61).

The issues brought forward included the length, the ease of use and marking, to create a test that has a balance between sensitivity and specificity (ruling in and ruling out). The new designed test had take into account that risk factors like family history are difficult to measure so some adaptive strategies need to be developed to account for this such as a more linked psychometric method such as had been evolved through 360 degree feedback (Bracken et al., 1997). However, these are still too cumbersome and have not been redeveloped for use with more clinical psychology samples rather then in more of an HR environment. Equally, if these measures are not flexible enough they will miss out on wider aspects of preventative psychological health screening.

Goodman et al (1998) noted that, "It is imperative that researchers develop psychometrically sound measures of lifetime exposure to a variety of traumatic events, even for studies which focus on a target event" (p. 522). The complexity of balancing clinical measures was highlighted by (Marmarosh et al., 2009) who advocated for the importance of more sensitive detection methods and instruments that serve to link with (and detect) key underlying structures. However, after years of research on life changes Mechanic points out that we know very little about the relationship of these transitions to events and individuals (Mechanic, 1974, p. 91-2).

The research on psychometric development and life events has accrued from an integrated approach that includes a clear method to mapping out and investigating both critical factors in risk and in resiliency. To identify the information derived through these factors it is necessary to separate out clinical and non-clinical samples as well as to define the catalyst for the pathological functioning. Also newer attempts have been developed to separate out issues into acute/chronic or specific age-related time spans (Jordan, 2010; Main, 1995).

Some of the first key work on trauma-based psychometric assessment tools was the Clinician Administered PTSD Scale (CAPS) (Blake et al., 1995 and 1990) which looked at symptoms across time (asking if the person ever experienced the type of trauma) and aligned the questions to match criteria for DSM scoring. This psychiatric focus has been shown to miss some important aspects of patient stress and symptom groupings (Elklit and Shevlin, 2007; Resick, 2001) and therefore, might be problematic and too vague to be the sole base for clinical reasoning using these types of measures.

Bremner et al's (2000) work on the Early Trauma Inventory (ETI) or the shortened self-reported version (ETI-SR) systematically elicits questions about the most frequent types of abuse *before* the age of 18 years.[7] One index that the

---

[7] A shortened self-report version is also available (ETI-SR) (Bremner et al, 2000) and it is worth note that both forms used a number of dissociative scores as control measures which (along with the video-taped inter-rater interview to ensure continuity of scoring). The p value for the dissociative scale (CADSS) (r= .56,

scale addresses are some of the critical findings about the specifics of earlier vulnerability factors (lists of events occurring as an unspecified cut-off age before the person was 18 years old). Higher scores indicated an increased risk for abuse. This is one of the best examples of a psychometric, which detects early abuse histories and highlights these vulnerability issues. A question remains, however, whether the psychometric is effective at understanding underlying dimensions of psychopathology, emotion, and stress related illness (Milana and Berenbaum, 2009).

One criticism points to the self-reported version, claiming that there is no age sensitivity in identifying the abuse before 18 years of age or to any specific more precise age range, which limits a more exact contextualization of the issues and understanding of the specific problems. Without these more fine-grained conceptualizations, it is nearly impossible to develop clearly formulated practical approaches that can address these difficulties. The interaction of life history leading up to diagnosis are complex, however Mueser et al. (2000) found high rates of PTSD in severe mentally ill populations. This highlights the need to devise a clinically dimensional psychometric that can provide good convergent and divergent properties to bridge the need to include the subtle clinical phenomenon, as well as to achieve selectivity and discrimination to differentiate the various co-varying factors at work within stress related conditions (Brewin, 2001).

However, with all of this clinical thinking there is no definitive study to establish the importance and measurement (including clear cut off scores) of clinical and non-clinical samples, It has not been explained how life events fit into the larger clinical treatment picture (if at all) including their connection to other psychological concepts (such as attachment or psychological mindedness), and how these concepts actually work with effective models of clinical treatment or interact within social environments and support. Establishing clearer clinical concepts would be one strategy to move towards improved frameworks for vulnerability and resiliency and a way to look at fundamental dimensions of what contributes to the formation of clinical samples.

Key questions include: can a psychometric scale include sensitivity to a full developmental life history? Could this be helpful clinically, and why? Could a clear model help underpin all of the different demands to improve on clinical psychometric assessment and treatment?

Chapter 3: Project Design and Methodology

df=25; P=.0002) as well as the other measures were highly significant for both PTSD and dissociative phenomena, as well as separating healthy from ill, and depression "caseness."

The choice of data collection techniques and research approach began with a consideration of a recurrent problem within clinical practice, which is mainly the lack of integrated information and communication at all levels within individuals and larger social systems that could comprehensively link with how an experience might influence emotional meaning. This work then led to the development of a triangulated method to re-evaluate gaps from the theory of vulnerability and resiliency found from the literature review. This data was used to cross-validate the new psychometric test that was developed through a significant literature search integrating essential clinical and neuropsychological findings. This method of test development and evaluation used the data created as a core product of this doctoral research. Reintegrating the findings from the psychometric test, the data was then re-evaluated and reflexively used to critique the professional field as well as the possible areas this research could have a significant impact upon psychological practice.

This integrated methodology was chosen first because the quantitative data needed to ensure the numerical data could discriminate clinical from non-clinical groups and validate the constructs for the new psychometric test. Secondly, and more importantly, this methodology is able to look at the entire spectrum of illness and health, related to stress and trauma, in a significantly more linked and dynamic way. This fuller scope offers a better account for critical gaps in triangulating where previous approaches could have missed significant pieces of information. This new methodology holistically looks at patterns or trends to determine where relationships exist; this especially concerns different studied groups of participants that may account for measurable differences between these cohorts and on individual levels if there are repeated patterns of difficulties.

The project has used triangulation of methods of psychometric measures. These were compared with the new psychometric which was developed as part of the project. Principal component analysis (PCA) was used to compare the predicted models to see if this information could accurately capture the model charted within the doctoral project to help contextualize this data.

The research methodology works to unify a wider spectrum of inquiries. As the author has described within the literature review, by using these gaps to look at previously compartmentalized research areas and how these areas interact. Utilizing contextualised information thereby clarifies key patterns that can be used to clinically address complex psychological traumatology as well as for working towards greater levels of well-being once these issues can be located.

1) Definition of Validity and Reliability: Validity refers to the degree to which an instrument measures what it intends to measure (Carmines & Zeller, 1979). In addition, Colman (2001, p. 773) notes that validity is "the extent to which specified inferences from the test's scores are justified or meaningful." Cook (1998) elucidates that a validity coefficient can be determined by finding a correlation between two variables (i.e. a

predictor and a criterion).

2) Understanding of Content Validity: Cooper and Robertson (1995, p. 54) define content validity "as a sample of items, tasks or behaviours that reflect the construct being measured." This content should be based on a thorough literature review of essential factors and be quantitatively supported with the following types of validity.

3) Understanding of Construct Validity: This type of validity is designed for comparing psychometric properties of other validated psychological measures to confirm the key factors, for example, the STAT test uses 23 subscores and measures all of these key factors within the test developed, following a thorough literature review (as outlined throughout chapter 2). These concepts would be able to explain the difference between key aspects of functioning in high performance individuals and teams within stressful environments (Picano et al., 2006). The construct validity can be used to define/refine the hypothesis. For example, the underlying quantitative features of the construct validity could be found by analyzing the data using Principle Component Analysis (PCA).

4) Understanding of Discriminate Validity: This aspect is ensuring the psychometric stability of reliably differentiating one group or population from another so that the quantitative data can be used to discern one factor clearly from the other. Colman (2001, p. 162) defines construct validity as "the extent to which a test measures a specified construct or hypothetical construct, determined by interpreting the psychological meaning of test scores and testing implications of the interpretation [especially within a meaningful context of related data (e.g., this author's additional thoughts on the original doctoral material)."

5) Understanding of Criteria Validity: This aspect of validity is examining the capacity to determine the extent to which a measure (predictor) correlates with one or more outcome criteria. Anastasi (1996) notes the usefulness of criterion validity as it can predict an individual's behaviour in specific situations. Cooper and Schindler (2003) explain that the criterion is valid if four qualities can be determined: 1) Relevance – the criteria must be defined and scored properly; 2) Freedom from bias – where the criterion gives each person the opportunity to score well; 3) Reliability of the criterion – that is, the criterion is stable and reproducible; and 4) Availability – information of the criterion must be available. There are two types of criterion validity, namely Concurrent Validity and Predictive Validity.

6) Understanding Concurrent Validity: The test needs to correlate positively and substantially (>.4) with tests measuring the same concept but it should not correlate with tests that measure different concepts.

7) Understanding Predictive Validity: Discriminate validity or power measured by Delta (1 to 0) (1 is perfect) Normed distribution of scores = .93 is very good/excellent. (0 = no power) High scores with groups matched on other variables should show more disturbances (for example experience of trauma, etc.) so distinguishing clinical groups and predicting higher scores for clinical groups.

8) Ecological and Diagnostic Validity: This is when a test can be used to be applied in a real-world setting, especially for the purposes of assessment and diagnosis, so the issues of type I and type II errors (Field, 2009) do not render the inclusion or exclusion of critical factors and tests are capable of measuring what they are supposed to within a real world professional setting.

Defining the rationale with these parameters for validity and reliability has helped develop a framework for comparison of the tests used and therefore assists in establishing a clearer grounding as to their veracity of findings from the hypothesis for predictive validity and the discrimination of non-clinical from clinical samples. These psychometric principles will help cross correlate important features about the groups (and by extrapolation, the populations) studied and will help ensure that proper aspects of the STAT test developed as a critical aspects of this project. This is reliably validated to ensure it can then be utilized to improve professional clinical practice, thus further improving the innovations within the field of clinical trauma psychology.

Content Validity

The Content validity, which is the material covered (or content of the questions), is consistently addressed. The same experts were consulted and a similar level of precision was found. These experts reported they understood the components covered all the aspects of the attribute in a balanced way with nothing essential within these categories.[ii] Once more, the points of language and wording for feedback permitted refinements and some minor changes, to improve the quality of the clarity, were made.

Pilot Study

The pilot study is an essential part of this test development process that allows us to check layout, language and other technical aspects of the blueprint so as to help the development of the psychometric measurement. The psychometric development of the STAT has been an extremely intensive and complex process where both computer and paper versions of the test were developed with their own unique demands in test construction and innovation (Haladyna, 2004). All small-scale feasibility trials were undertaken with explicit directions, as the test was an experimental design was refined during this process of participant feedback. Initially, this was done under the direction of conjoined clinical and academic supervision, with research ethical permission to pilot the STAT test (for full information about the test see Appendix VII, page 269) with clinical and non-clinical samples. First, 5 participants (all of which were from a non-clinical sample) each were asked to complete the first draft of the STAT psychometric. The author was

very mindful of his ethical and clinical responsibilities and needs of those who were able to consent to what was being asked in completing the form.

After another round of corrections taken from the first collection of participant feedback, 10 more participants, 5 further non-clinical and 5 clinical in patients sample of participants were asked to complete this psychometric with the explicit instructions that this was a test under development. These participants were not used as the wording of the STAT was changed slightly to clarify the questions, as suggested by the participant feedback. Furthermore, the clinical sample were inpatients, as it was concluded it would be better once this group was no longer in an acute state, to ensure the patients could be monitored at all times during and awhile after completing the STAT test to ensure no adverse responses were experienced. For the non-clinical sample, a clinically qualified investigator sat with them to ensure no problems occurred. No contraindications were noted with either group, even after extensive debriefing with both clinical and non-clinical participants. The only drawbacks found after being able to modify the clarity of the questions was the test's length. Two notable responses were that they wished the test was shorter. However, in using the first piloting beta-tests, after ethical approval was granted, several patients from the clinical group had significant breakthroughs in the therapeutic diagnosis, which completely changed the outcome of their care, dramatically improving their treatment and therefore their well-being. The importance of this should not be over-looked as many of these patients had seen many medical and mental health specialists with no previous notable shift in their treatment or functioning beforehand. The STAT test was successful in integrating a built-in developmental model in several critical cases to fundamentally change the assessment, treatment, and outcome of a subset of before a group of patients that were identified as likely to be "untreatable."

Participants

The purpose was to design a study to have three different identified samples. These groups include known psychological patients undergoing clinical psychology treatment, two student samples (a population that is generally known to be used as a usual "control group" (Field, 2009), and a known physically healthy, but possibly trauma exposed sample--either directly through active fire fighting duty, or indirectly by answering distressing emergency calls in the case of emergency dispatch operators (Boozer, 1998). The purpose of having a fire-fighter sample was to compare and contextualize a clearer examination of the effects of trauma exposure on psychological health. Part of the task of this project was to help with discriminate validity testing and to have a comparison of 'healthy controls' across the spectrum of two possible levels of potentially clinical trauma exposed sample. It is important to note that the data sampling is never absolute, regarding mental health screening, and these imperfections do carry some implications in the findings for how precise one can be with the knowledge claims made from the study. Plante (2005, p. 110) highlights research as a foundation of clinical psychology and providing important answers about diagnosis and treatment. However, some sampling and data collection related methodological issues, for example, correctly separating out symptomatic clinical samples from actual healthy controls, could complicate the precision in examining what the clearest relationship is (if any) between trauma exposure rates and its impact on subjective indices like

emotional intelligence, self reports of authenticity and rates of self-reported psychopathology. In sum, Kane (2006, p. 139) establishes the criteria for evaluating psychometric testing, claiming that an essential task of the clinician should be to clearly understand the interpretive argument, the proposed interpretation, the plausibility of the assumptions, and the separation of these from alternative explanations.

There was not a systematic attempt to artificially screen-out sample inclusion/exclusion. If there was any history of mental health in the fire or student sample, the author felt it would be better to include a much more ordinary and naturalistic "sampling picture" to include everyone who wished to be a part of the study as long as there was no mutual feeling of worry about the emotional impact of the questions (which was not found to be the case). However, as the statistical approaches will demonstrate, there was ANOVA analysis and Post-hoc analysis to determine if there were significant sample differences.[8] For all groups an in-house person, lecturer for the students, the treating psychologist for the out patients, or Fire PR person announced the study was going to take place. For the students this was given in class, for the fire department an information flyer was put in the online server notifying fire service men and women this was available, and for the clinical psychology out patient sample, they were asked if they wished to take part if during the assessment there was nothing that would deem this to be counter productive to their treatment.

As this was a clinical psychometric test, all aspects of the development of the test were done with meticulous attention to ethical approval and close expert supervision. This initial study was based on a sample size of 5 friends and colleagues who agreed to take the first dry run of the test with comparative similar psychometrics. Then, five patient clinical samples were used, followed by another set of ten non-clinical and ten clinical samples. Each time adjustments were made before the larger studies were carried out for paper and pencil and for the later computer versions were used. For each main category 14 times the number of items on the questionnaire items were used for each related category. The sample size was cut down from about 200 participants to 155 participants to ensure complete answer sets were provided.

Ethics

Full consent was obtained for all groups. The study was evaluated and passed by Middlesex University Psychology Research Ethics Board, and for access to their student sample the Newman College Psychology Department Ethics Committee conducted another complete ethics review approving of the practitioners/faculty to have access to their students as research participants. The Fire Service held several discussions across the service group to approve of the research within the fire department. All aspects of this study adhere to the BPS code of ethics for psychological research (2006). Additionally, all standards met the rigors and professional framework in line with psychological standards for research, treatments issues and needs commensurate with the BPS Clinical Psychology Practice Standards (2001, 2008).

---

[8] The evidence shows validity testing differed between the two groups at a significant level. If there was a difference in the relationship between the indicators for psychopathology and emotional well being, they were found to be statistically different between the groups.

Confidentiality was rigorously reinforced through measures commensurate with the Data Collection Act to meet standards of the BPS (British Psychological Society), the National Service Framework, and the institution Awarding Body of Middlesex University. The design and aims of the project are in line with the four Ethical Principles of the BPS Ethical Guidelines (2006). These include: Respect, Competence, Responsibility, and Integrity. The political and social implications for this work aims to improve the care of rescue professionals to provide a humane method to screen for vulnerabilities and full details of safety and ethical aspects are listed in the full ethical consent form (listed in Appendix V&VI). This project takes all of the ethical, legal, social, and political aspects to include a mindful-approach to address these issues so the highest standards can be attained with the research carried out. Integrity, confidentiality, and care of the participants and their information will be maintained thereafter (Shillito-Clarke, 2010).

Reviews of the ethical research provided a thorough groundwork to some of the issues about the specific needs of particular students sampled (Foot and Sanford, 2004), patient samples (Seedat et al., (2004), and to exploring these questions psychometrically (Cromer et al, 2006). The consensus is that in exploring these kinds of questions, a good ethical framework was provided. This agreement is utilized in the works of (BPS, 2006; Blaxter et al, 2001; Williams, 1998; and Seedhouse, 1998) and the researcher handles the topic carefully and sensitively, these questions actually are found to be important by the participants and helpful on many levels (Cromer et al, 2006).

All of the data has been completely anonymized and presented as group processes and the highest research standards have been used throughout each stage in the process of developing, gathering, processing, and presenting the data. This will ensure that all individual information has been completely erased for identification.

Participants in Research

The first group of approximately 60 participants was gathered from a psychology outpatient sample distributed to ages 16 to 65, with an equal distribution of men and women as part of in-take assessment and clinical audit to form the basis of good practice (BPS, 1995, 2001). The patient sample was important to assemble and analyze as the background data for this sample was very extended and well known to the author and therefore provided a clearer understanding into the results of the questionnaire, along with providing a more distinct correlation within sub-factors. All groups researched were asked if they would wish to have their data anonymously used for the research. Participants were able to withdraw at any time during the questionnaire taking, as many are not in good health however no one did as the patients that were willing to supply their data originally volunteered themselves. During this time any questions participants might have were addressed and the well being of participants took priority over any and all research. **Summary Statistics for 'Patients' sample:**

Mean age: 35.75 (35 years—nearly 36 years)
Female to Male ratio: 40:33

British to Other ethnicity ratio: 38:31

Chart A: Ethnicity Distribution "within" Patient sample.

Chart B: Disorder distribution "within" Patient sample.
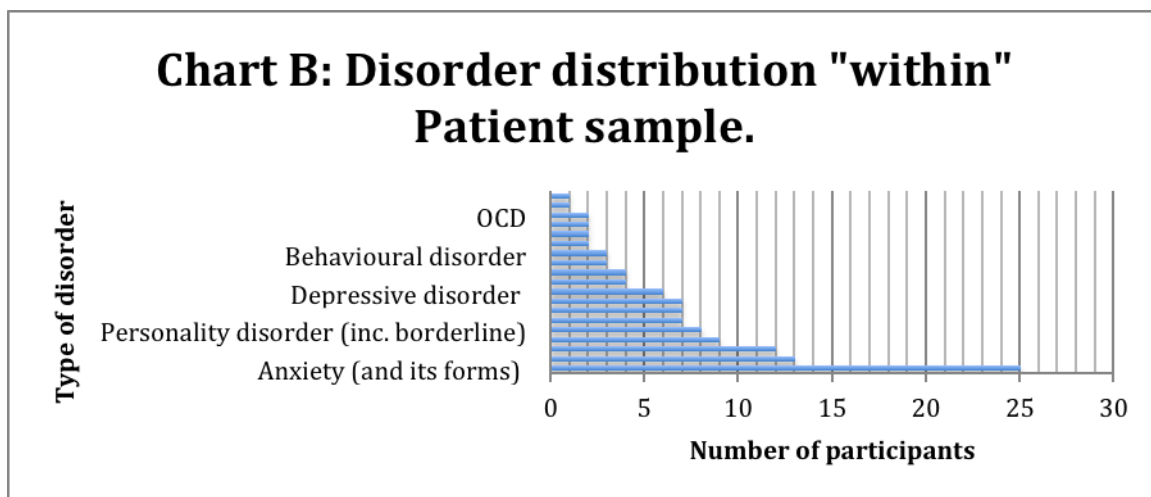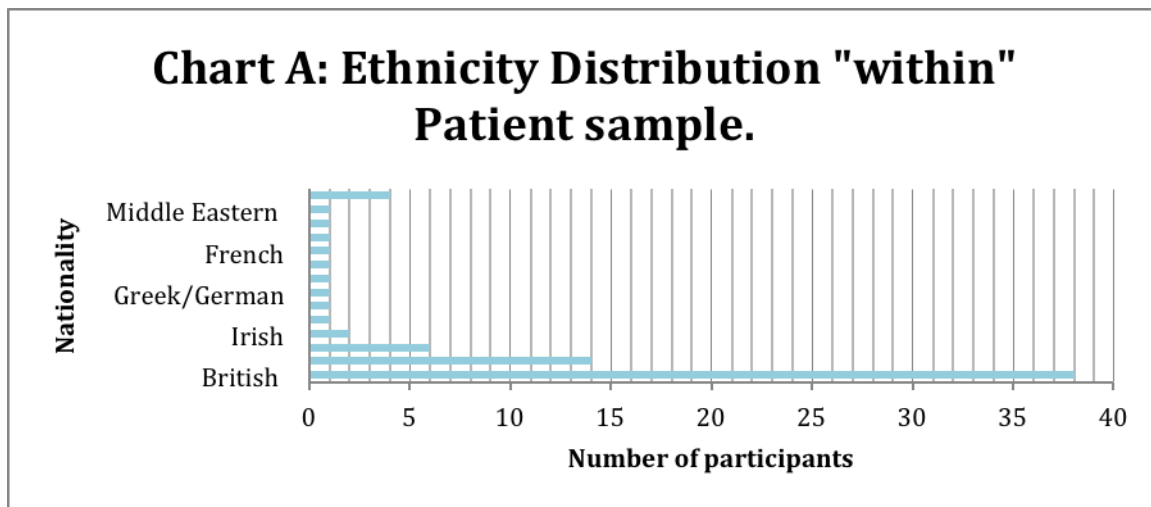
The second group of controls numbered approximately 62 participants total. As the psychometrics was extensive this was not as easy to recruit control participants as was wanted. However, this sample served as a control sample and was the most convenient to recruit due to both samples of students having an evident or compulsory motivation to participate in the research questionnaire. Therefore, two student samples were used, but their data was kept distinct to ensure if there were clear sample differences this would not undermine the clarity of the data found. A sample of 27 Newman and Open University Students who volunteered for the study with a prize drawing incentive of an iPod nano was compared with the outpatients sample, whose information was collected with their permission as part of a clinical audit carried out during the assessment. This group was an equal mix of males and females from 17 to 23 and was primarily Caucasian. A second set of University Students was gathered from a sample of 35 students taken from Middlesex University. This sample was made up of majority of women of Somali and Afro-Caribbean culture with the group covering ages from 17 to 25. These students needed to complete several tests as part of their participant project points to complete their course module.

Summary Statistics for 'Students (Newman College)' sample:

Mean age: 24.52 (24 years and 6 months)
Female to Male ratio: 19:8
British to Other ethnicity ratio: 19:8

Chart C: Ethnicity Distribution "within" Newman College student sample.

Ethnicity	Number of participants
Eastern European	1
African	2
Indian/Asian	2
Latino	3
British	19
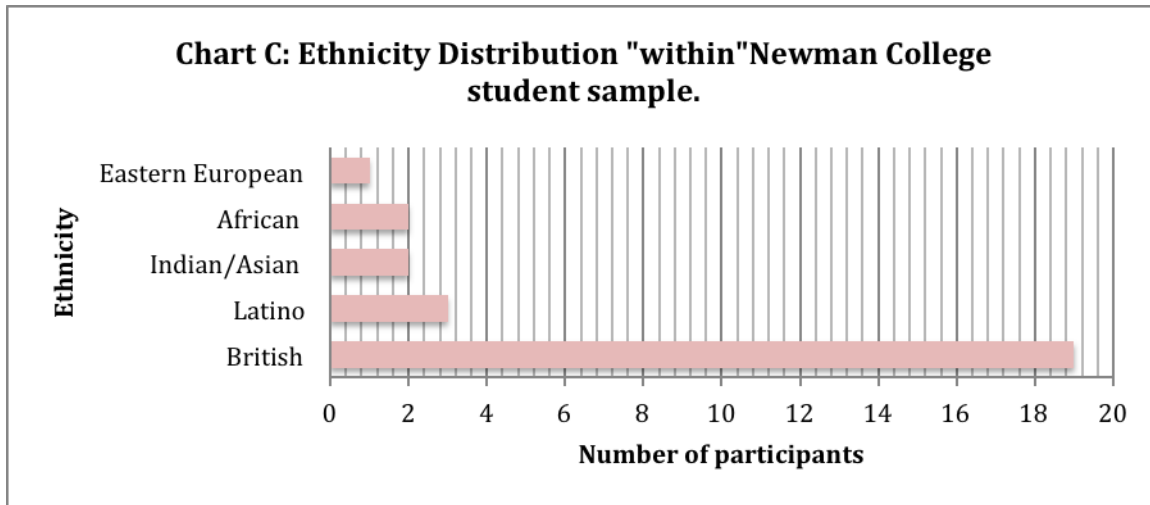
Clinical to non-clinical ratio: 2:17

Unfortunately, not all the participants wanted or remembered to provide their full background details, however all the data that was submitted is reported above.

Comparison to reported demographics for the population of Newman College:

Age is reported as 52% young and 48% mature

Gender: 78% Female/22% Male

This is a fairly representative participant sample from the Newman College student population.

Summary Statistics for 'Students (Middlesex University)' sample:

Mean age: 19.85 (19 years and 10 months)
Female to Male ratio: 26:1

Chart D: Ethnicity Distribution "within" Middlesex University student sample.
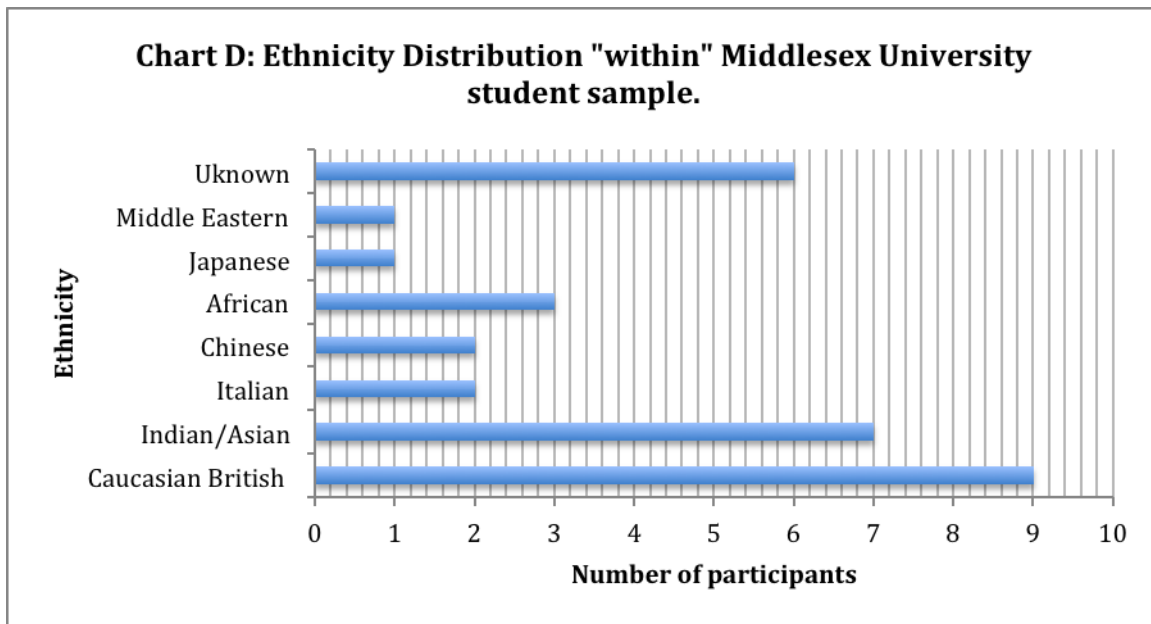
British to Other ethnicity ratio: 8:15
Clinical to non-clinical ratio: 7:31

Unfortunately, not all the participants wanted or remembered to provide their full background details, however all the data that was submitted is reported above.

Comparison to reported demographics for the population of Middlesex University:

Age is reported as 50% young and 50% mature

Gender: 59% Female/41% Male

This is a fairly representative population for an introductory psychology class, being mostly female and younger, however within the larger University population as a whole this sample is comparatively younger and includes more females than the overall reported campus wide reported statistics.

Comparing

Middlesex University **Newman University College**

Demographics

	Middlesex University	Newman University College
Registered Students	20,495	2,795
Mode of Study		
Full time	74%	70%
Part time	26%	30%
Level of Study		
Undergrad	76%	94%
Postgrad	24%	6%
Gender		
Male	41%	22%
Female	59%	78%
Age		
Young	50%	52%
Mature	50%	48%
Overseas		
UK	77%	98%
Overseas	23%	2%
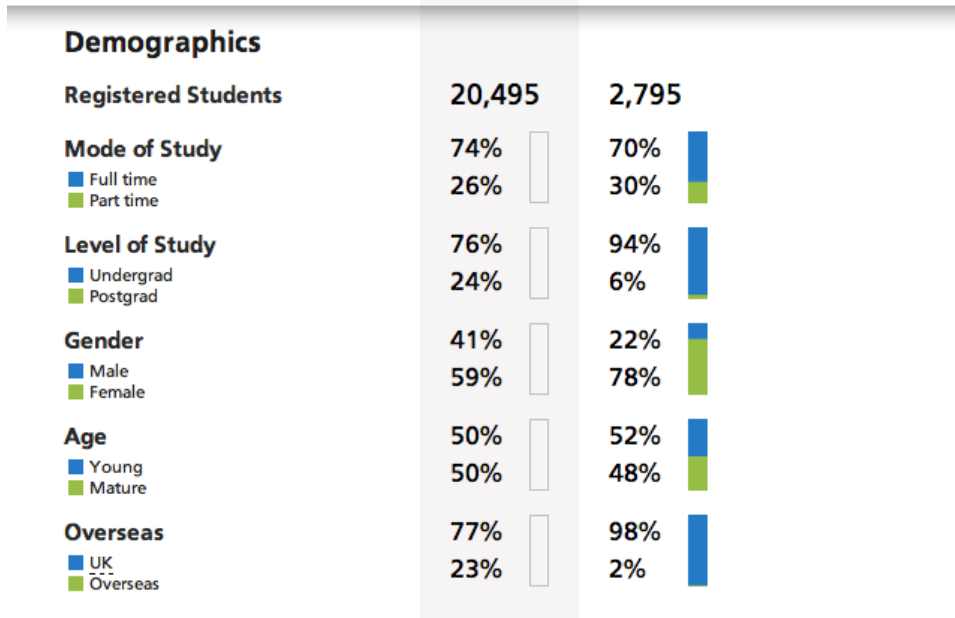
[Information from Which Uni Info (2013)—this web site provides statistics and information about British Universities]

Trial Study for Factor Analysis

The third group contained approximately 33 fire fighters who fully completed the psychometric battery in an on-line computer format. The original fire fighter workforce sample was extended to 1500 fire fighters, however just like the patient sample, the fire fighter sample was self-recruited. This was the first sample used, but because of organisational tensions the study was changed to use the other samples listed above and a paper and pencil test was used as the availability of computer access made this difficult. This group of fire fighters was the group the author was originally researching, and second, fire fighters provides an ideal sample to look at exposure to possible high impact events and how this could possibly affect mental and physical health. For this sample, 33 fire fighters at different levels and occupational specialties participated within the data collection. They were both men and women, from all levels of active fire fighters to officers from head quarters, and support staff. As is consistent with the demographics of the specific fire service, most were male and Caucasian of various ages and ranks.

Summary Statistics for Fire Sample:

 Female to Male ratio: 5:19 –for the sample that is known (e.g. some details were not given)

Chart F: Gender distribution "within" the general firefighter sample.
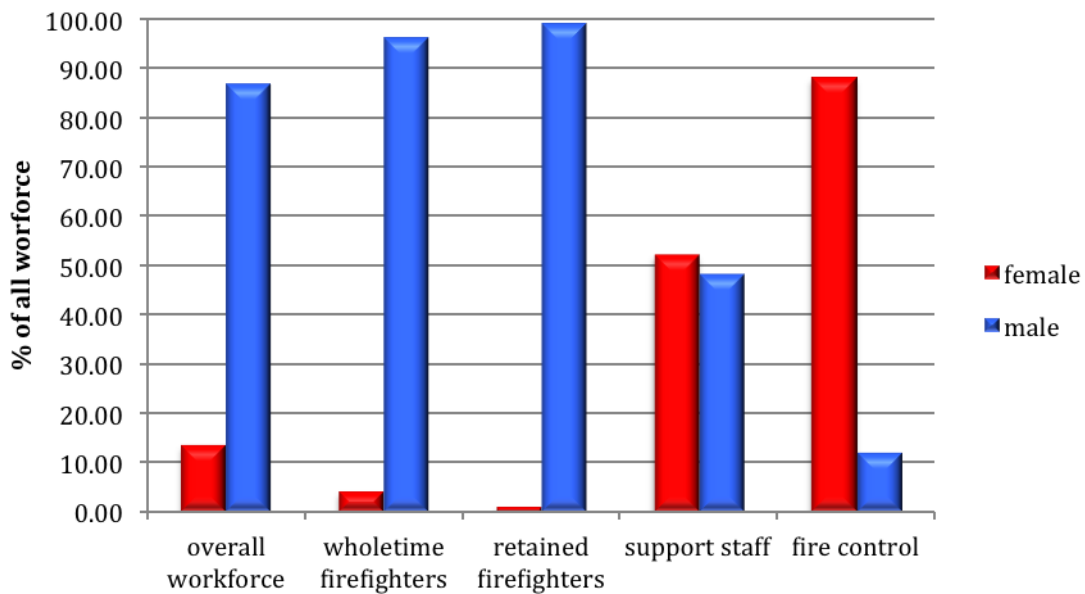
Chart G: Distribution of disability "within" the general firefighter sample.
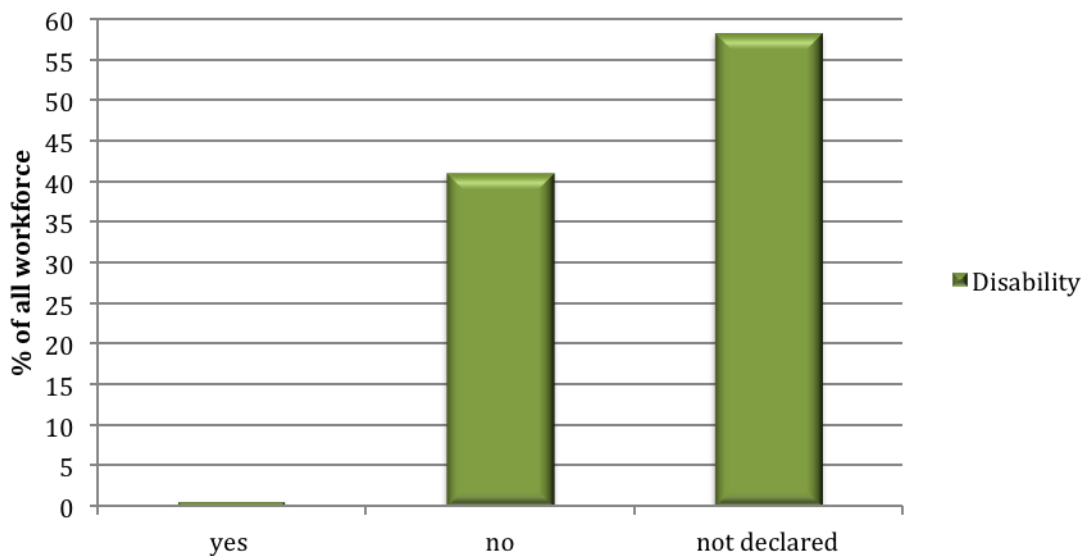
Chart H: Age distribution "within" the general firefighter sample.

A bar chart showing % of all workforce (y-axis, 0 to 35) against Age (x-axis):
- under 18: 0
- 18-24: ~5
- 25-34: ~21
- 35-44: ~33
- 45-54: ~32
- 55-64: ~7
- 65-69: ~0.5
- 70 and over: 0
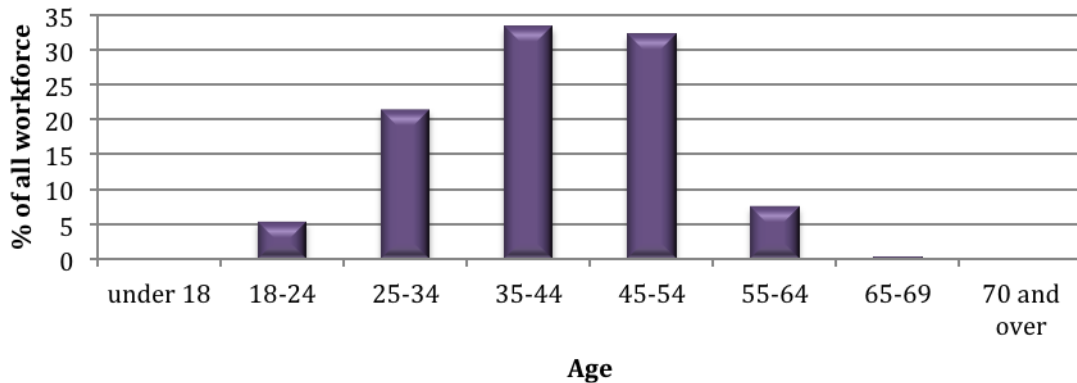
The data shown above is representative only of overall fire and rescue services workforce. Unfortunately, a lot of background data on the sample of candidates that fully completed the STAT questionnaire is missing, mostly due to the fact that the participants omitted to, or did not remember to, supply their details. The following categories show the data that was submitted, representative of the firefighter sample of participants:

Mean age: Unknown
Ethnicity recurrence: - British – The predominant demographics from the fire service are predominantly British—However, this information was not collected.

British to Other ethnicity ratio: Unknown but presumed if this is a representative sample that the majority would be British.
Clinical to non-clinical ratio:

Unfortunately, not all the participants wanted or remembered to provide their full background details, including their clinical record history, however all the data that was submitted is reported above.

Comparing The Different Participant Samples:

The patient sample is older then the student sample, however, the Newman college sample is 10 years younger, and the Middlesex sample is 16 years younger. All of these samples are predominantly female, with the exception of the fire service. The precise data comparing clinical to non-clinical is presented within the results section.

Overall, there are some differences, notably in age, however, when examining the details for the ages, for example the clinical sample has sufficient similarities in same age cohort where the most significant factor becomes mental health, which is captured within the data and can account for these differences.

Note on Contextualizing Differences between Total Data Sets

For incomplete data the fire sample had 57 incomplete responses from those who did one of the online computer testing batteries, while for complete sets this went down to 33 respondents. Certain tests were more frequently in completion for all of the groups, for instance the GHQ, where there were 195 completed tests, as opposed to 161 for the WASAS, or because the protocol was slightly changed to include some improved trauma research scales, the TSC-

40 was introduced after the fire service research was carried out so there was only 98 respondents who answered this questionnaire. However, for the "super data set," except for a few measures (e.g. TSC-40, AS, AES, and VLQ) that were introduced after the fire research was completed, the rest of the large data set had a clean 155 number of research participants from all of the combined groups. The quality of the data was very good and the students were meticulous (as their directions stipulated to try and not miss any questions) and if there were questions with this clinical sample, a clear answer was provided by the participant. Therefore, the quality of the aggregate data, which was repeatedly checked and rechecked, was of the highest quality and meticulously handled at every stage of the research collection, entry, and rechecking of data. So, overall for the completed data there was relatively little lost, and what was present was reviewed and carefully linked so the same data for the "super data scores" was consistent throughout the different tests and is reliably linked up for each participant.

For much of the key part of the data analysis, a linked sample of all three groups of 155 participants was assembled into the "super data" used; so between and within designs could be statistically explored for the data results with both major sections of the psychometrics complete and with no distinct problems from consistent sections left incomplete.

The Study

This dissertation investigates within the field of clinical and counseling psychology, as well as traumatology and psychotherapy, looking at possible differences in group characteristics of mental health using a standardised battery of clinical psychology trauma measures and positive psychology scales and co-norming this with a new clinical psychological measure, the STAT psychometric test. Three smaller participant samples of about 50 participants in each group, fire fighters, one group in an ordinary outpatients clinical psychology private practice and another two sets of university students, were examined. The aim of the study examines attachment as measured by the Romantic Attachment Scale (Rom Att) (Brennan et al., 1998). Within the test and its classification of secure, anxious, and or avoidant subjects were examined in relation to clinical psychology. This analysis will not merely pose a question about indicators of psychopathology, but also will provide an inquiry into early and late life events, trauma indices, attachment and positive psychology measures including aspects of psychological mindedness.

In outlining a proposal for a more integrated model for addressing the effects of chronic trauma and aiming for well-being, the paper maps out one of the first evidence-based attempts to link these concepts and critically examine the relationship of these professionally used psychometrics along with validating a new integrative psychometric that forms a part of the backbone of this doctoral project. Moreover, the principles of innovating a newer model of integration and sustainability offers a point to develop a framework for addressing many of the outstanding problems that we are currently facing in every aspect of human society where there is notable difficulties in compassion and coherence within inter-relating systems are trying to balance conflicting demands with self-preservative response versus compassionate care. This professional tool, as outlined within this project, both conceptually, as well as

potentially practically—as an applied psychometric, could provide an important innovation to better assess key factors in psychological fragmentation and improved ways to identify these issues of identifying vulnerability.

As Chapter 2, the Literature Review outlines, theoretically and more practically, this work hopes to demonstrate first that there is a lack of integration within the core theoretical and ethical theories[9] that make up our attempts to psychologically address trauma or difficulties. Second, there is a split within the literature of the field of psychology that has occurred on a number of levels that fragments the coherence of any sort of manageable framework to conceptualise, and properly treat distress. Finally, third, it focuses on articulating a clearer relationship between maturational developmental factors contributing to psychopathology (e.g. early life events and attachment) and how positive psychology could be linked to resolve this gap in theoretical and practical knowledge to make sense of the complex inter-relationship between objective events (reality) and the subjective frequently distorting processes. Furthermore, this project has intensively reviewed the standard perspectives about issues of vulnerability and has demonstrated quantitatively an evidence-base as to the relevance for a reflective process starting from the wider theoretical approach about traumatic fragmentation of processes and how clinicians as well as social policy makers could begin to more accurately measure central issues within emotional development. From this point, using an improved assessment strategy difficulties within how negative emotions are authentically managed on individual as well as for larger social levels could help innovative a significantly more dynamic systemic approach (and eventually a treatment pathway could be developed) to achieve an improved quality of life and well-being throughout society.

Materials

All measures applied were self-reported versions (see pages 89-91 for detailed explanation) and were used within the study, except for the fire-fighting sample, for which a computer version was used without the additional positive psychology measures such as Valued Living Questionnaire (VLQ)(Wilson et al., 2010), Assessing Emotions Scale (AES)(Schutte et al., 1998), and Authenticity Scale (AS) (Wood et al., 2008). The practicalities of the study were slightly changed and the importance of including a full spectrum of strengths and weaknesses in testing became evident after engaging with the fire service. Further detailed research provided some exemplars of other psychometric tests, for example the General Health Questionnaire (GHQ-12)(Goldberg and Hiller, 1979) have some positive elements embedded within the measures, so these were able to be used to compare some of this information with the fire-fighter's data. As the study evolved first using the fire service, who had the computer infrastructure to support on-line testing, other participant samples were needed to examine psychological traumatology. Therefore, two additional samples a clinical and student (control) sample were sought. Computer support was exceptionally difficult to sort through, so paper and pencil versions of the tests were employed. With this later version the additional positive psychology measures (VLQ, AES, AS) were given with the test packets. The content of the tests were identical and the only difference was answering by clicking a button for the answer to checking the answer on the paper version.

Measures

---

[9] See appendix for fuller details

The following psychometric tests were chosen because they are professionally accepted and utilized standard measures with recognised psychological properties available in the field of clinical psychology and traumatology today (Ohan et al., 2002). With standardized quantitative data it is easier to accurately compare new measures as was done within this project. From the literature review problematic gaps, most notably Keane et al., (1992), has identified this lack of holistic integration within the psychological and traumatology assessment. These gaps necessitate adjustment following psychological psychometric tests. The tests form a backbone research tool that was felt to adequately address what the inter-relationship between these area of diagnosing psychiatric 'caseness,' attachment measures, trauma life event measurement, and measures of positive psychological functioning may be. All data for reliability and validity have been carried out and are presented within the next chapter. The following are details of the specifics of the particular psychometric measures used and further information contextualizing why these tests were selected:

1) General Health Questionnaire (Goldberg and Williams, 1988) (GHQ-12) is a short screening tool designed to assess changes in an individual's ability to carry out daily functions and examining a one-dimensional model of psychiatric "caseness" or psychological illness (scores of 3 and above provided a clinical base-line cut-off point). This questionnaire was chosen because it is widely used as a brief, but clear rating of psychiatric mental health, it is also free access with no copyright restrictions. The subscores for the GHQ-12 has been developed and psychometrically applied where the factor structure has yielded distinctive subscores, often into three factors: in Japanese adult males, factor structure identified psychological distress, social dysfunction and happiness, also a three-factor structure was found, which included psychological distress, social and emotional dysfunction and cognitive disorder. In both studies, when factor analysis tested the validity of GHD-12, it was found that the study sample size was large enough and the number of joined factors by the Eigenvalue was greater than 0.30, indicating it was "potentially meaningful." These additional subscores were utilized to explore the additional factor structures available within this psychometric test.

2) Work and Social Adjustment Scale (Marks, 1986) (WASAS) (5 questions) measures key aspects of impairment in life functioning work, home management, social life, private leisure, and family on an 8-point likert scale, higher scores indicate greater disturbance. Scores of 3 and above provided a clinical base-line cut-off point. This is one of the best brief subjectively aimed questionnaires available. Copyright duplication was requested and granted from the authors for clinical and research purposes.

3) FAST Alcohol Screening Test (HAD, 2002) is a short alcohol screening measure (4 questions) that provides a brief evaluation of problematic alcohol use. A supplementary questionnaire was sought to look at levels of alcohol consumption to ensure physical health aspects and also possible complicating neuropsychological factors related to alcohol (Lezak et al., 2012) could be looked at, as well to make sure co-morbid addictions and psychological trauma (Dass-Brailford and Myrick, 2010) was not missed. This is an open sourced material sanctioned for research.

4) Romantic Attachment (Brennan, Clarke, and Shaver, 1998) (Rom-At) (36 questions) this is a newer self-report measure for adolescent and adult romantic attachment orientations classifying into three main categories (secure, anxious, and avoidant). In many ways this is one of the most interesting psychometrics as it has been successfully co-normed with very long and complicated attachment assessment interviews (such as the Adult Attachment Interview (AAI) (Main and Goldwyn, 1991) and these were modified by Hazlan and Shaver (1987) to distil some of the essential elements of the underlying dimensions of the test in a shortened form. Permission for using and copying the test for clinical and research purposes was sought and granted directly from the author of the test.

5) Early Trauma Inventory (Bremner, 2004) (ETISR-SF) (29 questions) examines general traumas, physical punishment, emotional abuse, and sexual events all of which occurred before 18 years of age and ask "Yes" or "No" if the person experienced these experiences. The shortened self-rated test provides one of the best trauma exposure assessment tools. The stipulation for fulfilling the shortened test is if the event happened before the person was 18 years of age. It is helpful to have a clear cut off for earlier trauma exposure, but this is also not precise in indicating any more specific time period. Permission for clinical and research use was sought and given directly from the tests author.

6) Extended CAPS Checklist (20 questions) (Blake et al., 1995 and 1990) and Weathers et al., 2001 and 1999) is a self-rated PTSD life time exposure to stressful experiences. The person can grade the intensity of their experience; they witnessed it, knew someone who experienced it, or they were not sure, and does not apply. These scores are added up and a score is given based on the proportionality of the person's exposure to the distressing event. This is one of the best-known trauma scales; it is a very good tool for looking at the severity of likely events that could be causative for trauma exposure. None of these are linked to any developmental context. This is an open source psychometric with no copyright restriction related to research or clinical work.

7) Trauma Symptom Checklist- 40. The Trauma Symptom Checklist-40 (Briere, 1996) (TSC-40) is a 40- item self-report research measure, which assesses symptomatology of adults resulting from childhood or adult traumatic experiences. The instrument consists of six subscales: anxiety, depression, dissociation, sexual abuse trauma index, sexual problems, and sleep disturbance. Sample symptoms from the subscales included: tension; sadness; low sex drive; feeling that things are unreal; and insomnia. The subjects rated their own experience of how they felt related to each of these sub-scales on a 5-point Likert scale from "not at all true" to "very often true". Responses to the Likert scale indicated the frequency of occurrence ranging from 0 (never) to 4 (often). Reliability of the TSC-40 was adequate, with alphas for the full scale averaging .89 to .91, and subscale alphas ranging from .66 to .77 (Briere, 1996). For the current study, an alpha of .89 resulted for the full scale TSC-40. Elliott and Briere (1992) found the measure had high internal consistency (alpha = .90) and discriminate capability between women who have and who

have not been abused. This is a very good scale for subjective, especially physical/somatic responses to distress. This is an open sourced test with no copyright restrictions for clinical or research work.

8) Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983) (HADS) (12 questions) was designed to screen for mood and anxiety disorders in medically ill patients. (Score from 0-21; 0-7, normal; 8-10, mild mood disturbance; 11-14, moderate mood disturbance, and 12-21, severe mood disturbance). This is one of the best-known clinical psychology measures, which is quick, clear, and easy to administer and rate. It has built-in sub sections that can be used to examine negative and positive dimensions. The older version (1983) was used, as it does not have restrictions on copyright for clinical or research.

There are two major sub-scales to the HADS, one measuring anxiety and the other – depression. HADS demonstrates the three sub-scores of the Clark & Watson's (1991) tripartite theory: negative affectivity, anhedonic depression and autonomic anxiety. In fact, the HAD depression sub-scale is made up of 8 items, which can be grouped into three sub-scale categories through common factors, therefore supporting assignment of HADS to the tripartite model. The three sub-categories that make up the tripartite model are the general distress construct, autonomic stress construct and autonomic anxiety factor (Dunbar et al., 2000). These additional sub score scales were used to explore further dimensional factors within the analysis of the data.

9) The Assessing Emotions Scale (33 questions) (Schutte et al., 1998; 2001) (AES) is a self-report emotional intelligence test that consists of appraisal of emotional understanding in self and others. This is a valuable tool to more precisely look at emotional intelligence and the social and cognitive implications of emotional intelligence. Permission was sought and gained from the authors for use for clinical and research work.

10) The Valued Living Questionnaire for own personal sense of importance (10 questions) (Wilson et al., 2010) (VLQ) rated the different dimensions of the past week. This is a two part test that compares subjectively how important the 10 different dimensions of life and well-being are to them and in the next page it asks them for the same categories where the person feels they are in his/her life. This is helpful to look at disparities in between the scores for each person. This is an open sourced positive psychology measure with no restrictions for research or clinical application.

Authenticity Scale (Wood et al., 2008) (AS) (12 questions) this measure provides direct evidence as to the validity of authenticity to that of subjective and psychological well-being. Well-being is merely having levels of psychopathology; it is a measure of positive psychological attributes including emotional intelligence and psychological mindedness. The psychometric measures for this scale specifically addressed items such as anxiety, stress, and happiness. The test construction was organised on a spectrum of self-alienation to authentic living. Samples using factor analysis and multi-group confirmatory factor analysis (CFA) found the authenticity scale was

psychometrically robust with 2 and 4-week test—retest reliability from .71 to .91 and correlated with subjective well being (SWB) and psychological well-being (PWB). This test was chosen because it is a positive psychology measure that addresses more of the psychotherapy dimensions of the emotional quality of self (see Winnicott's work on the true and false self (1965). For this reason it is unique and underlies components of internal and external experience of relationships. This is an open sourced psychological measure with permission given for clinical and research work.

15 FQ+ (15FQ+ Technical Manual, 2002) An additional note should be made that personality measures were taken for all of the fire sample and many of the clinical and control group, however because of the constraints of time and complexity of processing the data as it was already significantly labor intense and highly complex this material will be evaluated at a later stage for the further development of the research project. However it should be noted that a comprehensive personality measure was collected within this research. Complications in having support from the test developer to integrate the online and paper versions were not sufficiently sorted out in a timely manner sufficient enough to collate the scores. Moreover, the unwieldy nature of the profound quantity of data made it significantly too great of a challenge to complete without greater resources and statistical support. However, this data is something the author does wish to return to further examine this rich data to provide supplementary support for different areas of the research.

Procedures

There were two sets of directions that only differed because the original fire-fighting sample had computer-based tests. The actual directions were identical and only differed in the medium of the test platform, e.g. computer format versus paper and pencil. The directions for the tests were explained to the subjects and clarifications for possible areas of confusion like the 'Rom At Scale' (Brennan et al., 1998) was provided for the participants. If the participant was not currently in a relationship, they were instructed to use their last relationship to answer the questions. The subject would be asked to put one of their most significant friendships or other close relationships instead of leaving the measure blank. They were also instructed to fill in every answer they could to the best of their ability and answer as best they could if they were in doubt about a definitive answer. Furthermore, they were to follow the printed directions on the measures and seek clarification if needed. In case of emergency where the questionnaires may have triggered some distress, a specialist clinician stood by and was available to provide support by phone for the participants. Upon follow-up no reports of notable distress were reported requiring supportive intervention, but the diagnostic clarification did facilitate one student seeking psychological support, for which the clinician/researcher made a referral to the person's GP for specialist mental health help.

Following all laws and copyright restrictions the test assessment packs were photocopied and distributed with the request that the participants fill the packs out on site. If, due to time or unrushed thinking space and the possible need for privacy required, there was a provision for completing the test packet at home. There was an additional instruction if the person became distressed they were to discontinue the tests and could phone the clinician/researcher if support

was needed. In no cases was this issue reported. There were 6 cases that did not return the test packets in each of the academic and the clinical sample. The academic section was skewed, as there were 3 lecturers who asked to participate whom each took a packet of tests. The author was interested in having a university sample with an extended age range to help match the other samples. However, none of this section of the possible sample handed the test packets in and consequently this data was not collected or put into the statistics collected. The other three were student participants who took a test packet, but did not return them.

There was no other equipment and there was no time limit to fill in the psychometrics. If the participants wished to complete the form at home instructions and information for return of materials were given. One notable difference should be highlighted in the differences between the samples; the fire-fighter research data was gathered first as was all computer-based testing. This change was instituted in response to the organisational political pressures between the fire union and the fire-fighting headquarters. The research became a visible target of disagreement along with possible inter-departmental rivalry that exploited the tensions between the fire union and fire headquarters.[iii]

Limitations of the Methodology

With any methodology, it presents with some shortcomings. For this quantitative psychometric-based research it is important to map-out the standard problems encountered with this research approach. These problems include: the limitations of self-report measures, which prevent absolute clarity and generalizability of findings. Using a large number of psychometric tests, which was undertaken within this study, can contribute to questionnaire-fatigue from completing many questions, which in turn can reduce the saliency and awareness, meaning, and understanding of the answers read by the participant and the accuracy of what is reported. All of these issues can undermine the effectiveness of the methodological approach (Nunnally, 1978) without careful ways to methodologically and statistically address these problems.

Data Analysis

To adequately ensure the accuracy of the information found and the significance of the findings data analytic techniques were used to take account of the limitations of the methodology used within the study. One of the most significantly complex parts of the methodology was the multiple levels of checking and ensuring that no question was entered incorrectly. Where possible if there was a question if this could be clarified and a definitive correct response could be given in the data set. There were more respondents, however, for those who had completed all of the aspects of the different tests, with no substantial missing data, these were then taken and compiled into a set of "super data" that could link all of the information across subjects across tests and scores. The meticulous detail of the test and data entry process ensured that the compared psychometric tests all of the critical sub scores could be given so none of the richness of the data was lost. The data was processed using PASW 19 for SPSS latest version of psychometric software

Chapter 4: Project Activity

Developing a Questionnaire

Much of this doctoral research and the collective project have been focused on the production and validation of a new clinical psychology trauma psychometric. As this is a clinical measure, developing and piloting this psychometric test was undertaken with great care and the clinical and research supervision was heavily relied on to ensure foremost there was no harm done to clinical and non-clinical participants within the study. The results that started coming back challenged the preconceived picture the author envisioned by helping to pinpoint the importance of significant meaningful life experience as well as highlighting clearer external markers of psychological functioning. A logical development occurred from looking at noticeable deficits within clinical assessment tools as outlined within the psychometric tests used (see pgs. 85-88), which clinically seemed to miss the most essential information that could affect patient treatment. In working through the literature review and the initial aspects of test development, the author began to understand that the test results satisfied more systemic attempts to examine and heal the impact of trauma, in particular the importance of understanding how maturational development changes the same dimensions of many of the sub scores. For many of the pilot tests participants, they described (and fed-back) the STAT test significantly helped them (and in several cases lead to some therapeutic break through) by linking relevant developmental experience with clinical symptoms in an organized way.

Piloting the Questionnaire

The development of the psychometric questionnaire has required a prolonged process of writing and re-writing and required both computer and paper versions of the test to be created with their own unique demands in test construction and innovation (Haladyna, 2004). All small-scale feasibility trials were undertaken with explicit directions that the test was an experimental design very much in development. This was done first under the direction of conjoined clinical and academic supervision with research ethical permission to pilot the STAT test (for full information about the test see Appendix VII) with clinical and non-clinical samples. This information was outlined in Chapter 3 (pages, 80-81) in greater detail. To briefly summarize, first, 5 participants were each asked to complete a psychometric test (the STAT psychometric) that was under development and asked to give feedback. This was undertaken and the recommended changes were incorporated along with supervisor's recommendations for change. Another round of 10 participants were asked to review the test, 5 from the clinical and 5 from the non-clinical samples. This earlier sample collection was not used as the wording of the STAT was changed slightly to clarify the questions as suggested by the participant feedback. Another reason for not including this first set of pilot samples was many of this sample comprised inpatients where it was felt it would be better to ensure the patients could be monitored at all times during and for awhile after completing the STAT test to ensure no adverse responses were experienced. For the non-clinical sample, a clinically qualified investigator sat with them to ensure no problems occurred. No contraindications were noted with either group, even after extensive debriefing with both clinical and non-clinical participants. The only drawbacks found after being able to modify the clarity of the questions was the test's length. Two notable responses were that they wished the test was shorter. However, in using the first piloting beta-tests after ethical approval was

granted, several patients from the clinical group had significant breakthroughs in the therapeutic diagnosis made that completely changed the outcome of their care, dramatically improving their treatment and therefore their well-being. The importance of this should not be over-looked as many of these patients had seen many medical and mental health specialists with no previous notable shift in their treatment or functioning beforehand. The STAT test was successful in integrating a built-in developmental model in several critical cases to fundamentally change the assessment, treatment, and outcome of a subset of before a group of patients that were identified as likely to be "untreatable."

Insider Researcher

After careful consulting and evaluation of relevant ethical issues of power and responsibility (Costley et al., 2010), the work-based environments where the author was engaged within the clinical psychological work commensurate with his profession was found to lend themselves to a deeper exploration within the subject area of stress and trauma treatment. The research provided a vehicle to facilitate this exploratory process to better understand both the clients or patients and potentially the wider context of these issues of what can change the directionality of vulnerability or resilience within the area of a stress response. The subjects, whether they were from the in-patient hospital, the fire service, or the academic environments, in each of these places contributed to the first stages of the development and later the test collection. In collecting the data as well as in analyzing it and working to systemically understand this information within a formalized context formed the thinking space to examine these questions about the impact of the work environment on the human psychological experience. These work-based collaborations brought challenges that eventually helped deepen the scope of what the project was to encompass. An examination of these aspects will follow within the discussion.

One of the advantages, when one is inside an organisational environment, is that it is easier to have greater access to participants and resources. However, the author's experience with the fire service's stalling, unpredictability, and even aggressiveness proved that the organisational processes are sufficiently strong enough that even an insider who is trying to understand the processes occurring can be met with unbelievable negativity.[10] The complexity of the experience dealing with the organisational processes so puzzled the author that it encouraged him to undertake and complete the MA in Organisational Consultancy at the Tavistock. As the participant research data was collated the organizational changes necessitated gathering participants from other areas besides exclusively using just a Fire Department sample. The project met with the realities of the organisational politics, which thus the doctoral project was forced (probably to the benefit of the depth and scope of the research) to significantly expand the use of insider researcher collaborative partnerships within other areas. The data collection also used multiple tests to ensure the nature of differences within and between different research samples could be adequately examined. What the author found was these challenging "real life" experiences deepened the importance using a more reflective capacity to examine the research gathered and the context of the working environments as to how the findings might relate. The

---

[10] It should be noted that the research field diary which forms an important part of the data collection is quided as part of the dissertation data. As the journal is quted the material is taken from the author's (Sherry's) own words and therefore is written as "I" and in the first person within these sub sections. This is why the material does transition from the standard third person to some paragraphs where the first person pronoun is used.

author found by using a methodology that could be used to look at gaps or fragmentations within different systems this integrated perspective could more effectively begin to account for the dynamic capacity of how these systems interrelate outside the closed circuit of a controlled academic or theoretical model. This more experiential perspective vastly enriched the author's research capacity and his depth of expertise in managing research and negotiating within complex systems. The structure of thinking about one's experience (e.g. reflective practice) has changed the author's confidence to work through considerably more difficult applied work-related problems where he has found has clearly increased how he tackles larger and more complex issues (for instance see Appendix XV. –page 400—for the social programme U4U, where older adults can support and help care for other older people). Part of the learning about being an insider researcher is taking the understanding from one's experience and finding strategic ways to accurately redevelop and reflectively apply the learning from these processes to new and more challenging projects.

Fire Service Data Collection

The first part of the study the author worked on as the treating psychologist for the fire service. Originally, when the study was first conceived headquarters were approached about the idea to study the psychological well-being of their employees. An example of how the reflective learning first took hold was changing how information could be understood. The author (Sherry) was intrigued by a chance comment from one of his patients about sharing his learning with the rest of his fire watch. The patient began to describe what facilitated or blocked his capacity to change as integral to what happened with the group process. The patient described that he shared with his watch all of the things he thought about and learned from his psychotherapy sessions, which he out of his own volition brought back to his group (the fire watch) to help them think together to improve all of their capacities for well-being. In working to try to get the patient to reduce his alcohol intake, he replied, "It is Christmas time, and the only way I can reduce it is if everyone in the watch agrees together to drink less." The author asked what could be done to lower the quantity consumed. The patient clarified, "if that happened [everyone reducing the alcohol intake], then it definitely would [work] to cut down and lower their alcohol intake." This insight into leadership and followership of the group process, and change in health within the inner workings of the fire service convinced the author to go to the management and propose the research study to better understand sustainable change.

In reviewing this aspect of the project activity the author felt that the organisational politics absolutely hindered the data collection. Referring to the learning journal he kept during his research experience, he described, "At first everyone who I spoke with was very keen, but I quickly saw the political split between the fire union and headquarters where it took almost a year to get the relevant approval from the responsible parties, which was, after a long delay, signed off. Then the computer testing development took another year and a half with delays in getting a workable beta version trialled. When I went back to begin the test collection I ran into difficulties and needed to renegotiate the entry again with the fire union [as there is a long-standing defiant disposition to most change—as a fearful reaction of worrying their members will be neglected]. This conflict was ironed-out with some quite determined renegotiating after another six months.

A clear example of the difficulty of collecting data became evident. I then began the rest of the test collection, which was slower than expected. After some checking this project's author discovered someone within the service had the link taken off the fire service intranet without notifying me. The link was reinstated in a few weeks and again the same situation recurred. Just at the point when I was nearing a significant sample size I received a phone call from the head of HR who called me in for a meeting literally the day my first-born son was delivered [in the maternity hospital]." A heated conversation was had where I felt the HR Director was quick to dismiss and not listen to me. He agreed to a meeting. A later entry added, "At the meeting some of our disagreements were addressed and I understood we were able to come to a compromise. All of the points which he found problematic were accounted for in the conception of my project and the expertise in which I could deal with them, however, he cut-off all contact and would not return any of my phone calls for four months. In this period of four months when I tried to schedule a time to speak with him his secretary would reply that she was sorry but he would not be able to take my call." Quote from field diary

This section of the dissertation has evolved from the author's experience of returning to his learning diary to approach the problems that he was facing within his field research and gathering data to re-think what could be contributing to the problems, for instance in the fire service, saying they wanted to research issues of stress, but the author's experience of being actively undermined (for example, with his computer link which allowed the computer data to be gathered being taken down without letting the research team know). Additionally, using multiple examples to look at context and working to try and extract meaning from the information has become a discipline that has permeated the author's work and thinking.

Returning to the author's field research diary to illustrate the above points, a later note from the diary concluded, "It was later as I wrote within my leadership portfolio (Sherry, 2009) that the same pattern of blocked communication and breakdown—that just happened within the [fire] strikes, was repeating and appeared pervasive throughout the entire experience of my working with the fire-service." As the author reflects on these experiences, he describes, "I am astonished with that same painful sense of disbelief that these events could happen within a professional organisation. However, this was to become my first glimmer of insight in being able to identify large-scale organisational-level trauma and to be able to think about treating the organisation as a whole. This was one of the most painful experiences I have had to date in my professional career, but in deeply interrogating my understanding and experience it provided me with one of the most significant learning opportunities—especially in grappling with this issue of studying psychological trauma. Through these difficulties, I feel I have followed my project to its logical conclusion to arrive at the concept of Integrated Systems Healing and the ICDS method." Quote from field diary

This central idea of the importance of integration within clinical trauma psychology is at the heart of this work and will be returned to within the discussion to more clearly link together the theory with the innovation with the new STAT psychometric, and the embedded systems development for assessment and treatment support.

Expanding the Participants Sample

The dawning realization that the fire service data collection was mired within unmanageable political issues necessitated the author to look to other possible samples. Equally in revaluating what was missing in the data, the author had an insight as to the value of positive psychology measures that were missed (except for the embedded negative and positive tests that were in the HAD for example). The author corrected this omission by adding some key additional tests. From my initial samples collected from the authors clinical outpatients sample and from Newman College Undergraduate Psychology Students he supplemented these when he collected another larger further sample from my outpatients and another larger Undergraduate University Psychology Student sample from Middlesex University. All of these were paper and pencil tests, as my groups did not have the same access to computers, as did the other fire samples.

Chapter 5: Findings

Chapter 4, Project Activity, provides some background context elucidating some of the complexity and the richness of the psychometric tests, the complexity of the working contexts it has been developed from, as well as the volume of

data generated. From a 155-person sample with 11 psychometric tests used to cross-validate the STAT measure. Many of these tests had specific sub scoring embedded data that was also retrieved. The projects methodology was derived through a thorough literature review, which was employed in examining the findings. The research questions based on the literature review (see pages 28-79) validated a new approach to assessing psychological trauma.

Analysis

It is helpful to outline in greater detail the research focus on quantitative analysis to contextualize the design and data analysis. A series of statistical analysis were chosen to ensure a clear examination of the three different samples: fire fighters, outpatients and comparison student samples. The type of data analysis that were chosen included: Factor Analysis, ANOVA's, Principle Component Analysis and ROC Analysis were used to derive clear cut-off scores for the STAT psychometric test, and some further work is being carried out into Structural Equation Modeling (SEM) to link up the individual scores to create a clearer dynamic social modeling. A more detailed synopsis of this statistical methodology is summarised as an overview:

Factor Analysis is a multivariable research technique that reduces the complexity of a large data set by combining a group of similar factors into a unitary set of data and removing the unnecessary factors out of the equation overall. The goal of factor analysis is to not only to make the data easily accessible and understandable for the interpreter but also to create a commonality that makes the data more efficient to transcribe (Huck, 2012).

ANOVA, better known as Analysis of Variances, is the most popular statistical tool that enables the interpreter to successfully compare the means and significance of their variances. This technique is very versatile as there are a number of variations to it: one-way ANOVA, mixed ANOVA, etc. The difference between various ANOVAs is in whether or not they provide single or multiple inferential statements when analyzing a set of data (Johnson, & Bhattacharyya, (2010); Huck, (2012).

Principle Component Analysis (PCA) is a data reduction technique, which aims at creating a correlation between mutually independent principle factors. With the use of the formula, it ''seeks to maximize the sum of squared loadings of each factor extracted in turn". (Kothari, C.R. (2004)). A paper on comparison of Common Factor Analysis and the Principle Component Analysis states following about PCA:

- 'PCA does not involve underlying hypothetical process or construct'
- 'PCA analyses all the variance of data';
- 'PCA tends to increase factor loading, especially when comparing small number of variables/low estimated communality';
- 'PCA is not appropriate for examining the structure of data' (Kim, H. (2008))

ROC analysis/curve identifies the correlation between the correct and incorrect observer responses. ROC analysis tends to be applied when there are clearly two or more different factors, sometimes called events and non-events. A study by Wandishin and Mullen (2008), for example, uses ROC to its primary role in the characteristic to ROC analysis area, evaluating the discrimination of the data and distinguishing between factors included. In the following case, this ROC chooses specific factors that are being analysed from a wide range of regular options. The specificity for correct and incorrect responses are read by measuring the events, or in this study the score and making a distinction if the data is included within this category or not (Wandishin, M. S., & Mullen, S.J., 2008).

SEM, or the Structural Equation Modeling, is a data analysis technique that focuses on latent factors or/and variables that can be noted and measured. SEM expresses data not only through analytical equations and data tables but also through various complex diagrams. SEM is similar in its goals to factor analysis in that it seeks and identifies unseen variables but it differs in that it also avoids the possibility of an error by 'illuminating any causal connections that may exist amongst variables' (Huck, S.W. (2012)).

Principle Component Analysis is a data reduction technique, which aims at creating a correlation between mutually independent principle factors. With the use of the formula, it ''seeks to maximize the sum of squared loadings of each factor extracted in turn". (Kothari, (2004))

Power Analysis is 'the ability of the study to identify the result in question' and to examine the statistical power of the data presented. Power analysis is measured through three main factors: sample size, effect size and variability of data. Sample size and variability of data have a negative correlation, whilst the effect size by itself has an effect on how great the power of the study is (Ghaemi, 2009).

HADS or Hospital Anxiety and Depression scale is a rating scale questionnaire that examines the psychometric properties of large populations. Since it was developed in 1983 by Zigmond and Snaith, it has widely recognized and applied to measure anxiety and depression (hence the name) in patients, varying from normal to severe health. Three sub-scores of the Clark & Watson's (1991) tripartite theory: negative affectivity, anhedonic depression and autonomic anxiety that are very similar to Dunbar, Ford, Hunt, & Der, (2000)'s the tripartite model: general distress construct, autonomic stress construct and autonomic anxiety factor.

GHQ or General Health Questionnaire is a questionnaire and an extensively administered instrument for measuring current mental health. It was first developed by Goldberg during the 1970s and since then has been a valid and a reliable tool in successfully and accurately assessing patients from normal to severe mental health. GHQ has variations to it, depending on the amount of items it accesses (GHQ-12, GHQ-28, GHQ-30, etc.). Over the years, the

reliability of this questionnaire has been tested through the use of Cronbach's alpha coefficient and has given only satisfactory results. As for its validity, GHQ was tested with convergent validity, only to give a significant correlation between the two comparable items. GHQ is a well-presented tool that varies in its structure and length to suit individual needs of each person specifically, making it not only a well validated and accurate instrument for accessing and analyzing a patient's mental health but also an accessible one.

In practice, when factor structure was applied to GHQ-12, it mostly always yields into distinctive subscores, often into three factors. In support of this, there are two articles supporting this statement: the first study is a study of male adults in Japan and the other is of Malaysian College students. In both cases three factors were revealed: in Japanese adult males, factor structure identified psychological distress, social dysfunction and happiness, while in Malaysian college students, also a three-factor structure was found, which included psychological distress, social and emotional dysfunction and cognitive disorder. In both studies, when factor analysis tested the validity of GHD-12, it was found that the study sample size was large enough and the number of joined factors by the Eigenvalue was greater than 0.30, meaning it to be "potentially meaningful."

The complexity of the data analysis required several layers of work that has been supervised by experts within this area. As statistical analysis is not a core skill of the author, acknowledged experts with skills commensurate to ensure the data collection supported this area of expertise and analysis was followed through and met appropriate standards requisite for a doctoral level project. This includes initially Dr. Tracey Cockerton helping the author process and examines the data from the fire service. The further work in collecting and examining all of the data was done by Professor Abouali Vedadhir, who came recommended to the author when enquiring through his *Alma mater* at University College London in the statistics department. Professor Vedadhir was recommended through his wife who is a doctoral candidate at UCL in the statistics department. Professor Vedadhir, who is a professor of sociology and social science, ensured the data entry into SPSS (PASW 18) was methodical and thoroughly checked. He was able to carry out the data analysis and ensure the data entry, the results, and analysis could be checked and rechecked to ensure this complex data met with the highest stringent standards required of a doctoral dissertation. Dr. Huw Jones has helpfully rechecked the findings throughout the project at both this initial phase and again at the end to ensure continuity and coherence of the data, process, and analysis results. Dr. Steven Walden has worked with me to ensure the reliability for the Structural Equation Modeling (SEM) (see Appendix VII—page 320—where this report is presented within this doctorate material).

Clinical and Non-Clinical Samples

The question if a clear difference can be seen and more importantly identified between clinical and non-clinical samples are fundamental to the field of clinical psychology and traumatology. For these reasons the study compares 4

groups (including two university student samples) to see if significant differences will be seen, especially if significant distinctions can be drawn between clinical and non-clinical groups.

Clinical psychology and positive psychology are portrayed as being completely separate fields with no real integrated spectrum or relationship of ill health to well-being. The problem of defining possible parameters between these aspects of human functioning creates a difficulty in having clearer aims for assessment as well as for possible outcomes of psychological therapies. Therefore, what are the statistical differences between the healthy and ill extremes between and within the groups for the psychometric scores?

The Null Hypothesis for these questions concludes: there are no significant differences between samples (groups) nor within these groups for healthy or ill scoring sections of the sample

Table 5.1: Contingency Tables (Crosstabs) Tests sub-groups by the samples (groups)

Groups	Fire	Clinical	Uni	Middlesex	Total
GHQ sub-groups					
Really Healthy	4	0	0	0	**4**
Normal	3	2	7	3	**15**
Clinical (Distressed)	11	42	13	21	**87**
Severely Distressed	4	28	6	8	**46**
Total	**22**	**72**	**26**	**32**	**152**
Pearson's Chi Square (df=9)= 39.708***			*Measure of Association (Cramer's V)= 0.30****		
WASAS sub-groups					
Non clinical	0	1	13	4	**11**
Clinical	3	0	3	5	**126**
Severe	21	71	11	23	**155**
Total	**24**	**72**	**27**	**32**	**155**
Pearson's Chi Square (df= 6)= 58.895***			*Measure of Association (Cramer's V)= 0.436****		
HADS- Anxiety sub-groups					
Usual	4	1	21	12	**38**
Clinical	6	3	4	5	**18**
Severe clinical	14	68	2	15	**99**
Total	**24**	**72**	**27**	**32**	**155**
Pearson's Chi Square (df= 6)= 83.154***			*Measure of Association (Cramer's V)= 0.518****		
HADS- Depression sub-groups					
Usual	6	11	25	24	**66**
Clinical	11	55	1	3	**70**
Severe clinical	7	6	1	5	**19**
Total	**24**	**72**	**27**	**32**	**155**
Pearson's Chi Square (df= 6)= 81.415***			*Measure of Association (Cramer's V)= 0.512****		
FST Average/4 grouped based on 3 cut of point					
Typical group	-	70	27	32	**129**
Clinical range 3+	-	2	0	0	**2**
Total	**-**	**72**	**27**	**32**	**131**
Pearson's Chi Square (df= 2)= 1.664			*Measure of Association (Cramer's V)= 0.113*		
CAPS Average Grouped					
Group 1.00 (Low)	0	1	3	4	**8**
Group 2.00	1	29	14	16	**60**
Group 3.00	11	17	6	10	**44**
Group 4.00 (Severe)	10	1	3	1	**15**
Total	**22**	**48**	**26**	**31**	**127**
Pearson's Chi Square (df= 9)= 46.063***			*Measure of Association (Cramer's V)= 0.35****		
IES_R Grouped					
Low	8	22	18	9	**57**
Moderate	12	29	5	14	**60**
Significant	4	18	2	9	**33**
Severe	0	3	2	0	**5**
Total	**24**	**72**	**27**	**32**	**155**

Pearson's Chi Square (df= 9)= 19.256[*]			Measure of Association (Cramer's V)= 0.203[*]			
ETI_SR Grouped						
Low	6	19	12		7	44
Usual nonclinical	9	12	7		2	30
Severe	9	36	8		23	76
Total	**24**	**67**	**27**		**32**	**150**
Pearson's Chi Square (df= 6)= 16.349[*]			*Measure of Association (Cramer's V)= 0.233[*]*			

*** Significant at the 0.001 level**   **** Significant at the 0.01 level**   ** Significant at the 0.05 level*

The findings for this section have established for the GHQ, WASAS, HADS, CAPS a Pearson's Chi Square significant to the 0.001 level. This finding indicates that there are meaningful differences both between the groups and between the levels of the spectrum of healthy and disturbed functioning for all of these standardised measures, except for use of alcohol. The alcohol measure was not found to be a meaningful difference between the groups. The findings for IES, a measure of subjective experience of psychological rumination and thinking, often related to traumatic exposure, was found to be significant at the 0.05 levels. Additionally, for ETI-SR, a measure of early trauma exposure was significant at the 0.05 levels. This could indicate that both for thinking and for early life experience this only had a moderate effect size accounting between clinical and non-clinical samples. These should be understood as significant, however the previous measures are significantly more important ($p<0.001$ level) as factors majorly differentiate from the groups and the quality of their functioning. These findings are important as it provides a clear basis to define differences between clinical and non-clinical groups in relation to emotional mood, subjective capacity to have domains of functioning within the person's life (love, work, play), differences in levels of reports of anxiety and depression, and in relationship to life exposure to distressing events. This quantitative statistical data helps look at the qualities of differences in the wider spectrum of ill and healthy functioning, which also appear to be markedly different between and within these groups.

Group Comparisons for Negative and Positive Indicators

Another key to the different sample groups that was predicted was a difference in-group comparison between negative and positive scores between clinical and non-clinical groups.

The differences between and within samples need to be checked for the Null Hypothesis, which predicts there are no differences for negative scores between samples or within (e.g. the more severely ill samples do not have more negative scores). Equally, the healthier the individual (e.g. differentiating clinical vs. non-clinical does not produce significantly different scores), the higher the positive scores are illustrated in Table 5.2 below:

Table 5.2: The Results of One-Way ANOVA for the Standard Measures/ Tests by the samples (groups) of the study (Conceptually Negative Scales)

Measures/ Tests	Group	N	Mean	SD	Levine's Statistic *(Sig.)*	MS_B *(df)*	MS_W *(df)*	F	Sig.
WASAS Total Scale	*Fire*	24	12.2083	6.59357	4.092 *(.008)*	1286.867 *(3)*	67.512 *(151)*	19.061	.000[***]
	Clinical	72	18.6528	9.25866					
	Uni	27	5.3333	5.51920					

	Group	N	Mean	SD					
	Middlesex	32	11.5000	8.64348					
	Total	**155**	**13.8581**	**9.55329**					
Total Scale of TSC-40	*Fire*	-	-	-	.003 *(.935)*	10747.741 *(1)*	363.595 *(95)*	29.560	.000***
	Clinical	70	45.6714	18.93752					
	Uni	27	22.1852	19.41062					
	Middlesex	-	-	-					
	Total	**97**	**39.1340**	**21.72011**					
TSC-40 Dissociation	*Fire*	0	-	-	1.090 *(.299)*	203.823 *(1)*	16.502 *(96)*	12.352	.001**
	Clinical	71	6.7465	4.07683					
	Uni	27	3.5185	4.02273					
	Middlesex	0	-	-					
	Total	**98**	**5.8571**	**4.29337**					
TSC 40- Anxiety	*Fire*	0	-	-	1.272 *(.262)*	340.072 *(1)*	15.411 *(96)*	22.066	.000***
	Clinical	71	8.8732	3.98185					
	Uni	27	4.7037	3.77047					
	Middlesex	0	-	-					
	Total	**98**	**7.77245**	**4.33109**					
TSC 40- Depression	*Fire*	0	-	-	.047 *(.829)*	1056.604 *(1)*	25.612 *(96)*	41.255	.000***
	Clinical	71	12.8310	5.04547					
	Uni	27	5.4815	5.10181					
	Middlesex	0	-	-					
	Total	**98**	**10.8061**	**6.02000**					
TSC 40- SATI	*Fire*	0	-	-	3.636 *(.060)*	309.479 *(1)*	17.266 *(96)*	17.924	.000***
	Clinical	71	6.7183	4.37912					
	Uni	27	2.7407	3.48174					
	Middlesex	0	-	-					
	Total	**98**	**5.6224**	**4.50318**					
TSC 40- Sleep Disturbance	*Fire*	0	-	-	.076 *(.784)*	326.594 *(1)*	22.374 *(96)*	14.597	.000***
	Clinical	71	10.1972	4.77080					
	Uni	27	6.1111	4.61880					
	Middlesex	0	-	-					
	Total	**98**	**9.0714**	**5.05077**					
TSC 40- Sexual Problems	*Fire*	0	-	-	11.000 *(.001)*	461.184 *(1)*	21.118 *(96)*	21.838	.000***
	Clinical	71	6.3000	5.10280					
	Uni	27	1.4444	2.80567					
	Middlesex	0	-	-					
	Total	**98**	**4.9622**	**5.06509**					
ROM-ATT_AVOIDANC	*Fire*	24	3.1921	1.27141	.501 *(.682)*	1.852 *(3)*	1.673 *(151)*	1.107	.348
	Clinical	72	3.3387	1.35597					
	Uni	27	2.8113	1.16376					
	Middlesex	32	3.1337	1.26654					
	Total	**155**	**3.1818**	**1.29489**					
ROM_ATT_ANXIETY	*Fire*	24	3.1412	1.26728	.126 *(.945)*	3.925 *(3)*	1.627 *(151)*	2.413	.069
	Clinical	72	3.7932	1.29152					
	Uni	27	3.6147	1.26583					
	Middlesex	32	4.0295	1.25263					
	Total	**155**	**3.7099**	**1.29295**					
ROM_ATT_ATT2	*Fire*	24	2.3333	1.16718	2.117 *(.100)*	1.651 *(3)*	.925 *(151)*	1.785	.152
	Clinical	72	2.3804	.95484					
	Uni	27	1.8889	.80064					
	Middlesex	32	2.3125	.93109					
	Total	**155**	**2.2735**	**.96886**					
IES_R Total Score	*Fire*	24	29.1667	18.47835	1.090 *(.355)*	1286.215 *(3)*	371.468 *(151)*	3.463	.018*
	Clinical	72	34.2243	18.97786					
	Uni	27	20.280023	23.47260					
	Middlesex	32	30.8062	16.40421					
	Total	**155**	**30.3065**	**19.73038**					
Avoidance Subscale-Mean of items	*Fire*	24	1.2500	.82669	1.158 *(.328)*	2.400 *(3)*	.778 *(151)*	3.086	.029*
	Clinical	72	1.3787	.88088					
	Uni	27	.8519	1.01078					
	Middlesex	32	1.5000	.80385					
	Total	**155**	**1.2921**	**.89952**					
Intrusion Subscale-Mean of Items	*Fire*	24	1.5595	1.00479	1.798 *(.150)*	3.512 *(3)*	1.177 *(151)*	2.984	.033*
	Clinical	72	1.8324	1.10265					
	Uni	27	1.1140	1.29423					
	Middlesex	32	1.5153	.89110					
	Total	**155**	**1.5995**	**1.10562**					
Hyper Arousal Subscale-Mean of Items	*Fire*	24	1.1786	1.08572	1.626 *(.186)*	3.575 *(3)*	.959 *(150)*	3.727	.013*
	Clinical	71	1.4528	.99101					
	Uni	27	.7198	1.06719					
	Middlesex	32	1.1703	.77061					
	Total	**154**	**1.2229**	**1.00523**					
IES_R_Average	*Fire*	24	1.3258	.83992	1.090 *(.355)*	2.657 *(3)*	.767 *(151)*	3.463	.018*
	Clinical	72	1.5557	.86263					
	Uni	27	.9218	1.06694					
	Middlesex	32	1.4003	.74565					
	Total	**155**	**1.3776**	**.89684**					

Table 5.2: *Count.*

Measures/Tests	Group	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
Anxiety Subscale	Fire	24	11.3333	2.88424	13.632 (.000)	340.975 (3)	8.030 (151)	42.464	.000***
	Clinical	72	13.3989	1.82161					
	Uni	27	6.3330	3.17038					
	Middlesex	32	10.1563	4.11221					
	Total	155	11.1788	3.80998					
Depression Subscale	Fire	24	9.6667	1.52277	9.140 (.000)	202.660 (3)	7.800 (151)	25.983	.000***
	Clinical	72	8.0507	2.35253					
	Uni	27	3.3600	2.77184					
	Middlesex	32	6.5938	4.14152					
	Total	155	7.1830	3.40525					
Negative Items Subscale of HADS	Fire	24	13.5000	2.30312	17.844 (.000)	384.238 (3)	10.521 (150)	36.521	.000***
	Clinical	72	14.4203	1.93060					
	Uni	26	6.8800	3.94279					
	Middlesex	32	11.3125	5.08913					
	Total	154	12.3581	4.22478					
GHQ total scale	Fire	22	16.6818	5.05575	4.897 (.003)	37.562 (3)	9.819 (148)	3.825	.011*
	Clinical	72	18.7500	2.40744					
	Uni	26	16.9615	3.28001					
	Middlesex	32	18.4688	2.75897					
	Total	152	18.0855	3.22027					
Sum of scores of negative items of GHQ scale	Fire	23	10.5217	3.64155	1.676 (.175)	213.248 (3)	14.258 (150)	14.957	.000***
	Clinical	72	10.9444	4.07980					
	Uni	27	5.5556	3.38927					
	Middlesex	32	8.2813	3.43825					
	Total	154	9.3831	4.26139					
FST Overall Scale	Fire	0	.	.	3.706 (.027)	36.800 (2)	8.715 (128)	4.223	.017*
	Clinical	72	3.0406	3.37330					
	Uni	27	1.1481	1.29210					
	Middlesex	32	2.1563	2.91945					
	Total	131	2.4345	3.02445					
Total Score of Early Trauma Inventory Self Report-Short Form	Fire	24	6.8333	5.89522	.639 (.591)	67.491 (3)	26.795 (146)	.519	.060
	Clinical	67	7.5075	5.07631					
	Uni	27	5.5926	4.18109					
	Middlesex	32	9.2188	5.55753					
	Total	150	7.4200	5.25494					
Perception of Emotions	Fire	24	1.7083	1.75646	1.764 (.157)	12.196 (3)	3.449 (149)	3.535	.016*
	Clinical	70	2.3286	1.94654					
	Uni	27	1.8148	1.49453					
	Middlesex	32	3.1250	1.99596					
	Total	153	2.3072	1.90319					
Managing Own Emotions	Fire	24	1.8750	1.62354	.388 (.762)	5.489 (3)	2.284 (148)	2.404	.070
	Clinical	69	2.0435	1.50914					
	Uni	27	1.2963	1.35348					
	Middlesex	32	2.3125	1.55413					
	Total	152	1.9408	1.53214					
Managing other Emotions	Fire	24	1.2083	1.44400	1.372 (.254)	2.551 (3)	1.259 (151)	2.026	.113
	Clinical	72	1.0139	1.02769					
	Uni	27	.6296	.88353					
	Middlesex	32	1.3125	1.22967					
	Total	155	1.0387	1.13323					
Utilization of Emotions	Fire	24	1.8333	1.63299	1.751 (.159)	1.662 (3)	2.020 (151)	.823	.483
	Clinical	72	1.6250	1.30479					
	Uni	27	1.4815	1.25178					
	Middlesex	32	2.0000	1.62640					
	Total	155	1.7097	1.41865					
CAPS-Total Scale	Fire	24	62.4167	12.55914	1.112 (.347)	3744.551 (3)	137.810 (125)	27.172	.000***
	Clinical	48	39.0625	10.25713					
	Uni	26	39.1538	14.19491					

Measure	Group	N	Mean	SD	Levene (sig)	Between (df)	Within (df)	F	Sig
	Middlesex	31	37.1613	10.97906					
	Total	**129**	**42.9690**	**14.91116**					
CAPS-Avoidance subscale-Main	*Fire*	24	4.0000	.76873	.116 *(.951)*	26.861 *(3)*	.516 *(128)*	52.099	.000***
	Clinical	49	2.0087	.76176					
	Uni	27	1.9153	.69902					
	Middlesex	32	1.9775	.61810					
	Total	**132**	**2.3441**	**1.05778**					
AES Total Scale	*Fire*	0	-	-	.174 *(.840)*	2032.127 *(2)*	202.271 *(128)*	10.047	.000***
	Clinical	72	108.8422	14.02450					
	Uni	27	121.4800	13.73127					
	Middlesex	32	118.4838	15.05232					
	Total	**131**	**113.8021**	**15.17969**					
AS Data-Accepting External Influence	*Fire*	0	-	-	.850 *(.430)*	149.314 *(2)*	26.687 *(128)*	5.595	.005**
	Clinical	72	17.1346	4.85989					
	Uni	27	14.1852	5.18902					
	Middlesex	32	14.0313	5.78922					
	Total	**131**	**15.7686**	**5.34544**					
AS Data-Self Alienation	*Fire*	0	-	-	.367 *(.694)*	405.704 *(2)*	31.617 *(128)*	12.832	.000***
	Clinical	72	17.5926	5.48524					
	Uni	27	11.9259	5.58794					
	Middlesex	32	13.3125	5.95379					
	Total	**131**	**15.3792**	**6.11327**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

Note: Significant means that four groups of the study have statistically significant differences in terms of the given measure or test. For ANOVA at least one of the group means is different from at least one other group means.

Not significant means that four groups of study don't have statistically significant differences in terms of the given measure or subscale.

The findings for the above section are clear: The negative features for WASAS, TSC-40 total, dissociation, anxiety, depression, SATI, sleep problems, sexual functioning, GHQ sum of Neg scores, CAPS avoidance, AES total, AS self alienation, HADS neg items are all highly significant (p<0.001 level). This means the clinical psychology scales for negativity in all of these areas is a fundamental feature in discriminating key differences between clinical and non-clinical groups. IESR, Avoidance, Intrusion, Hyper arousal, IESR average, GHQ total, FST overall (alcohol consumption), Perception of emotion, and AS accepting external influence are all are moderately significant (p<0.05 level) which is meaningful, but nowhere near the level of impact of negativity in determining group difference. Finally, ROM ATT, ROM ATT avoidance, Managing own and others emotions, and Utilization of emotions are not significant, meaning these do not play any critical role in accounting for difference between group functioning. Overall, this aspect of the investigation offers a clearer picture that negativity, which is supported with the clear neuropsychological account of social and emotional processing, plays a greater role (p<0.001 significance level) than has been put forward to account for the model in others trauma related psychological tools.

As a point of clarification, STAT A&B designates the question and the developmental time coding if the event occurred at a particular age. For the purposes of this doctoral research the developmental mapping was not used to modify the answers for the data samples.

Table 5.3: The Results of One-Way ANOVA for the STAT Measures/ Tests by the samples (groups) of the Study (Conceptually Negative Scales)

STAT Measures/ Tests	Group	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
STAT A & B- Trauma	Fire	24	27.3042	4.87616	3.564 (.016)	584.517 (3)	25.733 (148)	22.715	.000***
	Clinical	69	32.9449	5.45143					
	Uni	27	23.9600	5.97739					
	Middlesex	32	29.6225	3.17119					
	Total	152	29.7588	6.06912					
STAT A & B- Anxiety	Fire	24	22.3633	4.77808	2.636 (.052)	1213.603 (3)	31.686 (148)	38.301	.000***
	Clinical	69	33.3312	6.18075					
	Uni	27	22.7226	6.38822					
	Middlesex	32	25.7147	4.03890					
	Total	152	28.1115	7.42751					
STAT A & B-Impulsivity	Fire	24	25.6000	2.93109	2.903 (.037)	417.269 (3)	16.284 (148)	25.624	.000***
	Clinical	70	29.4066	4.53394					
	Uni	27	21.8696	4.37918					
	Middlesex	31	28.8668	3.13840					
	Total	152	27.3566	4.92453					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	Fire	24	26.7275	6.07333	1.767 (.156)	2153.052 (3)	35.083 (151)	61.361	.000***
	Clinical	72	42.6861	5.55716					
	Uni	27	29.5767	7.25986					
	Middlesex	32	34.5000	5.34910					
	Total	155	36.2415	8.73770					
STAT A & B-Limbic Lobe Separation or Fear	Fire	24	24.7392	5.25206	2.765 (.044)	1382.397 (3)	39.033 (151)	35.416	.000***
	Clinical	72	35.6493	6.71813					
	Uni	27	23.9170	7.07061					
	Middlesex	32	34.3588	4.93576					
	Total	155	31.6499	8.07478					
STAT A & B- Defensiveness	Fire	24	22.4092	3.34481	3.788 (.012)	651.061 (3)	25.836 (151)	25.200	.000***
	Clinical	72	31.0263	5.53789					
	Uni	27	23.6400	6.41441					
	Middlesex	32	26.4722	3.57742					
	Total	155	27.4652	6.16570					
STAT A & B- Negativity (Cruelty)	Fire	24	82.0000	10.89076	9.581 (.000)	10523.459 (3)	179.993 (151)	58.466	.000***
	Clinical	72	109.3125	15.45836					
	Uni	27	75.1815	16.41209					
	Middlesex	32	106.2813	3.94081					
	Total	155	98.5123	19.53174					
STAT A & B- Avoidance	Fire	24	15.7267	2.86177	5.664 (.001)	418.422 (3)	13.754 (151)	30.422	.000***
	Clinical	72	23.4181	3.85487					
	Uni	27	18.5000	4.92443					
	Middlesex	32	21.0706	2.55853					
	Total	155	20.8858	4.65157					
STAT A & B- Intrusion	Fire	24	16.7825	4.61525	.327 (.806)	679.449 (3)	21.070 (151)	32.248	.000***
	Clinical	72	24.3465	4.61845					
	Uni	27	16.0400	4.64493					
	Middlesex	32	18.6897	4.45843					
	Total	155	20.5605	5.82196					
STAT A & B- Hyper arousal	Fire	24	15.8333	3.87485	3.090 (.029)	365.334 (3)	16.656 (151)	21.935	.000***
	Clinical	72	21.1586	4.61824					
	Uni	27	14.5767	4.26230					
	Middlesex	32	18.2500	2.42966					
	Total	155	18.5870	4.84231					
STAT A & B- Dissociation	Fire	24	11.1250	3.09716	2.844 (.040)	249.311 (3)	7.864 (151)	31.701	.000***
	Clinical	72	15.3678	2.85458					
	Uni	27	9.8400	3.23062					
	Middlesex	32	12.9606	1.94265					
	Total	155	13.2510	3.54513					
STAT A & B- Attachment Negative Disturbed sense of ...	Fire	24	44.0000	6.58060	4.576 (.004)	4716.409 (3)	102.222 (151)	46.139	.000***
	Clinical	72	66.6352	11.12779					
	Uni	27	46.0430	12.29909					
	Middlesex	32	60.6909	7.43741					
	Total	155	58.3162	13.86033					
STAT A & B- Flight	Fire	24	16.5321	2.04018	4.710 (.004)	321.710 (3)	11.320 (151)	28.419	.000***
	Clinical	72	22.6676	3.63731					
	Uni	27	17.4400	4.07695					
	Middlesex	32	20.3175	2.79461					
	Total	155	20.3218	4.16733					
STAT A & B- Freeze	Fire	24	11.2500	3.91485	3.283 (.023)	380.600 (3)	11.829 (151)	32.176	.000***
	Clinical	72	16.7417	3.40446					
	Uni	27	10.0381	4.18312					
	Middlesex	32	14.1225	2.24147					
	Total	155	14.1829	4.36033					
STAT A & B- Fight	Fire	24	9.9129	1.99811	1.345 (.262)	55.424 (3)	5.242 (151)	10.573	.000***
	Clinical	72	12.2915	2.40491					
	Uni	27	10.0385	2.63819					
	Middlesex	32	10.8278	1.86770					
	Total	155	11.2286	2.49393					
STAT A & B- Forensic or Pathological Subscale	Fire	24	31.7125	3.18186	1.741 (.161)	630.500 (3)	22.840 (151)	27.605	.000***
	Clinical	72	35.7572	5.09221					
	Uni	27	26.2915	4.89489					
	Middlesex	32	31.0000	4.92525					
	Total	155	32.4999	5.88879					
STAT A & B- Clinical Psychology Scale (CPS)	Fire	24	26.2125	2.55681	10.398 (0.000)	565.930 (3)	16.983 (151)	33.323	.000***
	Clinical	72	28.1860	5.12310					
	Uni	27	18.9200	4.39335					
	Middlesex	32	26.2500	1.25403					

	Total	155	25.8666	5.26086					

All of the STAT sub scores shown above examining different clinical dimensions have found the negative aspects of scores to be both highly significant (p<0.001 level) and to have these take a critical account of the differences between clinical and non-clinical groups.

Table 5.4: The Results of One-Way ANOVA for both the Standardised Standard Measures/ Tests and the STAT Measures/ Tests by the sample (groups) of the study (Conceptually Positive Scales)

Variable	Group	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
Valued Living Questionnaire (VLQ) during Past Week	Fire	0	-	-	3.545 (.034)	440.762 (2)	310.829 (68)	1.418	.249
	Clinical	14	55.2143	24.18893					
	Uni	25	64.5600	15.98718					
	Middlesex	32	63.5625	15.44593					
	Total	71	62.2676	17.73532					
Valued Living Questionnaire (VLQ)	Fire	0	-	-	.145 (.865)	335.010 (2)	169.843 (73)	1.972	.146
	Clinical	18	73.6667	13.42955					
	Uni	26	78.1923	13.85646					
	Middlesex	32	81.2813	12.09168					
	Total	76	78.4211	13.20027					
Positive Items Subscale of HADS	Fire	24	7.0000	1.91107	8.899 (.000)	144.717 (3)	5.653 (151)	25.601	.000***
	Clinical	72	7.4710	1.94552					
	Uni	27	2.9574	2.15691					
	Middlesex	32	5.4375	3.50058					
	Total	155	6.1920	2.89168					
Subscale 2- Sum of Score of recoded positive items of GHQ	Fire	22	6.4091	3.64704	5.993 (.001)	143.737 (3)	12.416 (127)	11.576	.000***
	Clinical	72	7.8056	4.01279					
	Uni	26	11.3846	2.22849					
	Middlesex	32	10.1875	3.06318					
	Total	152	8.7171	3.87626					
AS Data- Authentic Living	Fire	0	.	.	3.503 (.033)	200.407 (2)	17.815 (127)	11.249	.000***
	Clinical	72	19.1346	4.92324					
	Uni	26	23.1538	2.96233					
	Middlesex	32	22.1563	3.22400					
	Total	130	20.6822	4.54379					
STAT A & B- Self Awareness	Fire	24	36.8175	3.35749	2.871 (.038)	256.622 (3)	25.196 (149)	10.185	.000***
	Clinical	71	42.6606	5.57477					
	Uni	26	43.9615	5.67437					
	Middlesex	32	41.8219	4.07380					
	Total	153	41.7897	5.45558					
STAT A & B-Conscientiousness	Fire	24	10.7083	1.70623	1.114 (.345)	483.989 (3)	6.808 (151)	71.092	.000***
	Clinical	72	19.2861	2.84562					
	Uni	27	19.2000	2.70327					
	Middlesex	32	18.8213	2.51516					
	Total	155	17.8470	4.01293					
STAT A & B- Intelligence	Fire	24	18.0833	3.95537	2.451 (.066)	28.142 (3)	9.355 (151)	3.008	.032*
	Clinical	72	18.3953	2.92922					
	Uni	27	17.1152	2.79184					
	Middlesex	32	16.6194	2.78795					
	Total	155	17.7574	3.11789					
STAT A & B- Self-esteem	Fire	24	16.0417	1.65448	3.190 (.025)	199.659 (3)	9.004 (151)	22.175	.000***
	Clinical	72	12.8619	2.88979					
	Uni	27	17.5767	3.48815					
	Middlesex	32	16.4331	3.53493					
	Total	155	14.9128	3.56622					
STAT A & B-Positivity (Compassion)	Fire	24	64.4542	5.33835	5.324 (.002)	873.251 (3)	57.163 (151)	15.277	.000***
	Clinical	72	75.4507	8.31986					
	Uni	27	77.2400	8.85472					
	Middlesex	32	73.1000	5.74428					
	Total	155	73.5744	8.54754					
STAT A & B-Attachment Positive	Fire	24	38.8183	2.97287	3.274 (.023)	451.893 (3)	31.982 (149)	14.130	.000***
	Clinical	71	45.6254	5.78171					
	Uni	26	48.8800	6.10128					
	Middlesex	32	45.8516	6.45432					
	Total	153	45.1580	6.34583					

The positive measures from the previous tables appear to hold a highly significant place (to the p<0.001 level) in accounting for differences in-group functioning. These positive measures include: HADS positive items; GHQ sum of positive scores; AS authentic living; STAT—self-awareness; conscientiousness; self-esteem; positive compassion;

and positive attachment score. The moderately significant score was for STAT intelligence, which means that intelligence was only moderately correlated with the underlying dimension compared to positivity. The VLQ was not found to be significant or to meaningfully influence these group differences.

Positivity and Attachment Scores

Comparing the ROM-ATT for different groups and significance levels—The Null Hypothesis predicts there is no significant difference between the groups and their attachment scores (Measured by using the Rom-ATT). For this section the author is testing the predicted hypotheses about which samples/groups significantly differ from each other.

Considering the types of the independent and dependent variables, the Non-parametric Test of Kruskal-Wallis was used to test this hypothesis. The result of the test is as follows:

Table 5.5: The result of the non-parametric Test of Kruskal-Wallis

RANKS

	Group	N	Mean Rank
ROM_ATT_ATT2	fire	24	78.67
	clinical	72	83.01
	uni	27	61.48
	msexstu	32	80.16
	Total	155	

TEST STATISTICS

Kruskal Wallis Test.	
Approx. Chi-Square	5.035
Df	3
Sig.	0.169

*Result: The above result shows that the Non-parametric Test of Kruskal-Wallis **is not significant**. This means that this non-parametric test confirms the result of the one-way ANOVA test. In both tests, there is not sufficient evidence to reject Null Hypothesis. This means that there is no statistically significant difference between groups of the study in terms of ROM-ATT measure/test.*

It is valuable to compare similar core constructs between tests to ensure like concepts can be compared. The following Pearson Correlation Matrices examine avoidance between measures and also anxiety. Two-tailed tests were used to ensure that information was not overlooked as negative and positive directions of values.

Table 5.6: The Correlation Matrix of the Measures of Avoidance in both sets of data (STAT & Standardized Measures)

Pearson Correlation (N) *2-tailed Sig.*	Avoidance Subscale-Mean of items	STAT A & B-Avoidance	ROM_ATT-AVOIDANC
Avoidance Subscale-Mean of items	**1** (155)	-	-

STAT A & B- Avoidance	**.368*** (155) *.000*	**1** (155)	-
ROM_ATT_AVOIDANC	**.080** (155) *.324*	**.205*** (155) *.011*	**1** (155)

Table 5.7: The Correlation Matrix of the Measures of Anxiety in both sets of data (STAT & Standardized Measures)

Pearson Correlation (N) *2-tailed Sig.*	ROM_ATT-ANXIETY	Anxiety Subscale	TSC 40-Anxiety	STAT A & B-Anxiety
ROM_ATT_ANXIETY	**1** (155)	-	-	-
Anxiety Subscale	**0.151** (155) *.061*	**1** (155)	-	-
TSC 40-Anxiety	**0.244*** (98) *.015*	**0.587*** (98) *.000*	**1** (155)	-
STAT A & B- Anxiety	**.291*** (152) *.000*	**.521*** (152) *.000*	**.567*** (95) *.000*	**1** (155)

The STAT scores for both Avoidance and Anxiety appear to hold across significant measures connecting up these concepts quantitatively. The ROM-ATT does not appear as meaningful a level, which could indicate that the emotional features of the way the ROM-ATT has described these features may not be as pure a core concept as is defined within the STAT test.

Negative and Positive: Looking at the Interaction between these Scores

This section is looking to compare the similarities and differences within the psychometric positive and negative scales to again look at similarities and differences within and between these groups.

Psychometrically the anxiety/avoidance as well as the positive/negative scales provide an interesting model relationship of how conflict works and may be organised.

Table 5.8: The Correlation Matrix of the Measures of Negative and Positive Measures compared with the Standardized Measures

Pearson Correlation (N) *2-tailed Sig.*	AS Data	AS Data- Accepting External Influence	AES Total Scale	Valued Living Questionnaire	Positive Items Subscale of HADS	Subscale 2- Sum of Score of recoded positive items of GHQ
AS Data	**1** (130)	-	-	-	-	-
AS Data- Accepting External Influence	**.516*** (130) *.000*	**1** (131)	-	-	-	-
AES Total Scale	**.370*** (130) *.000*	**285*** (131) *.001*	**1** (131)	-	-	-
Valued Living Questionnaire	**.142** (75) *.223*	**.108** (76) *353*	**.146** (76) *.209*	**1** (76)	-	-
Positive Items Subscale of HADS	**250*** (130) *.004*	**.270** *** (131) *.002*	**.328*** (131) *.000*	**.043** (76) *.711*	**1** (155)	-
Subscale 2- Sum of Score of recoded positive items of GHQ	**.142** (130) *.107*	**.120** (130) *.174*	**.175*** (130) *.074*	**.112** (75) *.337*	**.537*** (152) *.000*	**1** (152)

Table 5.9: The Correlation Matrix of the Negative Measures in the Standardized Psychology Trauma Measures

Pearson Correlation (N) *2-tailed Sig.*	Negative Items Subscale of HADS	Sum of scores of negative items of GHQ scale	WASAS Total Scale	Q1 WASAS (WORK)	Q2 WASAS (HOME MANAGEMENT)	Q3 WASAS (SOCIAL LIFE)	Q4 WASAS (PRIVATE LEISURE)	Q5 WASAS (FAMILY)

Negative Items Subscale of HADS	**1** (154)	-	-	-	-	-	-	-
Sum of scores of negative items of GHQ scale	**.528*** (153) *.000*	**1** (154)	-	-	-	-	-	-
WASAS Total Scale	**.539*** (154) *.000*	**.406*** (154) *.000*	**1** (155)	-	-	-	-	-
Q1 WASAS (WORK)	**.437*** (154) *.000*	**.356*** (154) *.000*	**.780*** (155) *.000*	**1** (155)	-	-	-	-
Q2 WASAS (HOMEMANAGEMENT)	**.407*** (154) *.000*	**.324*** (154) *.000*	**.818*** (155) *.000*	**.625*** (155) *.000*	**1** (155)	-	-	-
Q3 WASAS (SOCIAL LIFE)	**.436*** (154) *.000*	**.327*** (154) *.000*	**.867***(155) *.000*	**.558*** (155) *.000*	**.629*** (155) *.000*	**1** (155)	-	-
Q4 WASAS (PRIVATE LEISURE)	**.491*** (154) *.000*	**.402*** (154) *.000*	**.861*** (155) *.000*	**.598*** (155) *.000*	**.598*** (155) *.000*	**.694*** (155) *.000*	**1** (155)	-
Q5 WASAS (FAMILY)	**.476*** (154) *.000*	**.292*** (154) *.000*	**.819*** (155) *.000*	**486*** (155) *.000*	**.566*** (155) *.000*	**.687*** (155) *.000*	**.661*** (155) *.000*	**1** (155)

*** Correlation is significant at the 0.001 levels (2-tailed)   ** Correlation is significant at the 0.01 levels (2-tailed)   * Correlation is significant at the 0.05 levels (2-tailed)

The findings from the negative and positive scores support that excluding the VLQ is primarily not significant. Both of the positive elements, the negative scores, and their interaction appear to offer highly significant ($p<0.001$ level) meaning within the data.

Integrated Neuropsychological Framework

The following looks at the STAT test as being constructed with key psychometrics. For example the WASAS (a measure of adjustment and function) is vital to areas of holistic human functioning, work, relationships, family, and in how essential emotional experiences such as fear, anxiety, impulsivity may affect these processes.

2A) Negative/Positive Perspectives on Emotion

2B) Levels of Brain Processes

Table 5.10: The Results of One-Way ANOVA for the STAT Measures/ Tests by the sub-groups of the WASAS Measure
(Note: This Compare Means Analysis includes just Negative Measures of the STAT Data)

STAT Negative Measures/ Tests	WASAS Sub-groups	N	Mean	SD	Levine Statistic *(Sig.)*	MS$_B$ *(df)*	MS$_W$ *(df)*	F	Sig.
STAT A & B- Trauma	Non-Clinical	18	24.635	6.46287	-	398.981 (2)	31.973 (149)	12.479	.000***
	Clinical	11	25.7709	4.18139					
	Severe	123	30.8652	5.63878					
	Total	**152**	**29.7588**	**6.06912**					
STAT A & B- Anxiety	Non-Clinical	18	21.8672	5.70648	-	828.321 (2)	44.790 (148)	18.493	.000***
	Clinical	11	20.4764	4.67470					
	Severe	123	29.7081	6.95512					
	Total	**152**	**28.1115**	**7.42751**					
STAT A & B-Impulsivity	Non-Clinical	17	22.7082	5.28995	-	243.304 (2)	21.311 (149)	11.417	.000***
	Clinical	11	25.4727	4.52617					
	Severe	124	28.1610	4.52877					
	Total	**152**	**27.3566**	**4.92453**					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	Non-Clinical	18	29.1944	7.43232	-	1157.481 (2)	62.122 (152)	18.632	.000***
	Clinical	11	26.7273	7.84654					
	Severe	126	38.0788	7.94369					
	Total	**155**	**36.2415**	**8.73770**					
STAT A & B-Limbic Lobe Separation or Fear	Non-Clinical	18	23.0511	7.08683	-	953.900 (2)	53.509 (152)	17.827	.000***
	Clinical	11	26.9818	7.42862					
	Severe	126	33.2858	7.33632					
	Total	**155**	**31.6499**	**8.07478**					
STAT A & B- Defensiveness	Non-Clinical	18	23.4178	6.5459	-	379.203 (2)	33.527 (152)	11.311	.000***
	Clinical	11	22.0373	5.22425					
	Severe	126	28.5172	5.72341					
	Total	**155**	**27.4652**	**6.1657**					
STAT Negativity A & B- (Cruelty)	Non-Clinical	18	79.4811	21.94566	-	5284.608 (2)	316.974 (152)	16.672	.000***
	Clinical	11	84.6727	22.08849					
	Severe	126	102.4392	16.76035					
	Total	**155**	**98.5123**	**19.53174**					

STAT Negative Measures	Group	N	Mean	SD	Levine	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Avoidance	Non-Clinical	18	17.6517	4.77258	-	216.649 (2)	19.071 (152)	11.360	.000***
	Clinical	11	17.0191	4.68712					
	Severe	126	216854	4.28197					
	Total	**155**	**20.8858**	**4.65157**					
STAT A & B- Intrusion	Non-Clinical	18	15.2456	3.85951	-	566.812 (2)	26.883 (152)	21.084	.000***
	Clinical	11	14.4264	426610					
	Severe	126	21.8553	5.40445					
	Total	**155**	**20.5605**	**5.82196**					
STAT A & B- Hyper arousal	Non-Clinical	18	15.0556	4.21618	-	208.300 (2)	921.016	9.912	.000***
	Clinical	11	15.3636	3.99744					
	Severe	126	19.3729	4.67538					
	Total	**155**	**18.5870**	**4.84231**					
STAT A & B- Dissociation	Non-Clinical	18	10.3256	3.21059	-	173.283 (2)	10.453 (152)	15.577	.000***
	Clinical	11	9.8400	2.98618					
	Severe	126	13.9667	3.25513					
	Total	**155**	**13.2510**	**3.54513**					
STAT A & B- Flight	Non-Clinical	18	17.1883	3.87901	-	143.043 (2)	-	9.103	.000***
	Clinical	11	18.0500	2.97662					
	Severe	12	20.9678	4.04374					
	Total	**155**	**20.3218**	**4.16733**					
STAT A & B- Freeze	Non-Clinical	18	10.8600	4.11300	-	227.894 (2)	16.264 (152)	14.012	.000***
	Clinical	11	10.2255	3.39615					
	Severe	12	15.0031	4.06863					
	Total	**155**	**14.1829**	**4.36033**					
S-TAT A & B- Fight	Non-Clinical	18	10.0922	2.71407	-	47.403 (2)	5.678 (152)	8.349	.000***
	Clinical	11	8.9845	2.30968					
	Severe	12	11.5868	2.34001					
	Total	**155**	**11.2286**	**2.49393**					
STAT A & B- Forensic or Pathological Subscale	Non-Clinical	18	26.5717	5.71994	-	471.429 (2)	28.931 (152)	16.295	.000***
	Clinical	11	28.9209	4.27742					
	Severe	126	33.6593	5.40989					
	Total	**155**	**32.4999**	**5.88879**					
STAT A & B- Clinical Psychology Subscale (CPS)	Non-Clinical	18	19.1667	5.17772	-	522.343 (2)	21.168 (152)	24.676	.000***
	Clinical	11	23.4436	4.92504					
	Severe	126	27.0353	.48929					
	Total	**155**	**25.8666**	**5.26086**					
STAT A & B- Attachment Negative Disturbed sense of ...	Non-Clinical	18	44.7328	12.48408	-	2788.299 (2)	157.948 (152)	17.653	.000***
	Clinical	11	47.7682	13.33268					
	Severe	126	61.1775	12.51561					
	Total	**155**	**58.3162**	**13.86033**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

Comparing the STAT measure to the WASAS provides a clear subjective comparison linked to possibly a more neuro-anatomic configuration of underlying neural emotional systems and processes (see Panksepp, 1998, Panksepp and Biven, 2012). All of these are able to differentiate the spectrum of functioning from ill health to very healthy ($p<0.001$ level of significance). This is a quantitatively significant level of differentiation.

Table 5.11: The Results of One-Way ANOVA for the STAT Measures/ Tests by the sub-groups of IESR measure
(Note: This Compare Means Analysis includes just Conceptually Negative Measures of the Richard Sherry's STAT Data)

STAT Negative Measures/ Tests	IESR Subgroups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Trauma	IESR Low	57	26.7914	5.67303	-	390.804 (3)	29.659 (148)	13.177	.000***
	IESR Moderate	58	30.0978	5.43949					
	IESR Significant	32	34.3019	4.95153					
	IESR Severe	5	30.5800	5.93134					
	Total	**152**	**29.7588**	**6.06912**					
STAT A & B- Anxiety	IESR Low	57	25.2374	6.81160	-	349.840 (3)	49.195 (148)	7.111	.000***
	IESR Moderate	58	28.4721	6.58869					
	IESR Significant	32	32.2581	7..84379					
	IESR Severe	5	30.1560	8.67269					
	Total	**152**	**28.1115**	**7.42751**					
STAT A & B-Impulsivity	IESR Low	55	24.6305	5.03970	-	215.680 (3)	20.371 (148)	10.588	.000***
	IESR Moderate	59	28.8881	4.62269					
	IESR Significant	33	28.7633	3.31834					
	IESR Severe	5	29.9880	3.59030					
	Total	**152**	**27.3566**	**4.92453**					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	IESR Low	57	32.4504	8.44454	--	563.322 (3)	66.672 (151)	8.449	.000***
	IESR Moderate	60	36.8527	8.48094					
	IESR Significant	33	41.0303	7.36370					
	IESR Severe	5	40.5200	4.88180					
	Total	**155**	**36.2415**	**8.73770**					
STAT A & B-Limbic Lobe Separation or Fear	IESR Low	57	28.2982	8.69849	--	382.602 (3)	58.896 (151)	6.496	.000***
	IESR Moderate	60	32.6687	7.34854					
	IESR Significant	33	35.0033	6.36695					
	IESR Severe	5	35.000	6.57410					
	Total	**155**	**31.6499**	**.07478**					
STAT A & B- Defensiveness	IESR Low	57	25.0614	6.08315	-	199.324 (3)	34.811 (151)	5.726	.001**
	IESR Moderate	60	28.1598	5.96196					
	IESR Significant	33	29.9294	5.73278					
	IESR Severe	5	30.2680	2.97400					

STAT Measures/Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
	Total	**155**	**27.4652**	**6.16570**					
STAT A & B- Negativity (Cruelty)	*IESR Low*	57	89.3070	20.47245	-	2625.419 *(3)*	336.908 *(151)*	7.793	.000***
	IESR Moderate	60	102.6977	17.47243					
	IESR Significant	33	106.0315	16.03286					
	IESR Severe	5	103.6009	17.06385					
	Total	**155**	**98.5123**	**19.53174**					
STAT A & B- Avoidance	*IESR Low*	57	18.5558	4.35428	-	201.812 *(3)*	18.057	11.176	.000***
	IESR Moderate	60	21.38884	4.31566					
	IESR Significant	33	23.4664	4.12759					
	IESR Severe	5	24.3800	2.28490					
	Total	**155**	**20.8858**	**4.65157**					
STAT A & B- Intrusion	*IESR Low*	57	17.6749	5.34319	-	318.426 *(3)*	28.242 *(151)*	11.275	.000***
	IESR Moderate	60	21.1082	5.44372					
	IESR Significant	33	24..1885	5..11360					
	IESR Severe	5	22.9400	4.48963					
	Total	**155**	**20.5605**	**5.82196**					
STAT A & B- Hyper arousal	*IESR Low*	57	16.2730	4.29005	-	260.246 *(3)*	18.743 *(151)*	13.885	.000***
	IESR Moderate	60	18.6353	4.18213					
	IESR Significant	33	22.3682	5.11360					
	IESR Severe	5	19.4320	4.17492					
	Total	**155**	**18.5870**	**4.84231**					
STAT A & B- Dissociation	*IESR Low*	57	11.7326	3.63596	-	73.022 *(3)*	11.367 *(151)*	6.424	.000***
	IESR Moderate	60	13.8647	3.50010					
	IESR Significant	33	14.5570	4.67021					
	IESR Severe	5	14.5760	3.82388					
	Total	**155**	**13.2510**	**3.54513**					
STAT A & B- Flight	*IESR Low*	57	18.4354	3.87663	-	123.622 *(3)*	15.256 *(151)*	8.103	.000***
	IESR Moderate	60	20.9568	4.26309					
	IESR Significant	33	21.8882	2.46717					
	IESR Severe	5	23.8680	4.28159					
	Total	**155**	**13.2510**	**4.16733**					
STAT A & B- Freeze	*IESR Low*	57	12.3907	4.62671	-	113.104 *(3)*	17.143 *(151)*	6.598	.000***
	IESR Moderate	60	14.7353	3.93456					
	IESR Significant	33	16.2230	3.26103					
	IESR Severe	5	14.5200	4.28159					
	Total	**155**	**20.3218**	**4.36033**					
STAT A & B- Fight	*IESR Low*	57	10.4704	2.31949	-	17.921 *(3)*	5.987 *(151)*	2.993	.033*
	IESR Moderate	60	11.5583	2.75189					
	IESR Significant	33	11.8539	3.54948					
	IESR Severe	5	11.7880	2.56013					
	Total	**155**	**14.1829**	**2.49393**					
STAT A & B- Attachment Negative Disturbed sense of ...	*IESR Low*	**57**	52.0258	13.77809	-	1394.456 *(3)*	168.221 *(151)*	8.289	.000***
	IESR Moderate	**60**	59.9804	13.26152					
	IESR Significant	**33**	65.0742	3.46506					
	IESR Severe	**5**	65.4520	10.60722					
	Total	**155**	**58.3162**	**13.86033**					
STAT A & B- Forensic or Pathological Subscale	*IESR Low*	57	29.7349	6.23826	-	232.987 *(3)*	30.738 *(151)*	7.580	.000***
	IESR Moderate	60	33.8593	5.42880					
	IESR Significant	33	34.5236	2.01378					
	IESR Severe	5	34.3520	4.75524					
	Total	**155**	**11.2286**	**5.88879**					
STAT A & B- Clinical Psychology Subscale (CPS)	*IESR Low*	57	22.7747	5.32801	-	292.291 *(3)*	22.419 *(151)*	13.037	.000***
	IESR Moderate	60	27.4422	4.42929					
	IESR Significant	33	28.1879	4.44707					
	IESR Severe	5	26.8880	7.96734					
	Total	**155**	**25.8666**	**5.26086**					

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 level

Comparing STAT with the IESR using an ANOVA has demonstrated a highly significant correlation (p<0.001 level), which could indicate that the quality of subjective distress or thinking may be accurately accounted for within the STAT neuro-anatomic model of negativity as chief organising factor in human experience

Table 5.12: The Results of One-Way ANOVA for the STAT Measures/Tests by the sub-groups of the HADS measure of Anxiety
(Note: This Compare Means Analysis includes just Conceptually Negative Measures of the Richard Sherry's STAT Data)

STAT Measures/Tests	HADS-Anxiety Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Trauma	*Usual group*	38	25.7174	5.69759	-	613.838 *(2)*	29.089 *(149)*	21.102	.000***
	Clinical group	18	26.7861	4.25337					
	Severe Clinical group	96	31.9170	5.45375					
	Total	**152**	**29.7588**	**6,06912**					
STAT A & B- Anxiety	*Usual group*	37	22.2226	5.53942	-	1044.771 *(2)*	41.885 *(149)*	24.944	.000***
	Clinical group	18	26.1306	5.96168					
	Severe Clinical group	96	30.8140	6.88343					
	Total	**152**	**28.1115**	**7.42751**					
STAT A & B-Impulsivity	*Usual group*	38	24.5478	5.0078	-	259.058 *(2)*	21.099 *(149)*	12.278	.000***
	Clinical group	18	26.0483	2.77292					
	Severe Clinical group	97	28.7052	4.56611					
	Total	**152**	**27.3566**	**4.92453**					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	*Usual group*	38	28.8816	6.59385	-	1826.815 *(2)*	53.315 *(152)*	34.265	.000***
	Clinical group	18	32.0317	7.01422					
	Severe Clinical group	99	39.8319	7.59884					
	Total	**15**	**36.2415**	**8.73770**					
STAT A & B-Limbic Lobe Separation or Fear	*Usual group*	38	26.5116	7.62571	-	1076.487 *(2)*	51.896 *(152)*	20.743	.000***
	Clinical group	18	27.0956	6.21275					
	Severe Clinical group	99	34.4502	7.20004					
	Total	**155**	**31.6499**	**8.07478**					

STAT Negative Measures/ Tests	Group	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Defensiveness	Usual group	38	23.0647	5.25433	-	669.699 (2)	29.704 (152)	22.546	.000***
	Clinical group	18	24.7544	4.88145					
	Severe Clinical group	99	29.6471	5.61381					
	Total	155	27.4652	6.16570					
STAT A & B- Negativity (Cruelty)	Usual group	38	85.0237	19.99077	-	6338.937 (2)	303.101 (152)	20.914	.000***
	Clinical group	18	90.0322	16.37934					
	Severe Clinical group	98	105.2315	16.51353					
	Total	155	98.5123	19.53174					
STAT A & B- Avoidance	Usual group	38	18.1200	4.28338	-	265.141 (2)	18.433 (152)	14.384	.000***
	Clinical group	18	19.1717	3.87368					
	Severe Clinical group	99	22.2591	4.36579					
	Total	155	20.8858	4.65157					
STAT A & B- Intrusion	Usual group	38	15.6426	4.04241	-	819.453 (2)	23.559 (152)	34.783	.000***
	Clinical group	18	17.7072	3.87368					
	Severe Clinical group	99	22.9670	5.14441					
	Total	155	20.5605	5.82196					
STAT A & B- Hyper arousal	Usual group	38	15.4605	3.94751	-	351.864 (2)	19.127 (152)	18.397	.000***
	Clinical group	18	16.4483	3.73813					
	Severe Clinical group	99	20.1760	4.62153					
	Total	155	18.5870	4.84231					
STAT A & B- Dissociation	Usual group	38	10.8216	3.07858	-	277.862 (2)	9.077 (152)	30.611	.000***
	Clinical group	18	10.5533	2.62613					
	Severe Clinical group	99	14.6739	3.05029					
	Total	155	13.2510	3.54513					
STAT A & B- Flight	Usual group	38	17.8268	3.71553	-	245.584 (2)	14.364 (152)	17.097	.000***
	Clinical group	18	18.2411	2.42928					
	Severe Clinical group	99	21.6578	4.00533					
	Total	155	20.3218	4.16733					
STAT A & B- Freeze	Usual group	38	11.5053	4.06582	-	388.873 (2)	14.146 (152)	27.490	.000***
	Clinical group	18	10.6261	2.98913					
	Severe Clinical group	99	15.8574	3.76157					
	Total	155	14.1829	4.36033					
STAT A & B- Fight	Usual group	38	10.1489	2.35116	-	50.780 (2)	5.633 (152)	9.014	.000***
	Clinical group	18	10.1594	2.37923					
	Severe Clinical group	99	11.8374	2.38084					
	Total	155	11.2286	2.49393					
STAT A & B- Forensic or Pathological Subscale	Usual group	38	27.1239	4.77122	-	23.505 (2)	23.505 (152)	37.600	.000***
	Clinical group	18	30.4122	4.29417					
	Severe Clinical group	99	34.9430	4.96623					
	Total	155	32.4999	5.88879					
STAT A & B- Clinical Psychology Subscale	Usual group	38	22.0637	5.32978	-	404.901 (2)	22.713 (152)	17.827	.000***
	Clinical group	18	25.1417	4.50651					
	Severe Clinical group	99	27.4582	4.58048					
	Total	155	25.8666	5.26086					
STAT A & B- Attachment Negative Disturbed sense of ...	Usual group	38	49.2900	12.96633	-	2942.721 (2)	155.916 (152)	18.874	.000***
	Clinical group	18	52.0900	10.81087					
	Severe Clinical group	99	62.9128	12.57296					
	Total	155	58.3162	13.86033					

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 level

The HADS measure of anxiety, when compared with the STAT using an ANOVA, shows unilaterally all findings (p<0.001 level of significance). This is important as this self report of anxiety appears to be consistently able to take account of the different levels of anxiety, to accurately discriminate in both groups and accurately tell apart the full spectrum of ill psychological health to very high levels of wellness.

Table 5.13: The Results of One-Way ANOVA for the STAT Measures/Tests by sub-groups of the HADS measure of Depression
(Note: This Compare Means Analysis includes just Conceptually Negative Measures of the STAT Data)

STAT Negative Measures/ Tests	HADS-Depression Group	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Trauma	Usual group	66	27.3447	5.52343	-	352.241 (2)	32.601 (149)	10.805	.000***
	Clinical group	67	31.8966	5.96184					
	Severe Clinical group	19	30.6063	5.41892					
	Total	152	29.7588	6.06912					
STAT A & B- Anxiety	Usual group	66	25.3542	6.36472	-	554.961 (2)	48.459 (149)	11.452	.000***
	Clinical group	67	31.0852	7.66591					
	Severe Clinical group	19	27.2032	6.27485					
	Total	152	28.1115	7.42751					
STAT A & B-Impulsivity	Usual group	65	25.7726	5.29719	-	192.931 (2)	21.987 (149)	8.775	.000***
	Clinical group	68	29.1094	4.21302					
	Severe Clinical group	19	26.5026	4.02062					
	Total	152	27.3566	4.92453					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	Usual group	66	32.4489	7.37973	-	967.677 (2)	64.619 (152)	14.975	.000***
	Clinical group	70	39.9814	8.59304					
	Severe Clinical group	19	35.6368	8.12139					
	Total	155	36.2415	8.73770					

STAT Measures/Tests	Group	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B-Limbic Lobe Separation or Fear	Usual group	66	28.1289	28.1289	-	800.691 (2)	55.525 (152)	14.420	.000***
	Clinical group	70	34.9944	7.51409					
	Severe Clinical group	19	31.5584	6.86396					
	Total	**155**	**31.6499**	**8.07478**					
STAT A & B- Defensiveness	Usual group	66	25.2918	5.90876	-	314.275 (2)	34.381 (152)	9.141	.000***
	Clinical group	70	29.5879	6.22504					
	Severe Clinical group	19	27.1942	3.96296					
	Total	**155**	**27.4652**	**6.16570**					
STAT A & B- Negativity (Cruelty)	Usual group	66	91.4291	19.76088	-	3651.530 (2)	338.462 (152)	10.789	.000***
	Clinical group	70	105.9294	18.20299					
	Severe Clinical group	19	95.7905	13.33578					
	Total	**155**	**98.5123**	**19.53174**					
STAT A & B- Avoidance	Usual group	66	19.9174	4.47704	-	76.020 (2)	20.922 (12)	3.634	.029*
	Clinical group	70	21.9713	4.80640					
	Severe Clinical group	19	20.2505	3.96667					
	Total	**155**	**20.8858**	**4.65157**					
STAT A & B- Intrusion	Usual group	66	18.2600	5.57166	-	327.808 (2)	30.028 (152)	10.917	.000***
	Clinical group	70	22.6463	5.57103					
	Severe Clinical group	19	20.8674	4.74294					
	Total	**155**	**20.5605**	**5.82196**					
STAT A & B- Hyper arousal	Usual group	66	16.9429	4.07593	-	174.520 (2)	21.460 (152)	8.132	.000***
	Clinical group	70	20.1481	5.19874					
	Severe Clinical group	19	18.5468	4.19809					
	Total	**155**	**18.5870**	**4.84231**					
STAT A & B- Dissociation	Usual group	66	11.7906	3.31286	-	157.702 (2)	10.658 (152)	14.796	.000***
	Clinical group	70	14.7969	3.39520					
	Severe Clinical group	19	12.6248	2.48649					
	Total	**155**	**13.2510**	**3.54513**					
STAT A & B- Flight	Usual group	66	18.8329	4.13741	-	164.697 (2)	15.428 (152)	10.675	.000***
	Clinical group	70	21.9029	3.90984					
	Severe Clinical group	19	19.6689	3.14105					
	Total	**155**	**20.3218**	**4.16733**					
STAT A & B- Freeze	Usual group	66	12.2926	3.86151	-	232.333 (2)	16.206 (152)	14.337	.000***
	Clinical group	70	15.9903	4.22293					
	Severe Clinical group	19	14.0905	3.82636					
	Total	**155**	**14.1829**	**4.36033**					
STAT A & B- Fight	Usual group	66	-	2.56950	-	19.365 (2)	6.047 (152)	3.203	.043*
	Clinical group	70	11.7563	2.52547					
	Severe Clinical group	19	11.1547	1.66445					
	Total	**155**	**11.2286**	**2.49393**					
STAT A & B- Forensic or Pathological Subscale	Usual group	66	29.1492	5.46523	-	692.673 (2)	26.020 (152)	26.621	.000***
	Clinical group	70	35.5226	4.99082					
	Severe Clinical group	19	33.0032	4.04763					
	Total	**155**	**32.4999**	**5.88879**					
STAT A & B- Clinical Psychology Subscale	Usual group	66	23.7014	5.51167	-	312.252 (2)	23.932 (152)	13.047	.000***
	Clinical group	70	27.9833	4.73348					
	Severe Clinical group	19	25.5900	2.55060					
	Total	**155**	**25.8666**	**5.26086**					
STAT A & B- Attachment Negative Disturbed sense of ...	Usual group	66	53.1150	12.95798	-	2091.399 (2)	167.118 (152)	12.515	.000***
	Clinical group	70	63.9825	13.62633					
	Severe Clinical group	19	55.5074	9.64980					
	Total	**155**	**58.3162**	**13.86033**					

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 level

The HADS measure of depression, compared with the STAT using a one-way ANOVA shows unilaterally all findings with p<0.001 level of significance, except for avoidance and fight, which are moderately significant (p<0.05 level) for the STAT.

Table 5.14: The Results of One-Way ANOVA for the STAT Measures/Tests by sub-groups of the ETI-SR Measure
(Note: This Compare Means Analysis includes just Conceptually Negative Measures of the STAT Data)

STAT Negative Measures/ Tests	Group	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Trauma	Low	43	26.6402	6.32266	-	276.173 (2)	31.703 (144)	8.711	.000***
	Usual non-Clinical	30	29.6047	5.13945					
	Severe	74	31.1455	5.38926					
	Total	**147**	**29.5132**	**5.92046**					
STAT A & B- Anxiety	Low	43	25.4919	5.93756	-	173.263 (2)	52.696 (144)	3.288	.040*
	Usual non-Clinical	30	29.0863	7.53268					
	Severe	74	28.7626	7.81815					
	Total	**147**	**27.8719**	**7.37207**					
STAT A & B-Impulsivity	Low	42	25.5586	5.30040	-	98.181 (2)	23.891	4.109	.018*
	Usual non-Clinical	30	27.3470	4.98408					
	Severe	75	28.2587	4.60330					
	Total	**147**	**27.3012**	**4.99089**					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	Low	44	32.2507	8.93334	-	518.635 (2)	69.869 (147)	7.423	.001**
	Usual non-Clinical	30	35.5277	8.72367					
	Severe	76	38.3286	7.85891					

STAT Negative Measures/ Tests	Sub-groups	N	Mean	SD	Levine (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
	Total	**150**	**35.9855**	**8.71164**					
STAT A & B-Limbic Lobe Separation or Fear	*Low*	44	27.3116	7.32010	-	794.316 *(2)*	57.132 *(147)*	13.903	.000***
	Usual non-Clinical	30	30.0177	7.97443					
	Severe	76	34.6446	7.52785					
	Total	**150**	**31.5682**	**8.18701**					
STAT A & B- Defensiveness	*Low*	44	24.7570	6.03896	-	231.780 *(2)*	36.402 *(147)*	6.367	.002**
	Usual non-Clinical	30	27.5427	5.70996					
	Severe	76	28.8312	6.15087					
	Total	**150**	**27.3784**	**6.24700**					
STAT A & B- Negativity (Cruelty)	*Low*	44	88.7986	20.63858	-	3920.950 *(2)*	342.464 *(147)*	11.449	.000***
	Usual non-Clinical	30	94.5913	17.99454					
	Severe	76	105.0463	17.37278					
	Total	**150**	**98.1893**	**19.76100**					
STAT A & B- Avoidance	*Low*	44	18.9250	4.72860	-	129.155 *(2)*	20.674 *(147)*	6.247	.002**
	Usual non-Clinical	30	20.8013	4.82033					
	Severe	76	21.9692	4.32638					
	Total	**150**	**20.8427**	**4.70429**					
STAT A & B- Intrusion	*Low*	44	18.1998	6.02448	-	162.843 *(2)*	32.663 *(147)*	4.986	.008**
	Usual non-Clinical	30	20.6797	5.26112					
	Severe	76	21.6053	5.70154					
	Total	**150**	**20.4212**	**5.86601**					
STAT A & B- Hyper arousal	*Low*	44	16.5786	4.63092	-	113.662 *(2)*	20.720 *(147)*	5.486	.005**
	Usual non-Clinical	30	18.5553	4.57069					
	Severe	76	19.4304	4.49857					
	Total	**150**	**18.4189**	**4.68691**					
STAT A & B- Dissociation	*Low*	44	11.7436	3.44144	-	68.966 *(2)*	11.716 *(147)*	5.887	.003**
	Usual non-Clinical	30	13.2260	3.66420					
	Severe	76	13.9674	3.31376					
	Total	**150**	**13.1668**	**3.53329**					
STAT A & B- Flight	*Low*	44	18.3302	-	-	123.946 *(2)*	15.859 *(147)*	7.815	.001**
	Usual non-Clinical	30	20.2080	4.47374					
	Severe	76	21.3128	3.86702					
	Total	**150**	**20.2169**	**4.16053**					
STAT A & B- Freeze	*Low*	44	12.2564	4.10141	-	120.381 *(2)*	17.850 *(147)*	6.744	.002**
	Usual non-Clinical	30	14.0547	5.05985					
	Severe	76	15.1951	3.92977					
	Total	**150**	**14.1050**	**4.38483**					
STAT A & B- Fight	*Low*	44	10.1264	2.52706	-	49.946 *(2)*	5.784 *(147)*	8.635	.000***
	Usual non-Clinical	30	10.7923	2.15004					
	Severe	76	11.9626	2.42666					
	Total	**150**	**11.1899**	**2.52531**					
STAT A & B- Forensic or Pathological Subscale	*Low*	44	29.9073	6.35098	-	213.705 *(2)*	32.429 *(147)*	6.590	.002**
	Usual non-Clinical	30	32.1257	4.22612					
	Severe	76	33.8163	5.79054					
	Total	**150**	**32.3315**	**5.90446**					
STAT A & B- Clinical Psychology Subscale (CPS)	*Low*	-	-	-	-	93.264 *(2)*	26.788 *(147)*	3.481	.033*
	Usual non-Clinical	30	26.6930	5.25106					
	Severe	76	26.3680	4.89307					
	Total	**150**	**25.7459**	**5.26125**					
STAT A & B- Attachment Negative Disturbed sense of ...	*Low*				-	1910.290 *(2)*	173.534 *(147)*	11.008	.000***
	Usual Non-Clinical								
	Severe								
	Total								

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 level

The ETI-SR, the early trauma experiences questionnaire, shows findings that are all highly significant (p<0.001 level) except for the aspects of STAT anxiety, impulsivity, and the clinical psychology sub-scale, which were all moderately significant (p<0.05 level). Many of the other items such as trauma, negative thinking, fear, fight, flight, freeze, etc. could all be captured by the negative sense of primitive defense in the face of an early highly distressing experience.

Table 5.15: The Results of One-Way ANOVA for the STAT Measures/Tests by sub-groups of the CAPS-Average Measure
(Note: This Compare Means Analysis includes just Conceptually Negative Measures of the STAT Data)

STAT Negative Measures/ Tests	CAPS-Average Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Trauma	*Low (1)*	8	25.7325	5.394	-	39.399 (3)	39.145 (123)	1.006	.392
	Usual (2)	60	29.7532	6.389					
	Significant (3)	44	29.4680	6.317					
	Severe (4)	15	29.8413	5.902					
	Total	127	29.4115	6.257					
STAT A & B- Anxiety	*Low (1)*	8	24.1788	6.628	-	58.539 (3)	54.338 (123)	1.077	.361
	Usual (2)	60	28.2422	7.424					
	Significant (3)	44	27.066	7.309					
	Severe (4)	15	25.624	7.686					
	Total	127	27.269	7.378					
STAT A & B- Impulsivity	*Low (1)*	7	24.8857	4.519	-	21.413 (3)	25.342 (122)	0.845	.472
	Usual (2)	60	27.6303	5.276					
	Significant (3)	44	27.6303	5.207					
	Severe (4)	15	26.1667	3.389					
	Total	126	27.1148	5.025					
STAT A & B-Frontal Lobe (Lateral) Self-	*Low (1)*	8	30.7500	5.794	-				

Critical Thoughts	Usual (2)	60	37.6733	9.649					
	Significant (3)	44	34.6341	8.147					
	Severe (4)	15	31.2487	7.315					
	Total	**127**	**35.4254**	**8.953**					
	Low (1)	8	28.7600	6.543					
	Usual (2)	60	32.3347	8.679		61.803 (3)	71.076	.870	.459
	Significant (3)	44	30.7661	8.495					
	Severe (4)	15	29.3333	7.997	-		(123)		
STAT A & B-Limbic Lobe Separation or Fear	**Total**	**127**	**31.2116**	**8.417**					
	Low (1)	8	25.4263	3.207					
	Usual (2)	60	27.8683	7.144		51.823 (3)	39.244 (123)	1.321	.271
STAT A & B- Defensiveness	Significant (3)	44	26.8257	5.552	-				
	Severe (4)	15	24.5607	5.463					
	Total	**127**	**26.9620**	**6.288**					
	Low (1)	8	17.1788	2.977					
	Usual (2)	60	14.7775	4.030		14.187	13.824	1.026	.383
	Significant (3)	44	15.2452	3.551					
	Severe (4)	15	15.4000	3.135	-		(123)		
	Total	**127**	**15.1643**	**3.719**		(3)			
STAT A & B- Self Esteem									
	Low (1)	8	89.1050	16.897					
	Usual (2)	60	100.9927	21.943		721.492 (3)	408.346 (123)	1.767	.157
	Significant (3)	44	95.3418	18.799	-				
	Severe (4)	15	90.7333	18.172					
STAT A&B- Negativity (Cruelty)	**Total**	**127**	**97.0743**	**20.391**					
	Low (1)	8	19.1513	2.820					
	Usual (2)	60	21.7433	5.045		63.188 (3)	21.761	2.904	.038[*]
	Significant (3)	44	19.8391	4.285	-				
	Severe (4)	15	18.4480	4.849			(123)		
STAT A & B- Avoidance	**Total**	**127**	**20.5311**	**4.769**					
	Low (1)	8	16.1725	3.784					
	Usual (2)	60	20.9065	6.453		58.257 (3)	35.555 (123)	1.638	.184
	Significant (3)	44	19.5850	5.736	-				
	Severe (4)	15	20.3187	5.350					
STAT A & B- Intrusion	**Total**	**127**	**20.0810**	**6.007**					
	Low (1)	8	16.3438	4.004					
	Usual (2)	60	18.6665	4.817		15.187 (3)	24.436 (123)	.622	.602
	Significant (3)	44	17.9030	5.283	-				
	Severe (4)	15	18.4833	4.807					
STAT A & B- Hyper arousal	**Total**	**127**	**18.2340**	**4.921**					
	Low (1)	8	10.5225	2.475					
	Usual (2)	60	13.5320	3.870		24.623 (3)	13.323	1.848	.142
	Significant (3)	44	12.8173	3.597	-				
	Severe (4)	15	12.3373	3.332			(123)		
STAT A & B- Dissociation	**Total**	**127**	**12.9537**	**3.686**					
	Low (1)	8	19.2450	3.354					
STAT A& B- Flight	Usual (2)	60	21.0868	4.443		54.332 (3)	17.453 (123)	3.113	.029[*]
	Significant (3)	44	19.4973	4.009					
	Severe (4)	15	17.7413	3.888					
	Total	**127**	**20.0250**	**4.281**					
	Low (1)	8	11.1700	2.99933					
STAT A & B- Freeze	Usual (2)	60	14.7120	4.66053		40.256 (3)	20.173	1.996	.118
	Significant (3)	44	13.5480	4.54053					
	Severe (4)	15	13.0080	4.22791			(123)		
	Total	**127**	**13.9042**	**4.54432**					
	Low (1)	8	9.7075	2.161					
STAT A& B-Fight	Usual (2)	60	11.4128	2.905		7.848 (3)	6.659	1.178	.321
	Significant (3)	44	11.0430	2.279					
	Severe (4)	15	10.7333	2.154					
	Total	**127**	**11.0970**	**2.586**			(123)		
	Low (1)	8	29.1250	4.18970					
STAT A & B- Forensic or Pathological Subscale	Usual (2)	60	31.8712	6.45274		32.663	35.787 (123)	.913	.437
	Significant (3)	44	32.8195	6.18730					
	Severe (4)	15	31.7033	3.54663					
	Total	**127**	**32.0069**	**5.97598**		(3)			
	Low (1)	8	22.2188	5.64174					
STAT A & B- Clinical Psychology Subscale	Usual (2)	60	25.5937	6.0125		31.949 (3)	30.665 (123)	1.042	.377
	Significant (3)	44	25.8032	5.27392					
	Severe (4)	15	26.0867	3.96566					
	Total	**127**	**25.5119**	**5.54040**					
	Low (1)	8	52.0088	10.00391					
STAT A & B- Attachment Negative Disturbed sense of ...	Usual (2)	60	60.0809	14.80948		420.672 (3)	198.701 (123)	2.117	.101
	Significant (3)	44	55.9973	13.89145					
	Severe (4)	15	51.5127	13.36828					
	Total	**127**	**57.1456**	**14.28237**					

*** Significant at the 0.001 level ** Significant at the 0.01 level * Significant at the 0.05 level

Except for self-critical thoughts, avoidance, and flight, these one-way ANOVAs are not significant. There were some areas of overlap, which included avoidance, self-critical thoughts, and flight. Each of these aspects is an individual category within the CAPS test (Blake et al., 1990). The STAT scores were significant (p<0.001 level) in the ANOVA's for nearly all except for the CAPS and FST (the alcohol measure), and the ROM ATT (attachment

measure. The majority of these sub scores including STAT trauma, anxiety, impulsivity, limbic lobe separation/fear, defensiveness, self esteem, negativity (cruelty), intrusion, hyper arousal, dissociation, fight, forensic and clinical sub-scales, and negative attachment, were not significant when compared to the CAPS average. The CAPS scores did not have significance levels to those of the STAT. It is important the data for the CAPS average scores be separated from clearer component scores.[iv]

Influence of Environmental and Social Neuropsychology upon Human Stress Responses

Traumatic triggering responses include hyper-arousal (Ogden et al., 2006), intrusion (van der Kolk et al, 1996), and dissociation (van der Hart et al., 2006; Bromberg, 2006), not only within the brain, but also within the body (Bremner, 2005b). These responses form part of lower survival brain functions including emotional limbic defenses of fight/flight/freeze and anxiety/avoidance/dissociation, as well as emotional impulsivity. These emotional and physiological process are also heavily influenced within social environments (see Decety and Cacioppo, 2011)

The data required the sub scores of the tests to examine possible generalizations to test what may account for these differences, to begin to make sense of these different groups. This research was not able to examine direct differences in stress hormone vs. oxytocin with blood cortisol. This was not neural-hormonally measured, but the behavioural measures and the known indicators of approximate stress responses can be a reliable indicator of these underlying phenomena (Panksepp, 2004) and point to a likely level and directionality of stress response.

Table 5.16: The Correlation Matrix of the Measures of Environmental and Social Neuropsychology and The Human Stress Responses

Pearson Correlation (N) *2-tailed Sig.*	WASAS Total Scale	Avoidance Subscale-Mean of items	Intrusion Subscale-Mean of Items	Hyper Arousal Subscale- Mean	STAT A & B- Flight	STAT A & B- Fight	STAT A & B- Intrusion	STAT - Hyper arousal	TSC 40- Dissociation	ROM_ATT_ATT2	AES Total Scale
WSAS Total Scale	1 (155)	-	-	-	-	-	-	-	-	-	-
Avoidance Subscale-Mean of items	.261** (155) .001	1 (155)	-	-	-	-	-	-	-	-	-
Intrusion Subscale-Mean of Items	.271** (155) .001	.688** (155) .000	1 (155)	-	-	-	-	-	-	-	-
Hyper Arousal Subscale- Mean of items	.335** (154) .000	.663** (154) .000	.832** (154) .000	1 (154)	-	-	-	-	-	-	-
STAT A & B- Flight	.400** (155) .000	.363** (155) .000	.365** (155) .000	.382** (154) .000	1 (155)	-	-	-	-	-	-
STAT A & B- Fight	.289** (155) .000	.239** (155) .000	.129** (155) .000	.248** (154) .000	.544** (155) .000	1 (155)	-	-	-	-	-
STAT A & B- Intrusion	.486** (155) .000	.341** (155) .000	.444** (155) .000	.452** (154) .000	.655** (155) .000	.586** (155) .000	1 (155)	-	-	-	-
STAT A & B- Hyper arousal	.428** (155) .000	.332** (155) .000	.475** (155) .000	.500** (154) .000	.605** (155) .000	.386** (155) .000	.733** (155) .000	1 (155)	-	-	-
TSC 40- Dissociation	.573** (98) .000	.568** (98) .000	.562** (98) .000	.566** (97) .000	.420** (98) .000	261** (98) .000	.457** (98) .000	.472** (98) .000	1 (98)	-	-
ROM_ATT_ATT	.113	.143	.144	.163*	.198*	.123	.181*	.138	.199*	1 (155)	-

2	(155)	(155)	(155)	(154)	(155)	(1155)	(155)	(155)	(198)		
	.162	.075	.074	.043	.014	.127	.024	.087	.050		
AES Total Scale	-.190*	.008	-.104	-.196*	-.318*	-.283*	-.296**	-.246**	-.083	-.126	-
	(131)	(131)	(131)	(130)	(131)	(131)	(131)	(131)	(98)	(131)	
	.03	.928	.235	..025	.000	.001	.001	.005	.414	.153	

** Correlation is significant at the 0.05 level (2-tailed)   **** Correlation is significant at the 0.05 level (2-tailed)***

Hyper-arousal, intrusion, dissociation, and many other stress response systems have a cut-off, as Porges (2011) articulates or as Daniels (2010a) describes as a "cortico-disconnection hypothesis") and these stress responses should be understood to be examined in relationship to these quantitative psychometric findings. With severe enough emotional stress these higher levels of intellectual and emotional capacities are decoupled, thus dramatically reducing this kind of capacity for intellectual expression. Some of the scores for AES (significant ($p<0.001$ level), however, are only moderately significant ($p<0.05$ level). Some of the ROM-ATT scores are moderately significant, however, many are not significant at all. This is valuable in demonstrating there is some relationship with aspects of psychological mindedness, but the attachment aspect of relationships does not appear to quantitatively capture this relationship. If depending on one kind of attachment relationship, it is possible to discern if someone will have a certain kind of response with resorting to earlier types of emotional responses like hyper arousal, dissociation etc.

Table 5.17: The Correlation Matrix of the Measures of Environmental and Social Neuropsychology and The Human Stress Responses

Pearson Correlation (N) *2-tailed Sig.*	WSAS Total Scale	Avoidance Subscale- Mean of items	Intrusion Subscale- Mean of Items	Hyper Arousal Subscale- Mean of items	TSC 40- Dissociation	ROM_ATT _ATT2	STAT A & B-Positivity (Compassion)
WSAS Total Scale	**1** (155)	-	-	-	-	-	-
Avoidance Subscale- Mean of items	**.261**** (155) .001	**1** (155)	-	-	-	-	-
Intrusion Subscale- Mean of Items	**.271**** (155) .001	**.688**** (155) .000	**1** (155)	-	-	-	-
Hyper Arousal Subscale- Mean of items	**.335**** (154) .000	**.663**** (154) .000	**.832**** (154) .000	**1** (154)	-	-	-
TSC 40- Dissociation	**.573**** (98) .000	**.568**** (98) .000	**.562**** (98) .000	**.566**** (98) .000	**1** (98)	-	-
ROM_ATT_ATT2	**.113** (155) .162	**.143** (155) .075	**.144** (154) .074	**.163*** (154) .043	**.199*** (98) .050	**1** (155)	-
STAT A & B-Positivity (Compassion)	**-.105** (155) .195	**-.126** (155) .119	**-.135** (155) .094	**-.153** (154) .058	**-.127** (98) .212	**-.086** (155) .286	**1** (155)

. Correlation is significant at the 0.01 level (2-tailed)   **. Correlation is significant at the 0.05 level (2-tailed).***

This table shows highly significant levels ($p<0.001$) except for ROM-ATT and negative non-significant correlations for Positivity and Compassion. It is helpful within this context to look at the possibility that the greater social neuropsychological impact could be more likely to increase the strength and primitiveness of these limbic responses such as hyper-arousal, avoidance, or intrusion. However, again it is possible that the negative emotions have a stronger learning and memory impact then positive relationships, which is supported by current neuro-scientific research (Schore, 2003b).

Hypothesis 1: Can we match levels of brain development and health vs. distortion and psychopathology to explain vulnerability and resiliency? It is important to reiterate this as direct physiological data has not been collected for this neuropsychological level of processing. The data about these levels of functioning is being inferred from social-neuro-scientific research (see Dectey and Cacioppo, 2011) and is not based on direct neuro-physiological or neuro-anatomic findings (for example fMRI) from this data set. This data links the physiological self-reports from the psychometric data extrapolated from what is known about the neuro-circuitry and behavioural functioning (see Panksepp, 1998; Panksepp and Biven, 2012). This is the case throughout the study. For the ETI sub scores the perception of emotions and self other scores can be examined—especially if this can be linked to the sub scores for the AS—accepting external influence and self-alienation to discern the healthy group from the non-healthy group. Can this distortion be linked to the disruption or severity scale to the WASAS scale? Also, is there a relationship between the attachment classification and the severity of scores for the groups or subgroups?

Null Hypothesis predicts there is no significant relationship about higher levels of Fight/flight/ or dissociation and higher levels of trauma symptoms or higher levels of disturbance (using GHQ or WASAS).

Table 5.18: The Results of One-Way ANOVA for Some Measures/Tests by sub-groups of the WASAS Measure
(Note: This Compare Means Analysis includes relevant test from both Data sets)

The Relevant Measures/Tests	Subgroups	N	Mean	SD	Levine Statistic *(Sig.)*	MS$_B$ *(df)*	MS$_W$ *(df)*	F	Sig.
ETI (Early Trauma Inventory) Self Report-Short	*Non-Clinical*	18	4.7778	3.87383	-	88.524 (2)	26.786 (147)	3.305	.039*
	Clinical	11	6.0909	4.52669					
	Severe	121	7.9339	5.38321					
	Total	**150**	**7.4200**	**5.25494**					
Perception of Emotions	*Non-Clinical*	18	1.5000	1.04319	-	8.177 (2)	3.561 (150)	2.296	.104
	Clinical	11	1.9091	1.92117					
	Severe	124	2.4597	1.97299					
	Total	**153**	**2.3072**	**1.90319**					
STAT A & B- Self Awareness	*Non-Clinical*	18	43.8894	5.29228	-	51.195 (2)	29.478 (150)	1.737	.180
	Clinical	11	42.5291	4.11039					
	Severe	124	41.4193	5.54109					
	Total	**153**	**41.7897**	**5.45558**					
AS Data- Accepting External Influence	*Non-Clinical*	18	14.3333	3.53137	-	99.148 (2)	27.471 (128)	3.609	.030*
	Clinical	8	11.7500	7.22595					
	Severe	105	16.3209	5.31579					
	Total	**131**	**15.7686**	**5.34544**					
AS Data- Self Alienation	*Non-Clinical*	18	11.7222	4.70051	-	340.736 (2)	32.632 (128)	10.442	.000***
	Clinical	8	9.1250	4.42194					
	Severe	105	16.4826	5.93589					
	Total	**131**	**15.3792**	**6.11327**					

*** Significant at the 0.001 level   *** Significant at the 0.01 level*   ** Significant at the 0.05 level*

The only highly significant response was for self-alienation. The ETI-SR early trauma experiences and accepting external influences were significant (p<0.05 level) for this test of difference. These findings are important because it contextualizes human learning within centrality that the negative (self-) experience has potentially valuable differences between the groups and their relationship with negativity. These may be in distinguishing between healthy to severely ill levels of dysfunction. What is also intriguing is that the perception of emotions and self-awareness were not significant as differentiating factors for separating meaningful differences between or within the groups. This could be linked to the fact that these aspects are second order levels of importance, and perhaps have more to do with the degree of negative thinking or self attack, which may be a critical determining factor well above these other aspects of either early experience or of one's emotional capacities or intelligence. This could imply that it is the

degree and quality of negativity that could be the determining factor in articulating the emotional framework. This subjective perspective influences someone's state and degree of mental, emotional, and even physical health in determining their personal evaluation and experience of key factors such as work, home management, social life, private leisure, or family (relationship).

The Relevant Measures/Tests	GHQ Subgroups	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
ETI (Early Trauma Inventory) Self Report- Short	*Really Healthy*	4	6.2500	3.86221		23.993 (3)	27.833 (143)	.862	.462
	Normal	15	7.8000	5.32112					
	Clinical	83	7.9518	5.68675					
	Really Severe	45	6.4667	4.49039					
	Total	147	7.4354	5.26824					
Perception of Emotions	*Really Healthy*	4	1.2500	1.25831		6.134 (3)	3.593 (146)	1.707	.168
	Normal	15	2.4000	2.09762					
	Clinical	85	2.5882	2.01361					
	Really Severe	46	1.9130	1.61694					
	Total	150	2.3267	1.90899					
STAT A & B- Self Awareness	*Really Healthy*	4	35.7500	4.34933		51.835 (3)	29.691 (146)	1.746	.160
	Normal	15	41.9087	5.87272					
	Clinical	86	41.9245	5.97691					
	Really Severe	45	42.2193	4.15263					
	Total	150	41.8467	5.48968					
AS Data- Accepting External Influence	*Really Healthy*	-	-	-		74.597 (2)	27.961 (127)	2.668	.073
	Normal	15	13.9167	5.97660					
	Clinical	76	15.2963	5.54914					
	Really Severe	42	17.2421	4.54970					
	Total	130	15.7976	5.35577					
AS Data- Self Alienation	*Really Healthy*	-	-	-		95.012 (2)	36.668 (127)	2.591	.079
	Normal	15	11.8333	7.28427					
	Clinical	76	15.4521	6.30481					
	Really Severe	42	16.3407	5.16054					
	Total	130	15.4052	6.12965					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

Comparing the self-awareness, perception of emotions, impact of early life experiences, accepting external influence, and self-alienation, none of these scores compared with the GHQ general measure are significant to any level. It is possible to understand the overall GHQ to be a non-specific rating of mood that compared to many of the other psychometrics used. It is so general (especially in not separating out the more positive from negative aspects of the test) so that within this light it can be seen to be a vague and therefore crude measure of mental and emotional functioning. This contrasts to the WASAS which looks at much clearer levels of impaired functioning where the person is subjectively asked if there are notable problems within key areas of work, home management, social life, private leisure, or family (relationship). The WASAS examines how much the person's subjective level of difficulty has noticeably impacted their capacity to work, or have a home life (e.g. have close family relationships). These spheres of a holistic examination of the person's capacity are more objective when compared to the GHQ's: "Have you recently . . .felt you are playing a useful part in things, or . . . you have been able to face up to your problems?" Comparatively these are vague compared to feeling capable to be able to work (e.g. if the person has high rates of absenteeism from work). The essential aspects with finding a possible explanation for these statistical ANOVA

results is there may be a psychometric problem when looking too much at transient and perhaps fleeting mood states as compared to solid and defining psychological features such as feeling there are substantial problems in key aspects with a person's ability in their lives such as love, work, or play. The GHQ appears to focus on the foreground of more problematic levels of mood as opposed to the subjective felt problem with whether one can function and to who level.

Hypothesis 2: The Null Hypothesis predicts there is no relationship found for compassion and cruelty within the subscores of the HADS. Furthermore, these findings would not have any significant relationship with self-alienation or the ROM-ATT test.

Comparing the STAT relationship between Cruelty (sub-scale) and Compassion (sub-scale) and Rom Att (ATT2 relationship of subscales for avoidance and anxiety)

Null Hypothesis predicts there is no significant relationship between the subscales from Cruelty and lower levels of functioning like with self-alienation.

Table 5-20: The Pearson Correlation Matrix of the relevant measures/ Tests

Tests/Measures	X1	X2	X3	X4	X5	X6	X7	X8	X9
X1	—	.210**	.248**	.222**	.226**	.232**	.302**	-.196*	.376**
X2		—	.127	.151	.147	.151	.329**	-.092	.249**
X3			—	.670**	.914**	.766**	.239**	-.189*	.457**
X4				—	.723**	.944**	.475**	-.109	.561**
X5					—	.714**	.322**	-.047	.457**
X6						—	.425**	-.190*	.548**
X7							—	-.100	.433**
X8								—	-.279**
X9									—

*. Correlation is significant at the 0.05 level (2-tailed)   **. Correlation is significant at the 0.01 level (2-tailed).

Tests List: *ROM ATT-Avoidance (X1), ROM ATT-Anxiety (X2), HADS-Depression (X3), HADS-Anxiety (X4), HADS-Positive Items (X5), HADS-Negative Items (X6), STAT- Negativity/ Cruelty (X7), STAT- Positivity/ Compassion (X8), AS-Self Alienation (X9)*

This Pearson Correlation Matrix chart does support the importance of self-alienation and the distinctions between negative and positive factors. STAT positivity (compassion) has some moderate hold ($p < 0.05$ level for some aspects and no significance for others). ROM-ATT avoidance appears to hold higher significance than ROM ATT anxiety. STAT cruelty appears to be highly significant ($p < 0.001$ level) for everything except when compared with compassion. STAT compassion does not seem to hold as high as significance (in most cases moderate, ($p < 0.05$ levels). This shows these constructs appear to be important, cruelty to a highly significant degree and compassion could be seen as secondary to the negative emotions.

Hypothesis 3: Do the compendium of tests tell us something more about these diverse samples compared to the classic definition of PTSD in relation to hyper arousal, avoidance, somatisation, depression or anxiety? If we look at the sub scores how do these begin to relate as a larger picture—especially as a fragmented narrative with trauma and perhaps

with a non-clinical group that may function quite differently with freeze, fight/flight, and higher level of more social levels of relating?

Null Hypothesis: Predicts there is no significant relationship between higher levels of trauma symptoms, greater negativity, and more reactive primitive brain states like hyper-arousal or fight/flight. Can we also look at the opposite aspects for the positive scores, less hyper-arousal, and much lower symptom scores and positive scores like emotional intelligence (AES Scores)?

Table 5.21: The Pearson Correlation Matrix of the STAT Measures/ Tests

Tests/ Measures	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16
X1	—	.425**	.528**	.191*	.171*	.609**	.426**	.354**	.404**	.399**	.339**	.314**	.521**	.484**	.224*	.426**
X2		—	.321**	-.144	.352**	.570**	.679**	.336**	.633**	.740**	.650**	.302**	.695**	.362**	.160	.730**
X3			—	.013	.016	.608**	.387**	.440**	.352**	.358**	.226**	.343**	.429**	.525**	.225**	.329**
X4				—	.247**	.216	.032	.065	-.016	-.206*	-.062	.130	-.021	.161	.053	-.060
X5					—	.388**	.268**	.183*	.210**	.233**	.329**	.180*	.223**	.272**	.039	.241**
X6						—	.612**	.653**	.601**	.527**	.391**	.574**	.587**	.854**	.319**	.534**
X7							—	.479**	.907**	.632**	.478**	.473**	.716**	.474**	.138	.674**
X8								—	.500**	.382**	.248**	.832**	.452**	.566**	.060	.334**
X9									—	.605**	.386**	.475**	.733**	.472**	.097	.636**
X10										—	.544**	.365**	.655**	.420**	.301**	.725**
X11											—	.129	.586**	.261**	.111	.517**
X12												—	.444**	.562**	.075	.332**
X13													—	.457**	.113	.672**
X14														—	.270**	.425**
X15															—	.307**
X16																—

*. Correlation is significant at the 0.05 level (2-tailed)   **. Correlation is significant at the 0.01 level (2-tailed).

Included Tests List: HADS-Negative (X1), STAT-Negativity/ Cruelty (X2), GHQ-Negative Items (X3), CAPS (X4), ETI-RS (X5), TSC-40 (X6), STAT-Trauma (X7), Hyper Arousal (X8), STAT-Hyper arousal (X9), STAT-Flight (X10), STAT-Fight (X11), Intrusion-Mean (X12), STAT-Intrusion (X13), TSC-40-Dissociation (X14), FST-Total Scale (X15), STAT- Dissociation (X16).

A more neurobiological model appears to be able to account for a highly significant level (p< 0.001) for most of these elements except for the alcohol (FST-Total scale) and the CAPS score. This appears to have a negative, non-significant relationship to most of these factors with only one of these having a moderate level (p< 0.05 degree of significance)—flight and the ETI-SR (which is the early trauma inventory is correlated with CAPS (p<0.001 level of significance). This is saying that the life experiences and the physiological responses typical of a traumatic response do not seem to meaningfully correlate together within groups or levels of severity. However, the different kinds of earlier neuropsychological response (for example the STAT-Flight (X10), the intrusion-mean (X12) or TSC-40 and STAT Dissociation (X14 & X16) appear to correlate to a highly significant degree (p<0.001 level) to be able to discern key differences between the group and the level of functioning of the spectrum of well-being. All of these can be seen as basic HPA-axis autonomic survival reactions (Conrad, 2011) that have a myriad of deleterious effects on the body and social-emotional processing. A Bonferroni adjustment was made to reduce the chance that a type one error was made (see Appendix XI where the full details of the STAT psychometric are provided.)

Integrated Developmental History

Correlation indicating a possible increased risk factor: What relationship is there—if any—between trauma exposure and trauma symptoms?

Hypothesis 1: What is the relationship between early and late (full) lifetime traumatic events? For example, a comparison between some of the different dimensions of the trauma ratings.

The Null Hypothesis predicts there is no relationship with higher scores for 1) early or 2) lifetime trauma and higher symptom scores.

Psychometric Tests

(The early trauma Inventory (ETI) [this looks at disturbing experiences BEFORE age 18], CAPS [This deals with lifetime trauma exposure and what level witnessed it vs. experienced it directly], TSC-40 [This deals with reported trauma symptoms e.g. headache etc.], IESR—showing trauma ruminations. Can these tests show traumatic stress symptoms? What does experience (especially traumatic events) show as a possible predictive or contributory factor in traumatic symptoms?

The predictor (independent variable) is the life events—these tests include ETI-SR (for early trauma) and CAPS (for lifetime event traumas): the outcomes (dependent variable that is effected by the level of the independent variable) are the level of trauma symptoms (TSC-40) and the levels of psychological rumination (IESR).

Table 5.21: The Pearson Correlation Matrix of the measures of Early and Late Traumatic Events

Included Tests/Measures	ETI-SR	CAPS-Total	CAPS-Avoidance
ETI-SR	—	.247**	.170
CAPS- Total scale		—	.897
CAPS-Avoidance			—

. Correlation is significant at the 0.05 level (2-tailed)

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 5.2: Scatter Plot for the ETI-SR and CAPS Total scale

There appears to be a highly significant relationship with the ETI-SR early trauma to later CAPS total life events report of traumatic events exposure. However, there does not seem to be any notable relationship between the rates of exposure and the amount of avoidance reported.
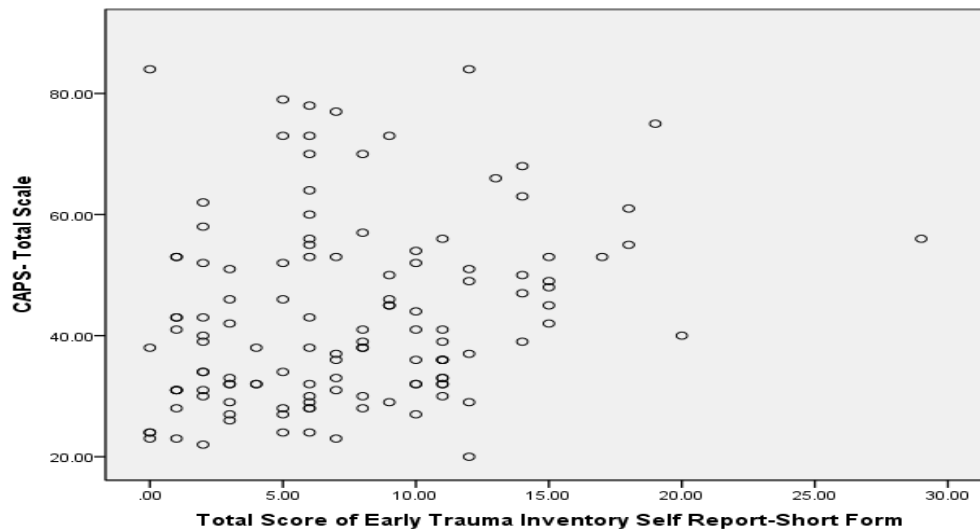
Table 5.22: Multiple Regression Models for the TSC-40 & the IESR

Predictors Variables	Dependent/ Outcome Variable: TSC-40-Total		
	Regression Coefficient	S.g	Multiple R (R^2)
ETI-SR (Included)	B= 0.301[**]	0.000	0.301 (0.91)
CAPS-Total (Excluded)	B= 0.104	0.432	
Method of Variable Inclusion: Stepwise			
Regression Model Test: F= (6.682 Sig.= 0.012[*])			
Predictors Variables	Dependent/ Outcome Variable: IESR		
	Regression Coefficient	Statistics	Multiple R (R^2)
ETI-SR (Excluded)	-	-	-
CAPS-Total (Excluded)	-	-	-
Method of Variable Inclusion: Stepwise			
Regression Model Test: (F= -, Sig. -)			

*.Significant at the 0.05 level   **. Significant at the 0.01 level.

Findings suggest there is a highly significant correlation (p<0.0011 level) between the ETI-SR early trauma live events exposure and later trauma symptoms as found with the TSC-40.

Utilization of Emotions and Self-Awareness (Emotional Intelligence)

How does perception of emotions integrate into this picture of trauma processing and neurobiological functioning?

Table 5.23: The Results of One-Way ANOVA for the Measures of Emotional intelligence by the sub-groups of the WASAS Measure

Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
ETI-SR- Perception of Emotions	Non-Clinical	15	1.5000	1.04319	-	8.177 (2)	3.561 (150)	2.296	.104
	Clinical	11	1.9091	1.92117					
	Severe	123	2.4597	1.97299					
	Total	153	2.3072	1.90319					
ETI-SR Utilization of Emotions	Non-Clinical	18	1.0556	1.0556	-	4.731 (2)	1.977 (152)	2.393	.095
	Clinical	11	1.5455	1.03573					
	Severe	123	1.8175	1.44444					
	Total	152	1.7097	1.41865					
STAT- Self Awareness	Non-Clinical	18	43.8894	5.29228	-	51.195 (2)	29.478 (150)	1.737	.180
	Clinical	11	42.5291	4.11039					
	Severe	124	41.4193	5.54109					
	Total	152	41.7897	5.45558					

	Non-Clinical	18	23.4178	6.54591		379.203	33.527	11.311	.000***
STAT Defensiveness	Clinical	11	22.0373	5.22425	-				
	Severe	126	28.5172	5.72341		(2)	(152)		
	Total	**155**	**27.4652**	**6.16570**					

Table 5.24: The Results of One-Way ANOVA for the Measures of Emotional intelligence by the sub-groups of the GHQ Measure

Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic *(Sig.)*	MS_B *(df)*	MS_W *(df)*	F	Sig.
ETI-SR- Perception of Emotions	Really Healthy	4	1.2500	1.25831	-	6.134 (3)	3.593 (146)	1.707	.168
	Normal	15	2.4000	2.09762					
	Clinical	85	2.5882	2.01361					
	Severe	46	1.9130	1.61694					
	Total	**150**	**2.3267**	**1.90899**					
ETI-SR Utilization of Emotions	Really Healthy	4	2.0000	2.30940	-	1.948 (3)	2.012 (148)	.968	.410
	Normal	15	1.7333	1.33452					
	Clinical	87	1.8391	1.50096					
	Severe	46	1.4130	1.18464					
	Total	**152**	**1.7039**	**1.41814**					
STAT- Self Awareness	Really Healthy	4	35.7500	4.34933	-	51.835 (3)	29.691 (146)	1.746	.160
	Normal	15	41.9087	5.87272					
	Clinical	86	41.9245	5.97691					
	Severe	45	42.2193	4.15263					
	Total	**150**	**41.8467**	**5.48968**					
STAT Defensiveness	Really Healthy	4	26.0000	1.82574	-	145.158 (3)	36.050 (148)	4.027	.009**
	Normal	15	22.7607	7.52372					
	Clinical	87	27.7923	5.93355					
	Severe	46	28.8415	5.78339					
	Total	**152**	**27.5661**	**6.18206**					

Table 5.25: The Results of One-Way ANOVA for the Measures of Emotional intelligence by the sub-groups of the HADS-Anxiety Measure

Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic *(Sig.)*	MS_B *(df)*	MS_W *(df)*	F	Sig.
ETI-SR- Perception of Emotions	Non-Clinical (Usual)	38	2.0000	1.52457	-	2.568 (2)	3.636 (150)	.706	.495
	Clinical	18	2.2778	2.19104					
	Severe	97	2.4330	1.98383					
	Total	**153**	**2.3072**	**1.90319**					
ETI-SR Utilization of Emotions	Non-Clinical	38	1.4211	1.34830	-	2.308 (2)	2.009 (152)	1.149	.320
	Clinical	18	1.9444	1.34917					
	Severe	99	1.7778	1.45375					
	Total	**155**	**1.7097**	**1.41865**					
STAT- Self Awareness	Non-Clinical	38	43.3758	5.05965	-	66.712 (2)	29.271 (150)	2.279	.106
	Clinical	17	40.7065	5.31481					
	Severe	98	41.3626	5.55335					
	Total	**153**	**41.7897**	**5.45558**					
STAT Defensiveness	Non-Clinical	38	23.0647	5.25433	-	669.699 (2)	29.7041 (52)	22.546	.000***
	Clinical	18	24.7544	4.88145					
	Severe	99	29.6471	5.61381					
	Total	**155**	**27.4652**	**6.16570**					

Table 5.26: The Results of One-Way ANOVA for the Measures of Emotional intelligence by the sub-groups of the HADS-Depression Measure

Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic *(Sig.)*	MS_B *(df)*	MS_W *(df)*	F	Sig.
ETI-SR- Perception of Emotions	Non-Clinical (Usual)	66	2.2424	1.79795	-	.255 (2)	3.667 (150)	.070	.933
	Clinical	69	2.3478	2.05674					
	Severe	18	2.3889	1.75361					
	Total	**153**	**2.3072**	**1.90319**					
ETI-SR Utilization of Emotions	Non-Clinical	66	1.5909	1.45684	-	.834 (2)	2.028 (152)	.411	.663
	Clinical	70	1.7857	1.38201					
	Severe	19	1.8421	1.46299					
	Total	**155**	**1.7097**	**1.41865**					
STAT- Self Awareness	Non-Clinical	65	43.0815	5.35928	-				

	Clinical	70	40.6201	5.07100			(150)		
	Severe	19	41.6174	6.38484					
	Total	**153**	**41.7897**	**5.45558**					
STAT Defensiveness	*Non-Clinical*	66	25.2918	5.90876	-	314.275 (2)	34.381 (152)	9.141	.000***
	Clinical	70	29.5879	6.22504					
	Severe	19	27.1942	3.96296					
	Total	**155**	**27.4652**	**6.16570**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

For all of these measures listed the only significant finding out of self-awareness and the utilization or perception of emotions was STAT defensiveness. This was the only highly significant finding compared to none of the others being significant to any degree (except for in HADS depression self –awareness was moderately (p<0.05 degree level of significance) found to be a factor. This is important because this finding lends quantitative support to defensiveness (see Appendix I along with Appendix II for theoretical background for a clear definition and supportive context), and therefore conflict, being a central factor in the emergence of both negative emotions and functioning. Additionally, defensiveness/conflict could be the possible behavioural experiential route that trumps any capacity for reflection or self-awareness to a meaningful degree.

Levels (of emotional intensity)

Higher Levels: Social/emotional Support and Connection

STAT (Emotional Intelligence)

Mid-Higher Level (Frontal lobe functioning with negativity)

STAT (Frontal Lobe—Self-Critical Thinking)

Table 5.27: The Results of One-Way ANOVA for the Measures of Emotional Intensity (EI), Midlevel- Limbic Response (MLR) and Survival Level (SL) by levels of the ROM-ATT2 (Romantic Attachment) Measure

Measures/ Tests	Levels	N	Mean	SD	Levine Statistic *(Sig.)*	MS$_B$ *(df)*	MS$_W$ *(df)*	F	Sig.
STAT A & B- Intelligence	*1*	39	17.6923	3.25880	-	11.210 (3)	9.692 (151)	1.157	.328
	2	53	17.9455	3.19504					
	3	45	17.1978	2.82786					
	4	18	18.7433	3.22854					
	Total	**155**	**17.7574**	**3.11789**					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	*1*	39	31.3469	8.12886	-	515.626 (3)	67.620 (151)	7.625	.000***
	2	53	38.4485	9.32023					
	3	45	38.7184	6.56708					
	4	18	34.1556	8.69416					
	Total	155	36.2415	8.73770					
STAT A & B- Limbic Lobe Separation or Fear[MLR]	*1*	39	26.8444	7.56663	-	539.451 (3)	55.780 (151)	9.671	.000***
	2	53	35.2615	8.13014					
	3	45	31.9938	6.06336					
	4	18	30.5678	8.37483					
	Total	**155**	**31.6499**	**8.07478**					
STAT A & B-Impulsivity[MLR]	*1*	37	25.1670	4.85655	-	98.668 (3)	22.743 (148)	4.338	.006**
	2	53	27.5440	5.12012					
	3	44	28.9855	4.68047					
	4	18	27.3244	3.52801					
	Total	**152**	**27.3566**	**4.92453**					
STAT A & B-Freeze[SL]	*1*	39	12.3292	3.66503	-	73.149 (3)	17.937 (151)	4.078	.008**
	2	53	15.4436	4.80899					
	3	45	14.2018	3.77222					
	4	18	14.4400	4.66129					
	Total	**155**	**14.1829**	**4.36033**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

All of these aspects of the STAT test relate to the ROM ATT attachment scores in a meaningful way to a highly significant degree (p<0.001 level) except for STAT intelligence, which is not significant at all. These findings are important in that these different qualities of emotional responses all help differentiate the attachment categories in a very meaningful way to explain the differences between these groups.

Valence—Negativity or Positivity

These ANOVA's explore the relationship of negativity to the different measures and positivity and the possible relationship between these two factors within the data of some selected psychometrics used for the project.

Table 5.28: The Results of One-Way ANOVA for the Measures of Valance by the sub-groups of the WASAS Measure

Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Negativity (Cruelty)	Non-Clinical	18	79.4811	21.94566	-	5284.608 (2)	316.974 (152)	16.672	.000***
	Clinical	11	84.6727	22.08849					
	Severe	126	102.4392	16.76035					
	Total	155	98.5123	19.53174					
STAT A & B- Attachment Negative Disturbed sense of ...	Non-Clinical	18	44.7328	12.48408	-	2788.299 (2)	157.948 (152)	17.653	.000***
	Clinical	11	47.7682	13.33638					
	Severe	126	61.1775	12.51561					
	Total	155	58.3162	13.86033					
STAT A & B-Positivity (Compassion)	Non-Clinical	18	77.3883	8.75979	-	149.076 (2)	72.060 (152)	2.069	.130
	Clinical	11	72.6727	4.39160					
	Severe	126	73.1083	8.69750					
	Total	155	73.5744	8.54754					
STAT A & B-Attachment Positive	Non-Clinical	17	48.1806	6.38165	-	97.433 (2)	39.507 (150)	2.466	.088
	Clinical	11	46.0773	5.39404					
	Severe	125	44.6660	6.33955					
	Total	153	45.1580	6.34583					

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 level

Table 5.29: The Results of One-Way ANOVA for the Measures of Valance by the sub-groups of the HADS-Anxiety Measure

Valance Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Negativity (Cruelty)	Non-Clinical (Usual)	38	85.0237	19.99077	-	6338.937 (2)	303.101 (152)	20.914	.000***
	Clinical	18	90.0322	16.37934					
	Severe	99	105.2315	16.51353					
	Total	155	98.5123	19.53174					
STAT A & B- Attachment Negative Disturbed sense of ...	Non-Clinical	38	49.2900	12.96633	-	2942.721 (2)	155.916 (152)	18.874	.000***
	Clinical	18	52.0900	10.81087					
	Severe	99	62.9128	12.57296					
	Total	155	58.3162	13.86033					
STAT A & B-Positivity (Compassion)	Non-Clinical	38	75.7642	8.24573	-	127.650 (2)	72.342 (152)	1.765	.175
	Clinical	18	72.0550	8.57162					
	Severe	99	73.0101	8.59001					
	Total	155	73.5744	8.54754					
STAT A & B-Attachment Positive	Non-Clinical	37	47.9378	5.91867	-	191.354 (2)	38.255 (150)	5.002	.088
	Clinical	18	44.7833	5.70897					
	Severe	98	44.1772	6.35958					
	Total	153	45.1580	6.34583					

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 level

Table 5.30: The Results of One-Way ANOVA for the Measures of Valance by the sub-groups of the HADS-Depression Measure

Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Negativity (Cruelty)	Non-Clinical (Usual)	66	91.4291	19.76088	-	3651.530 (2)	338.462 (152)	10.789	.000***
	Clinical	70	105.9294	18.20299					
	Severe	19	95.7905	13.33578					
	Total	155	98.5123	19.53174					

Measure	Sub-group	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Attachment Negative Disturbed sense of ...	*Non-Clinical*	66	53.1150	12.95798	-	2091.399 (2)	167.118 (152)	12.515	.000***
	Clinical	70	63.9825	13.62633					
	Severe	19	55.5074	9.64980					
	Total	**155**	**58.3162**	**13.86033**					
STAT A & B-Positivity (Compassion)	*Non-Clinical*	66	75.1194	8.37972	-	137.894 (2)	72.207 (152)	1.910	.152
	Clinical	70	72.4943	7.97865					
	Severe	19	72.1868	10.59026					
	Total	**155**	**73.5744**	**8.54754**					
STAT A & B-Attachment Positive	*Non-Clinical*	65	47.5069	5.92969	-	315.457 (2)	36.600 (150)	8.619	.000***
	Clinical	69	43.5748	5.88411					
	Severe	19	42.8716	7.01345					
	Total	**153**	**45.1580**	**6.34583**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

Table 5.31: The Results of One-Way ANOVA for the Measures of Valance by the sub-groups of the GHQ Measure

Measures/ Tests	GHQ Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Negativity (Cruelty)	*Really Healthy*	4	97.2500	5.43906	-	1404.203 (3)	360.241 (148)	3.898	.010*
	Normal	15	83.0827	24.63333					
	Clinical	87	100.7062	18.12580					
	Severely Distressed	46	100.7943	19.13514					
	Total	**152**	**98.9028**	**19.51877**					
STAT A & B- Attachment Negative Disturbed sense of ...	*Really Healthy*	4	50.7500	3.86221	-	528.271 (3)	182.734 (148)	2.891	.037*
	Normal	15	49.9613	16.14269					
	Clinical	87	59.7731	13.32689					
	Severely Distressed	46	60.0723	13.39779					
	Total	**152**	**58.6579**	**13.76949**					
STAT A & B-Positivity (Compassion)	*Really Healthy*	4	63.5000	5.19615	-	144.400 (3)	71.812 (148)	2.011	.115
	Normal	15	74.2367	9.47618					
	Clinical	87	74.0782	9.13926					
	Severely Distressed	46	73.6085	6.84241					
	Total	**152**	**73.6733**	**8.55889**					
STAT A & B-Attachment Positive	*Really Healthy*	4	37.2500	2.50000	-	96.349 (3)	39.388 (147)	2.446	.066
	Normal	15	46.5880	7.13325					
	Clinical	87	45.4482	6.67722					
	Severely Distressed	45	44.9898	5.27557					
	Total	**151**	**45.2076**	**6.36610**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

Table 5.32: The Results of One-Way ANOVA for the Measures of Valance by the levels of the ROM-ATT2 (Romantic Attachment) Measure

Measures/ Tests	ROM-ATT2 Levels	N	Mean	SD	Levine Statistic (Sig.)	MS_B (df)	MS_W (df)	F	Sig.
STAT A & B- Negativity (Cruelty)	*1*	39	86.9733	20.23318	-	2600.913 (3)	337.394 (151)	7.709	.000***
	2	53	105.3166	20.52952					
	3	45	100.3627	13.11853					
	4	18	98.8522	18.63244					
	Total	**155**	**98.5123**	**19.53174**					
STAT A & B- Attachment Negative Disturbed sense of ...	*1*	39	50.8886	13.37572	-	1158.757 (3)	172.904 (151)	6.702	.000***
	2	53	63.0806	14.17631					
	3	45	59.7016	10.47164					
	4	18	56.9172	15.40574					
	Total	**155**	**58.3162**	**13.86033**					
STAT A & B-Positivity (Compassion)	*1*	39	76.0449	9.02657	-	140.184 (3)	71.727 (151)	1.954	.123
	2	53	71.7817	8.18990					
	3	45	73.8311	8.12924					
	4	18	72.8583	8.87480					
	Total	**155**	**73.5744**	**8.54754**					
STAT A & B-Attachment Positive	*1*	39	47.7626	6.12334	-	185.904 (3)	37.337 (149)	4.979	.003*
	2	52	42.9842	6.95715					
	3	44	45.8895	5.26133					
	4	18	44.0061	5.31164					
	Total	**153**	**45.1580**	**6.34583**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

For all of the measures examined using a one way ANOVA for WASAS, HADS-anxiety, HADS-depression, GHQ total measure, ROM ATT2 it was found that the STAT (cruelty), STAT negative attachment were highly significant (p<0.001 level). The GHQ found these to be moderately significant (p<0.05 level). All of the tests did not find STAT-positivity (compassion) and STAT positive attachment at all significant. This held true except for the ROM ATT2 (significant p<0.05 level) and the HADS-depression (which found it highly significant p<0.001 level). This is important as it shows the highly significant degree of centrality for this concept of negativity, and that positivity in some aspects of psychological functioning remains important. However, this could be inversely related to the degree of psychological illness, where positivity or compassion takes a lesser position compared to its more learning sensitive companion negativity. This could explain that it is fundamentally not the experience that is most important, but the underlying attitude and belief system organising this emotional and behavioural perceptual framework.

Integration of Individual and Organisational Processes:

Findings on Compassion and Cruelty

Self

ETI-SR (managing own emotions sub-scale)

STAT (Self-awareness sub-scale)

Table 5.33: The Results of One-Way ANOVA for the Measures of Self by the subgroups of WASAS Measure

Self Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic *(Sig.)*	MS$_B$ *(df)*	MS$_W$ *(df)*	F	Sig.
Managing Own Emotions	*Non-Clinical*	18	1.3889	1.53925	-	3.605 (2)	2.331 (149)	1.547	.216
	Clinical	11	1.7273	1.79393					
	Severe	123	2.0407	1.50081					
	Total	**152**	1.9408	1.53214					
STAT A & B- Self Awareness	*Non-Clinical*	18	43.8894	5.29228	-	51.195 (2)	29.478 (150)	1.737	.180
	Clinical	11	42.5291	4.11039					
	Severe	124	41.4193	5.54109					
	Total	**153**	41.7897	5.45558					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

Table 5.34: The Results of One-Way ANOVA for the Measures of Self by the subgroups of GHQ Measure

Self Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic *(Sig.)*	MS$_B$ *(df)*	MS$_W$ *(df)*	F	Sig.
Managing Own Emotions	*Really Healthy*	4	1.5000	.57735	-	.748 (3)	2.366 (145)	.316	.814
	Normal	15	1.9333	1.62422					
	Clinical	85	2.0235	1.58096					
	Severely Distressed	45	1.8000	1.47093					
	Total	**149**	**1.9329**	**1.52752**					
STAT A & B- Self Awareness	*Really Healthy*	4	35.7500	4.34933	-	51.835 (3)	29.691 (148)	1.746	.160
	Normal	15	41.9087	5.87272					
	Clinical	87	41.9245	5.97691					
	Severely Distressed	46	42.2193	4.15263					
	Total	**152**	**41.8467**	**5.48968**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

Table 5.35: The Results of One-Way ANOVA for the Measures of self by the HADS-Anxiety by subgroups

Self Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic *(Sig.)*	MS$_B$ *(df)*	MS$_W$ *(df)*	F	Sig.
Managing Own Emotions	*Non-Clinical (Usual)*	37	1.7568	1.49825	-	2 (149)	.861 (2.367)	.364	.696
	Clinical	18	2.0556	1.86207					
	Severe	97	1.9897	1.48951					
	Total	**152**	1.9408	1.53214					
STAT A & B- Self Awareness	*Non-Clinical*	38	43.3758	5.05965	-				

	Clinical	17	40.7065	5.31481		150	29.271		
	Severe	98	41.3626	5.55335					
	Total	**153**	41.7897	5.45558					

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 lev

Table 5.36: The Results of One-Way ANOVA for the Measures of self by the HADS-Depression by subgroups

Self Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
Managing Own Emotions	Non-Clinical (Usual)	65	1.6769	1.51149	-	3.962 (2)	2.326 (149)	1.703	.186
	Clinical	69	2.1449	1.55559					
	Severe	18	2.1111	1.45072					
	Total	**152**	1.9408	1.53214					
STAT A & B- Self Awareness	Non-Clinical	65	43.0815	5.35928	-	101.711 (2)	28.804 (150)	3.531	.032*
	Clinical	69	40.6201	5.07100					
	Severe	19	41.6174	6.38484					
	Total	**153**	41.7897	5.45558					

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 level

These findings about self-awareness and managing others or one's own emotions bridges together another set of very complex aspects of attachment and social-neural architecture (Carter and Porges, 2011). This quantitative data suggest that in most psychopathology, especially regarding emotional/psychological trauma, awareness or higher level cognitive processes are not a meaningful model to try to explain the reflective capacities as opposed to Porges' poly-vagal gating system, which lays out a very strong emotional instinctual response that bypasses higher level cortical processes or self control. The exception to this could be with depression, as the HADS-depression measure self-awareness was found to be moderately important ($p < 0.05$ level), which could indicate that as Blatt (2004) outlines with his two type model of depression that as opposed to separation and fear (more primitive types of depression) the self-critical thinking can be seen to be a higher level cortical response and could be more important in regard to self-awareness.

Other

ETI-SR (Managing other's emotions subscale); AS (Accepting external influence sub-scale); AES (Self Alienation sub-scale)

Table 5.36: The Results of One-Way ANOVA for the Measures of other by the subgroups of WASAS

Other Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
Managing other Emotions	Non-Clinical	18	.5000	.78591	-	3.463 (2)	1.256 (152)	2.758	.067
	Clinical	11	.8182	.87386					
	Severe	126	1.1349	1.17544					
	Total	**155**	**1.0387**	**1.13323**					
AS Data- Accepting External Influence	Non-Clinical	18	14.3333	3.53137	-	99.148 (2)	27.471 (128)	3.609	.030*
	Clinical	8	11.7500	7.22595					
	Severe	105	**16.3209**	**5.31579**					
	Total	**131**	15.7686	5.34544					
AS Data- Self Alienation	Non-Clinical	18	11.7222	4.70051	-	340.73 (2)	32.632 (128)	10.442	.000***
	Clinical	8	9.1250	4.42194					
	Severe	105	16.4826	5.93589					
	Total	**131**	**15.3792**	**6.11327**					

*** Significant at the 0.001 level   ** Significant at the 0.01 level   * Significant at the 0.05 level

Table 5.37: The Results of One-Way ANOVA for the Measures of other by the subgroups of GHQ

Other Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
Managing other Emotions	Really Healthy	4	1.2500	1.25831					

	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
	Normal	15	1.3333	1.17514		(3)	(148)		
	Clinical	87	1.1034	1.23923					
	Severely Distressed	46	.8261	.90196					
	Total	**152**	**1.0461**	**1.14127**					
AS Data- Accepting External Influence	*Really Healthy*	4	-	-	-	74.597 (2)	27.961 (127)	2.668	.073
	Normal	12	13.9167	5.97660					
	Clinical	76	15.2963	5.54914					
	Severely Distressed	42	17.2421	4.54970					
	Total	**130**	**15.7976**	**5.35577**					
AS Data- Self Alienation	*Really Healthy*	4	-	-	-	95.012 (2)	36.668 (127)	2.591	.079
	Normal	12	11.8333	7.28427					
	Clinical	76	15.4521	6.30481					
	Severely Distressed	46	16.3407	5.16054					
	Total	**152**	**15.4052**	**6.12965**					

*** Significant at the 0.001 level   *** Significant at the 0.01 level*   ** Significant at the 0.05 level*

Table 5.38: The Results of One-Way ANOVA for the Measures of other by the subgroups of HADS-Anxiety

Other Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
Managing other Emotions	*Non-Clinical (Usual)*	38	.6579	.87846	-	3.688 (2)	1.253 (152)	2.945	.056
	Clinical	18	1.2222	1.16597					
	Severe	99	1.1515	1.18978					
	Total	**155**	**1.0387**	**1.13323**					
AS Data- Accepting External Influence	*Non-Clinical*	34	12.2941	4.57615	-	341.689 (2)	23.681 (128)	14.429	.000***
	Clinical	12	13.9167	5.43488					
	Severe	85	17.4199	4.89805					
	Total	**131**	**15.7686**	**5.34544**					
AS Data- Self Alienation	*Non-Clinical*	34	10.7059	4.67443	-	716.174 (2)	26.766 (128)	26.757	.000***
	Clinical	12	11.4167	5.08935					
	Severe	85	17.8079	5.36750					
	Total	**131**	**15.3792**	**6.11327**					

*** Significant at the 0.001 level   *** Significant at the 0.01 level*   ** Significant at the 0.05 level*

Table 5.39: The Results of One-Way ANOVA for the Measures of other by the subgroups of HADS-Depression

Other Measures/ Tests	Sub-groups	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
Managing other Emotions	*Non-Clinical (Usual)*	66	.9545	1.05876	-	1.270 (2)	1.284 (152)	.989	.374
	Clinical	70	1.0286	1.21550					
	Severe	19	1.3684	1.06513					
	Total	**155**	**1.0387**	**1.13323**					
AS Data- Accepting External Influence	*Non-Clinical*	60	14.3833	5.38073	-	106.372 (2)	27.358 (128)	3.888	.023*
	Clinical	59	16.9100	4.83297					
	Severe	12	17.0833	6.31676					
	Total	**131**	**15.7686**	**5.34544**					
AS Data- Self Alienation	*Non-Clinical*	60	12.6167	5.65413	-	478.469 (2)	30.480 (128)	15.698	.000***
	Clinical	59	17.1469	5.30818					
	Severe	12	20.5000	5.88527					
	Total	**131**	**15.3792**	**6.11327**					

*** Significant at the 0.001 level   *** Significant at the 0.01 level*   ** Significant at the 0.05 level*

These one-way ANOVAs reveal some fascinating findings for the majority of measures, WASAS, and for HADS-anxiety/depression. Accepting external influence was moderately correlated (p<0.05 level) except for HADS-anxiety where it was highly significant (p<0.001 level). For self-alienation the results were all highly significant (p<0.001 level) except for GHQ. It is possible that the GHQ in comparison is too vague a measure to be able to extract more precise or meaningful data out of these data sets. However, the spectrum of social-emotional processes from accepting external influence (similar in some ways to submission with social dominance or hierarchy model (Czoty et al., 2011) to self-alienation (which can be considered an internalization of this social-regulatory processes (Amodio and Ratner, 2011). The significant findings point to support for a more traditional relational model that has formed the bedrock of many psychotherapy and object-relation schools of therapeutic work. The capacity to separate out the problematic or self attacking aspect of a more negative introject as Lanius et al., (2010) describes that with the medio-frontal lobes this overriding internal relationship with another (usually based to some degree on an important

relationship(s)) holds a central strong capacity to organize important experiences throughout the life course. Some of this is based on actual experience and interacts with more internal integrating aspects of the relationship. Psychopathology or mental health psychological issues could link the issue of conflict and negativity with this aspect of self-alienation. These aspects could be represented as core constructs within developmental trauma (van der Kolk, 2012). These representations of 'other,' are linked to faster sub cortical instinctual responses that do not have access to these higher-level embodied representations of relationships of self. These are then easily derived in such a way that self-awareness or self-control becomes the overriding modulators of behaviour when put up against the speed and instinctual power of more intense earlier limbic level sub-cortical survival responses. It is helpful to contextualize that the psychometric sub scores provide self-reported behavioural reactions that can be understood (as previously outlined) to be important factors in linking current research in social neuroscience.

Development of a new Model

Development of ROC cut-off scores and Integration of concepts into a coherent theoretical developmental model: Which model fits? This linked data does provide a bridge to better examine the fundamental principles to test to ensure these findings can be physiologically and neuro-biologically reconfirmed.

The following summarises the Reliability Chart developed with the STAT test:

Reliability Assessment for Measures of STAT Test- A Summary

Measure/Scale	Notion- Conceptual Direction	Study/source	Cronbach's alpha	Valid N	# of Items
STAT Test- Trauma	Negative	STAT— Richard Sherry	0.72	119	14
STAT Test- Anxiety	Negative	Same	0.84	119	13
STAT Test- Impulsivity	Negative	Same	0.702	101	14
STAT Test- Self-awareness	Positive	Same	0.71	120	14
STAT Test- Frontal lobe ...	Negative	Same	0.872	124	14
STAT Test- Limbic Lobe	Negative	Same	0.843	114	14
STAT Test- Defensiveness	Negative	Same	0.776	123	14
STAT Test- Conscientiousness	Positive	Same	0.69	133	7
STAT Test- Intelligence	Positive	Same	0.725	128	6
STAT Test- Self-esteem	Positive	Same	0.76	135	6
STAT Test- Negativity (Cruelty)	Negative	Same	0.93	102	44
STAT Test- Positivity (Compassion)	Positive	Same	0.81	110	25
STAT Test- Avoidance	Negative	Same	0.70	118	9
STAT Test- Intrusion	Negative	Same	0.843	134	9
STAT Test- Hyper Arousal	Negative	Same	0.77	122	9
STAT Test- Dissociation	Negative	Same	0.66	122	6
STAT Test- Attachment Positive	Positive	Same	0.77	127	15
STAT Test- Attachment Negative	Negative	Same	0.913	111	26
STAT Test- Fight	Negative	Same	0.55	135	7
STAT Test- Flight	Negative	Same	0.584	111	10
STAT Test- Freeze	Negative	Same	0.82	122	6
STAT Test- Forensic/ Pathological Scale (F/PS)	Negative	Same	0.69	119	18
STAT Test- Clinical Psychology Scale (CPS)	Negative	Same	0.75	96	13

Method of Reliability Analysis: *Internal Consistency Coefficient of Cronbach's Alpha (Ranged 0-1)*

The following establishes the Cut-off Scores for the Psychometric Standardisation Measures as basic Criteria for defining and establishing Cut-off scores for the STAT Measure SubScores:

#	Measure/Test	Mean (SD)	Minimum	Maximum	Cut-off Point	Criterion for STAT Measure of….
1	CAPS	42.96 (14.91)	20	84	3	STAT-Trauma
2	HADS-Anxiety	11.18 (3.80)	0	20	8	STAT-Anxiety
3	TSC-40	39.13	2	104	The Mean	STAT-Impulsivity

#		Mean (SD)	Min	Max	Cut-off	
	Sub scores (Impulsivity)	(21.72)				
4	AES (Emotional awareness)	113.80 (15.18)	73	150	118[*]	STAT-Self-awareness; STAT-Consciousness; STAT-Intelligence
5	HADS-Depression	7.18 (3.40)	0	17	8	STAT-Frontal lobe (Lateral) Self-Critical Thoughts
6	ROM-ATT2 (Fear—subscore)	2.27 (0.969)	1	4	3	STAT-Limbic Lobe (Midline Cortical) Separation/Fear
7	AS- Self Alienation	15.37 (6.11)	4	28	14	STAT-Defensiveness
8	HADS-Positivity	6.19 (2.89)	0	14	8	STAT-Self Esteem; STAT-Positivity (Compassion)
9	HADS-Negativity	12.35 (4.22)	1	23	8	STAT-Negativity (Cruelty)
10	*IES-R Total Scale*	*30.30 (1973)*	*0*	*82*	*33*	*-*
11	IES-R (Avoidance)	1.29 (0.899)	0	3.38	1.45[**]	STAT-Avoidance
12	IES-R (Intrusion)	1.50 (1.10)	0	4	1.60[**]	STAT-Intrusion
13	IES-R (Hyper Arousal)	1.22 (1.00)	0	4	1.16[**]	STAT-Hyper-arousal
14	TSC-40 Dissociation	5.86 (4.29)	0	18	The Mean	Dissociation
15	ETI-SR	7.42 (5.25)	0	29	The Mean	STAT-Fight; STAT-Flight; STAT-Freeze
15	GHQ	18.08 (3.22)	8	31	15	STAT-Forensic/ Pathological Scale; STAT-Clinical Psychology Scale (SPS)

*This cut-off point (118) is determined using the pooling mean of the existing studies means, carried out by various scholars around the world. The literature reported by the following resource: Schutte *et al.* (2009), Assessing Emotional Intelligence, in: Con Stough l Donald H. Saklofske James D.A. Parker (Editors) *Assessing Emotional Intelligence: Theory, Research, and Applications,* London & New York: pp. 119-136.

** These cut-off points are the corresponding scores of the mean of IES-R total scale (33) in these three subscales.

The Optimal Cut-off points (Criterion-based Cut-off Points) for the STAT Measures that maximize their sensitivity and specificity (with 95% CI) using the ROC Curve

#	Richard Sherry's STAT Measure/Test	Valid Subject #	Mean (SD)	Range of Scale (Min-Max)	Reliability (Cronbach's Alpha)	Cut-off Point (CP)	Area under the Curve (AUC) (SE)	Sensitivity	Specificity	CP ± 1SD[1] *(-1SD – +1SD)*
1	STAT-Trauma (-)	152	29.75 (6.07)	16-50	0.72	29.31	0.499 (0.052)	0.542	0.433	*23.24-35.38*
2	STAT-Anxiety (-)	152	28.11 (7.43)	14-52	0.83	25.90	0.807[***] (0.041)	0.645	0.857	*18.47-33.33*
3	STAT-Impulsivity (-)	152	27.35 (4.92)	14-43	0.70	27.50	0.819[***] (0.043)	0.780	0.667	*22.58-32.42*
4	STAT-Self Awareness (+)	153	41.79 (5.45)	28-56	0.71	42.27	0.708[***] (0.049)	0.711	0.512	*36.82-47.72*
5	STAT-Frontal lobe (Lateral) Self-Critical Thoughts (-)	155	36.24 (8.74)	18-54	0.87	34.25	0.705[***] (0.042)	0.693	0.560	*25.51-42.99*
6	STAT-Limbic Lobe (Midline Cortical) Separation/Fear (-)	155	31.65 (8.07)	15-51	0.84	31.50	0.502 (0.046)	0.603	0.435	*23.43-39.57*
7	STAT-Defensiveness (-)	155	27.46 (6.16)	14-44	0.77	26.73	0.776[***] (0.045)	0.756	0.755	*20.57-32.89*
8	STAT-Conscientiousness (+)	155	17.85 (4.01)	8-26	0.89	19.10	0.586 (0.053)	0.543	0.530	*15.09-23.11*
9	STAT-Intelligence (+/-)	155	17.75 (3.12)	8-24	0.73	18.19	0.635[*] (0.050)	0.543	0.588	*15.07-21.31*
10	STAT-Self Esteem (+)	155	14.91 (3.56)	6-24	0.76	16.22	0.697[**] (0.064)	0.750	0.526	*12.66-19.78*
11	STAT-Negativity (Cruelty) (-)	155	98.51 (19.53)	48-146	0.93	95.50	0.750[***] (0.051)	0.662	0.625	*75.97-115.03*
12	STAT-Positivity (Compassion) (+)	155	73.57 (8.55)	49-94	0.81	73.55	0.521 (0.075)	0.625	0.380	*65.00-82.10*
13	STAT-Avoidance (-)	155	20.88 (4.65)	10-31	0.70	21.04	0.673[***] (0.043)	0.716	0.570	*16.39-25.69*
14	STAT-Intrusion (-)	155	20.56 (5.82)	9-35	0.84	20.50	0.752[***] (0.039)	0.754	0.686	*14.68-26.32*
15	STAT-Hyper-arousal	155	18.58	9-34	0.77	18.13	0.763[***]	0.757	0.583	*13.29-22.97*

			(4.84)				(0.038)			
16	STAT-Dissociation (-)	155	13.25 (3.54)	6-21	0.66	14.50	0.666** (0.054)	0.667	0.547	*10.96-18.04*
17	STAT-(Attachment) Positive Secure sense of self and safety (+)	153	45.16 (6.34)	28-56	0.76	44.50	0.502 (0.047)	0.613	0.420	*38.14-51.84*
18	STAT-(Attachment) Negative Disturbed sense of self and safety (-)	155	58.32 (13.86)	27-91	0.91	60.35	0.516 (0.046)	0.540	0.457	*46.49-74.21*
19	STAT-Fight (-)	155	11.22 (2.49)	7-20	0.55	10.92	0.709*** (0.042)	0.776	0.602	*8.43-13.41*
20	STAT-Flight (-)	155	20.32 (4.16)	12-32	0.58	20.16	0.656** (0.044)	0.642	0.542	*16.00-24.32*
21	STAT-Freeze (-)	155	14.18 (4.36)	6-24	0.82	14.06	0.638** (0.45)	0.657	0.517	*9.70-18.52*
22	STAT-Forensic/Pathological Scale (-)	155	32.50 (5.88)	19-49	0.69	30.50	0.684** (0.059)	0.709	0.600	*24.62-36.38*
23	STAT-Clinical Psychology Scale (CPS) (-)	155	25.86 (5.26)	13-43	0.75	26.23	0.631** (0.062)	0.630	0.640	*20.97-31.49*

*Area under the ROC Curve is significant at 0.05 levels;   **Area under the ROC Curve is significant at 0.01 levels;   ***Area under the ROC Curve is significant at 0.001 levels

1 The Last column of the above table (CPC±2SD) is to determine critical values or bounds for identifying abnormal severe or healthy groups in the samples of the study.

Figure 1: The ROC Curve for the Richard Sherry's STAT Measures/ Tests

ROC Curve for the STAT-

Trauma

ROC Curve for the STAT-Anxiety

ROC Curve for the STAT-Impulsivity

ROC Curve for the STAT-Self Awarness

ROC Curve for the STAT_Frontal lobe (Lateral) Self-Critical Thoughts

ROC Curve for the STAT- Limbic Lobe (Midline Cortical) Separation/Fear
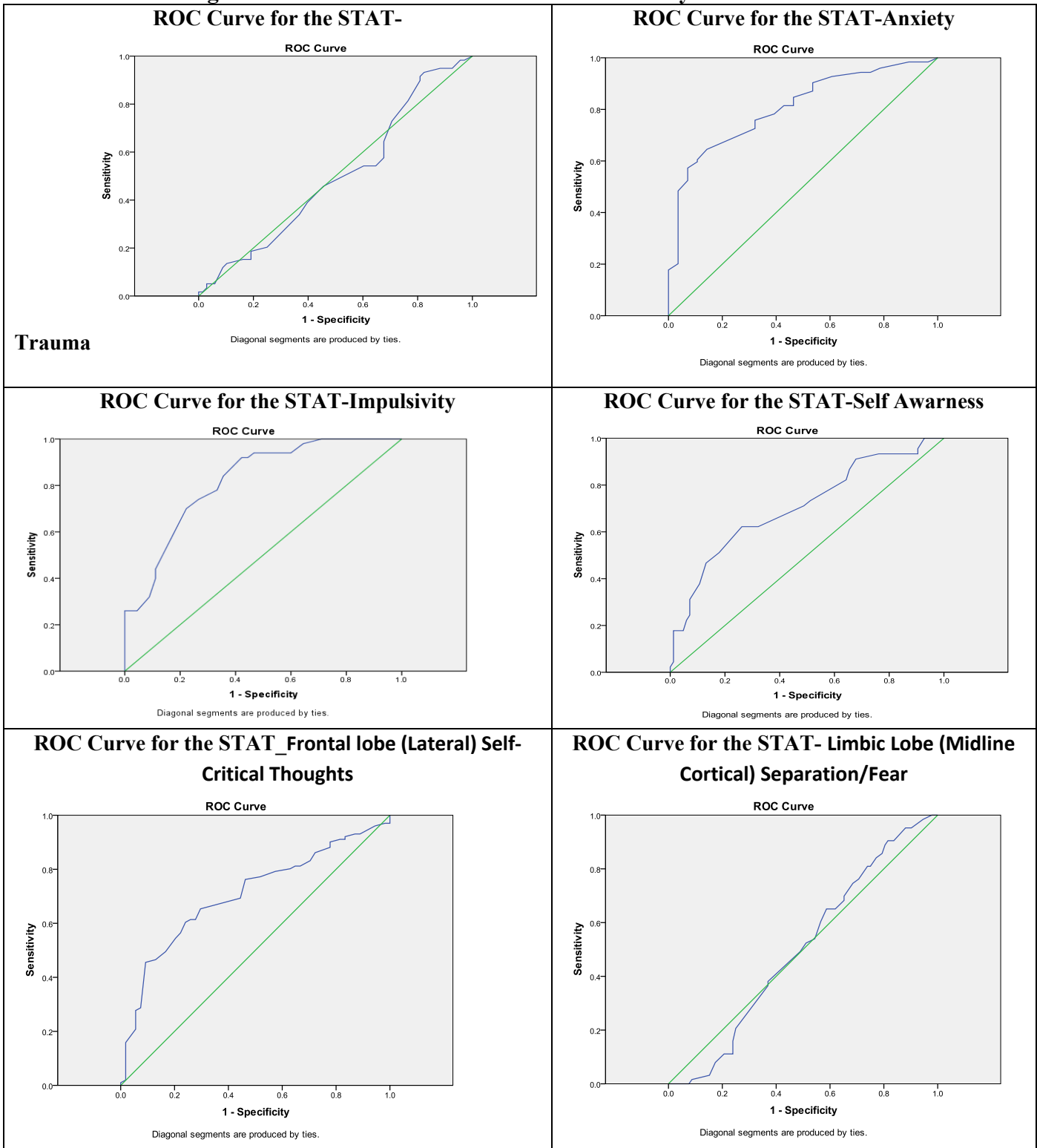
ROC Curve for the STAT-Defensiveness

Diagonal segments are produced by ties.
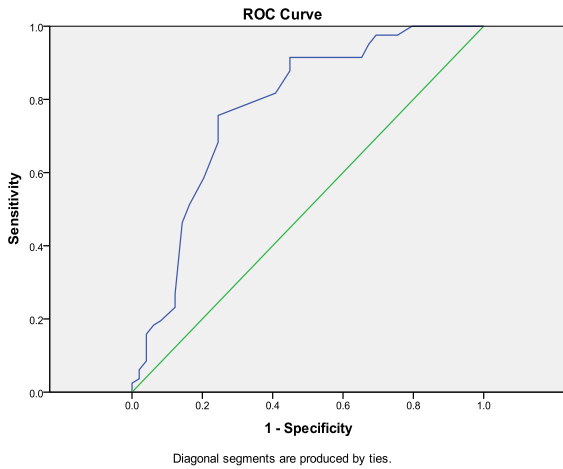
ROC Curve for the STAT-Conscientiousness

Diagonal segments are produced by ties.
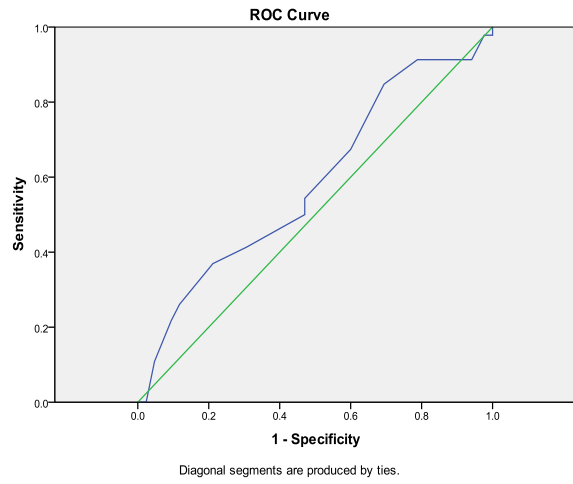
ROC Curve for the STAT-Intelligence

Diagonal segments are produced by ties.
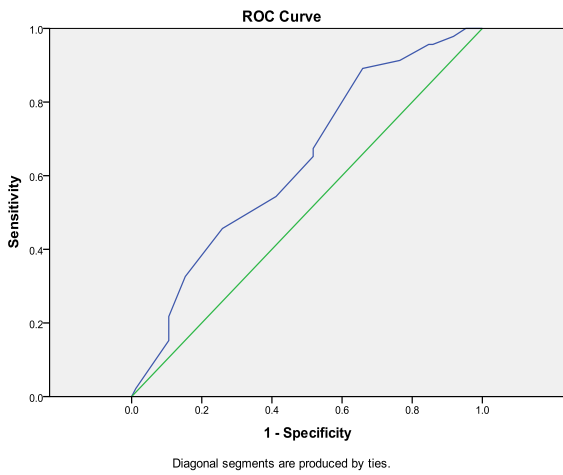
ROC Curve for the STAT- Self Esteem

Diagonal segments are produced by ties.
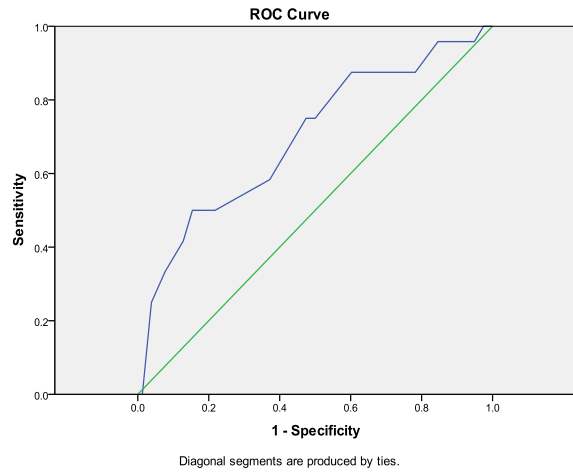
ROC Curve for the STAT-Negativity (Cruelty):

Diagonal segments are produced by ties.
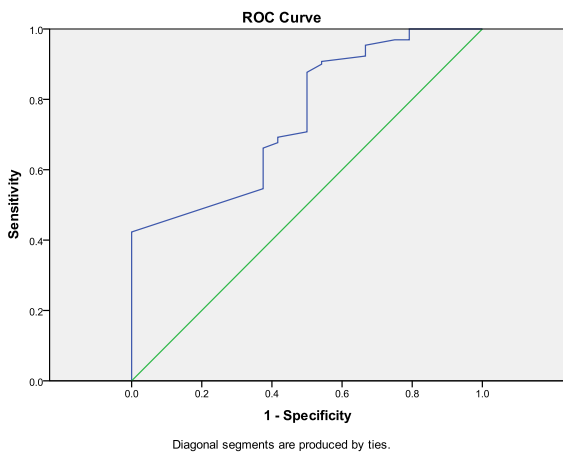
ROC Curve for the STAT-Positivity (Compassion)

Diagonal segments are produced by ties.
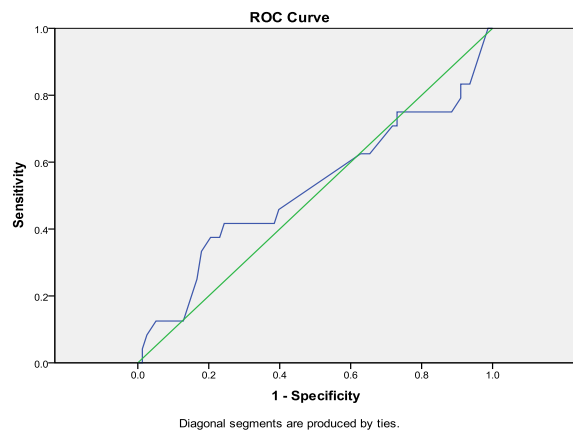
ROC Curve for the STAT-Avoidance

Diagonal segments are produced by ties.
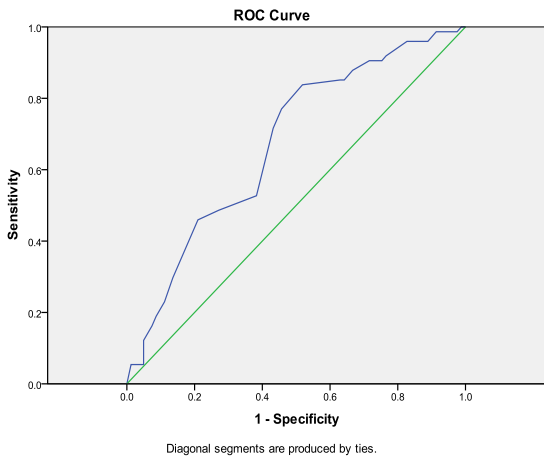
ROC Curve for the STAT-Intrusion

Diagonal segments are produced by ties.
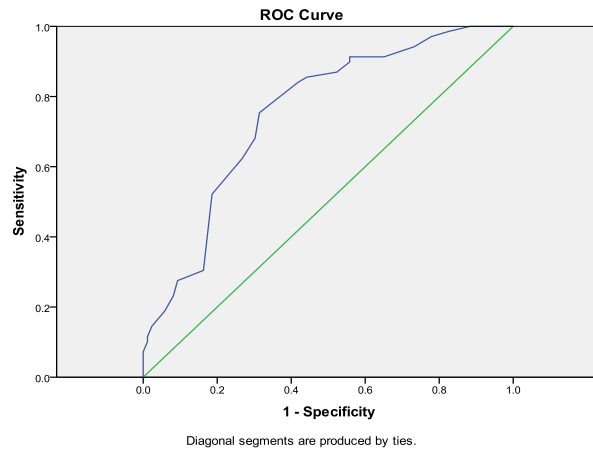
ROC Curve for the STAT-Hyper arousal

Diagonal segments are produced by ties.
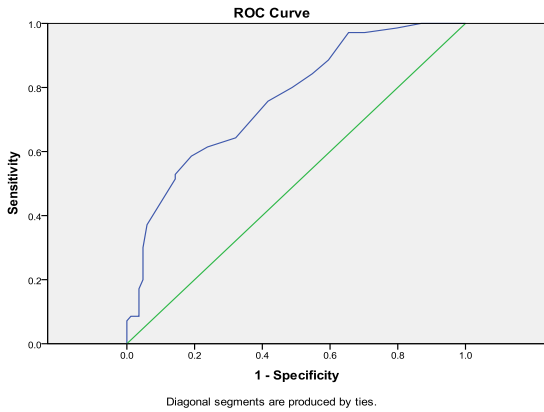
ROC Curve for the STAT-Dissociation
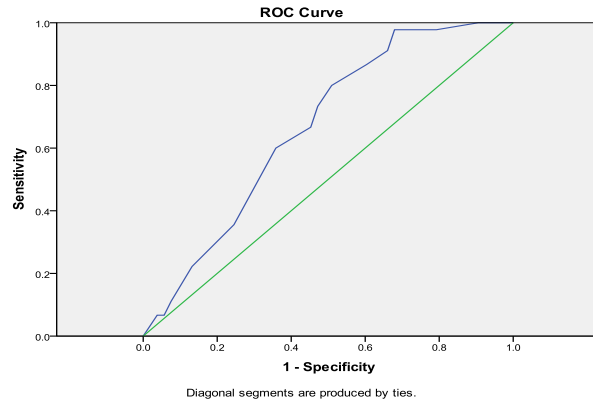
Diagonal segments are produced by ties.

ROC Curve for the STAT- (Attachment) Positive Secure sense of self and safety

Diagonal segments are produced by ties.

ROC Curve for the STAT- (Attachment) Negative Disturbed sense of self and safety

Diagonal segments are produced by ties.

ROC Curve for the STAT-Fight, STAT-Flight, and STAT-Freeze.	ROC Curve for the STAT-Forensic/Pathological Scale and STAT-Clinical Psychology Scale (CPS)
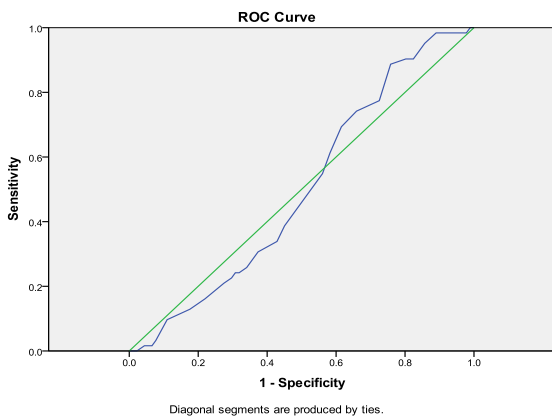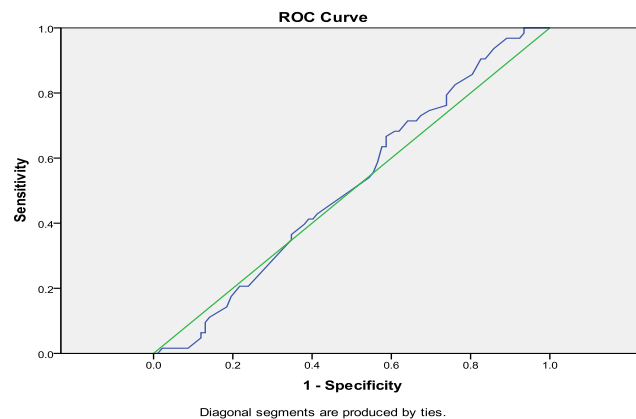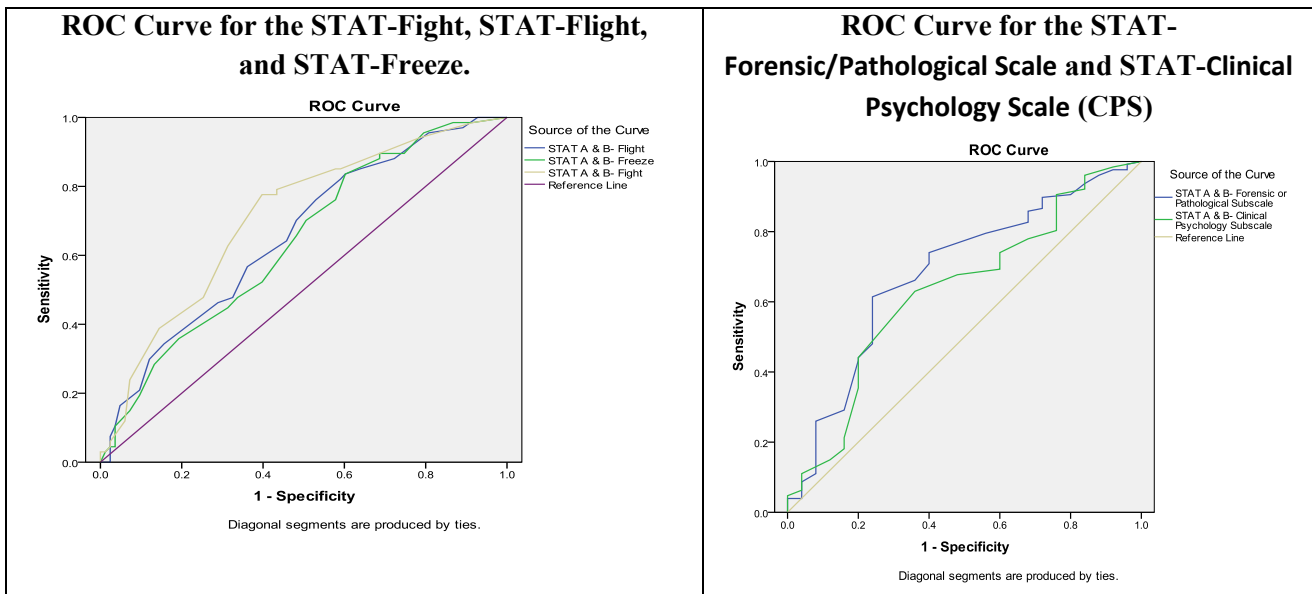
The ROC curve analysis has been shown to be the best approach to discern accurate cut-off scores for psychometric tests.[v] These arches demonstrate the relationship between the sensitivity versus the specificity of the measures when looking at the individual scores for each of the designated areas examined (see the label explaining what is being tested).

The Results of the Exploratory Factor Analysis (EFA) of the STAT Measures using the PCA Method of extraction

Factor analysis (FA) is an interdependence technique of the Multivariate Data Analysis (MDA) and used to uncover the latent structure (dimensions) of a set of observed variables[vi] (in this case, core components of the STAT Measure) (Hair et al., 2010).

Number of Measures/ Observed Variables: 23
Extraction Method: PCA

Tests of Quality: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		.878
Bartlett's Test of Sphericity (BTS)	Approx. Chi-Square	4158.412
	Df	253
	Sig.	.000***

*****BTS is significant at 0.001 levels*

Interoperation: Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO): KMO is an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. Large values for the KMO measure indicate that a factor analysis of the variables is a good idea. This measure of varies between 0 and 1, and values closer to 1 are better. A value of .6 is a suggested minimum.

Bartlett's Test of Sphericity: This tests the null hypothesis that the correlation matrix is an identity matrix. Bartlett's test of sphericity in fact tests whether the correlation matrix is an identity matrix, which would indicate that the factor model is

inappropriate. An identity matrix is matrix in which all of the diagonal elements are 1 and all off diagonal elements are 0. You want to reject this null hypothesis. It is concluded that the strength of the relationship among variables is strong. It is a good idea to precede a factor analysis for the data.

Note: Taken together, these tests provide a minimum standard, which should be passed before a factor analysis (or a principal components analysis) should be conducted.

Communalities

STAT Measures	Initial	Extraction
STAT A & B- Trauma	1.000	.721
STAT A & B- Anxiety	1.000	.733
STAT A & B-Impulsivity	1.000	.585
STAT A & B- Self Awareness	1.000	.822
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	1.000	.853
STAT A & B-Limbic Lobe Separation or Fear	1.000	.776
STAT A & B- Defensiveness	1.000	.773
STAT A & B-Conscientiousness	1.000	.726
STAT A & B- Intelligence	1.000	.683
STAT A & B- Self-esteem	1.000	.598
STAT A & B- Negativity (Cruelty)	1.000	.832
STAT A & B-Positivity (Compassion)	1.000	.931
STAT A & B- Avoidance	1.000	.741
STAT A & B- Intrusion	1.000	.779
STAT A & B- Hyper arousal	1.000	.653
STAT A & B- Dissociation	1.000	.735
STAT A & B-Attachment Positive	1.000	.873
STAT A & B- Attachment Negative Disturbed sense of ...	1.000	.852
STAT A & B- Flight	1.000	.719
STAT A & B- Freeze	1.000	.756
STAT A & B- Fight	1.000	.468
STAT A & B- Forensic or Pathological Subscale	1.000	.718
STAT A & B- Clinical Psychology Subscale (CPS)	1.000	.680

Extraction Method: **Principal Component Analysis (PCA).**

Communalities: *This is the proportion of each variable's variance that can be explained by the factors or the underlying latent dimensions.*

Extraction: *The values in this column indicate the proportion of each STAT measure's variance that can be explained by the retained factors. Variables with high values are well represented in the common factor space, while variables with low values are not well represented. (In the above table, we don't have any particularly low values).*

Scree Plot
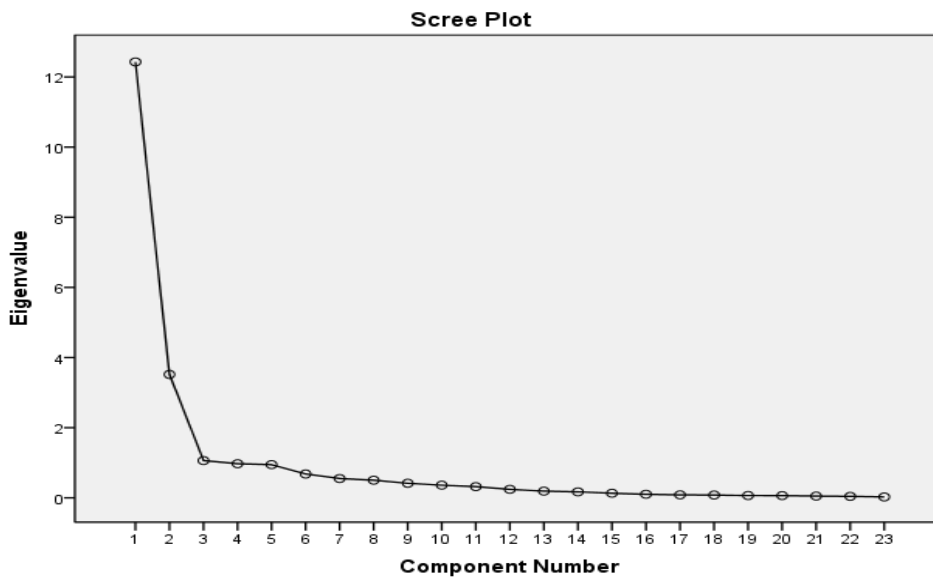
Total Variance Explained by three Underlying Variables or Factors

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**12.429**	**54.041**	**54.041**	**12.429**	**54.041**	**54.041**	**12.304**	**53.494**	**53.494**
2	**3.518**	**15.297**	**69.337**	**3.518**	**15.297**	**69.337**	**3.544**	**15.408**	**68.901**
3	**1.061**	**4.613**	**73.950**	**1.061**	**4.613**	**73.950**	**1.161**	**5.049**	**73.950**[*]
4	.972	4.228	78.178						
5	.946	4.115	82.293						
6	.680	2.956	85.249						
7	.551	2.394	87.643						
8	.504	2.191	89.833						
9	.415	1.806	91.639						
10	.360	1.567	93.207						
11	.319	1.387	94.594						
12	.242	1.050	95.645						
13	.190	.828	96.473						
14	.170	.741	97.213						
15	.130	.565	97.779						
16	.102	.442	98.220						
17	.085	.370	98.590						
18	.079	.343	98.933						
19	.065	.284	99.217						
20	.062	.269	99.486						
21	.050	.217	99.703						
22	.043	.187	99.889						
23	.025	.111	100.000						

Extraction Method: **Principal Component Analysis (PCA).**

__The Interpretation__: Out of total variance of all observed variables, about 74 percent can be explained by three underlying variables (factors). This means that the first three successive factors together account for about 74% of the total variance.

Component/ Factor Matrix[a]

STAT Measures	Component		
	1	2	3
STAT A & B- Attachment Negative Disturbed sense of ...	.901	.113	-.167
STAT A & B- Negativity (Cruelty)	.900	.045	-.141
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	.884	.236	-.130
STAT A & B- Defensiveness	.874	.064	-.067
STAT A & B- Freeze	.865	.028	-.083
STAT A & B- Intrusion	.860	.099	.173
STAT A & B-Limbic Lobe Separation or Fear	.860	.038	-.187
STAT A & B- Dissociation	.853	-.021	-.081
STAT A & B- Flight	.839	.115	-.048
STAT A & B- Anxiety	.838	.131	.120
STAT A & B- Avoidance	.823	.243	-.073
STAT A & B- Forensic or Pathological Subscale	.811	-.174	.172
STAT A & B- Trauma	.809	.004	.257
STAT A & B- Hyper arousal	.781	.015	.207
STAT A & B- Clinical Psychology Subscale	.755	-.164	.290
STAT A & B-Impulsivity	.753	-.137	-.020
STAT A & B- Self-esteem	-.750	.187	.020
STAT A & B- Fight	.674	-.037	-.112
STAT A & B-Positivity (Compassion)	-.154	.948	.095
STAT A & B-Attachment Positive	-.248	.900	.029
STAT A & B- Self Awareness	-.205	.883	.005
STAT A & B-Conscientiousness	.126	.716	-.445
STAT A & B- Intelligence	.087	.477	.670

Extraction Method**: Principal Component Analysis**.
a. 3 components extracted.

Rotated Component Matrix[a] **(Factor Loadings**)

	Component		
	1	2	3
STAT A & B- Attachment Negative Disturbed sense of ...	.917	.049	-.094
STAT A & B- Negativity (Cruelty)	.908	-.021	-.080
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	.908	.167	-.039
STAT A & B- Defensiveness	.879	-.011	-.005
STAT A & B-Limbic Lobe Separation or Fear	.871	-.018	-.128
STAT A & B- Freeze	.868	-.043	-.028
STAT A & B- Dissociation	.852	-.091	-.035
STAT A & B- Intrusion	.851	-.013	.236
STAT A & B- Flight	.847	.040	.020
STAT A & B- Avoidance	.844	.170	.015
STAT A & B- Anxiety	.835	.030	.187
STAT A & B- Trauma	.786	-.114	.300
& B- Forensic or Pathological Subscale	.779	-.276	.188
STAT A & B- Hyper arousal	.762	-.093	.252
STAT A & B-Impulsivity	.737	-.205	.002
STAT A & B- Self-esteem	-.731	.254	.006
STAT A & B- Clinical Psychology Subscale	.715	-.279	.302
STAT A & B- Fight	.674	-.084	-.077

STAT A & B-Positivity (Compassion)	-.077	**.932**	.236
STAT A & B-Attachment Positive	-.171	**.905**	.158
STAT A & B- Self Awareness	-.127	**.888**	.134
STAT A & B-Conscientiousness	.219	**.760**	-.317
STAT A & B- Intelligence	.079	.358	**.741**

Extraction Method: **Principal Component Analysis**.

Rotation Method: **Varimax with Kaiser Normalization**.

a. Rotation converged in 4 iterations.

Factor 1   Factor 2   Factor 3

Note: After deciding on the number of factors to extract, the next logical step is to determine the method of rotation. The fundamental theorem of factor analysis is invariant within rotations. That is, the initial factor pattern matrix is not unique. We can get an infinite number of solutions, which produce the same correlation matrix, by rotating the reference axes of the factor solution to simplify the factor structure and to achieve a more meaningful and interpretable solution. The idea of simple structure has provided the most common basis for rotation, the goal being to rotate the factors simultaneously so as to have as many zero loadings on each factor as possible. The following figure is a simplified example of rotation, showing only one variable from a set of several variables. Considering the better performance of the Varimax rotation strategy in terms of simple structure idea, in the factor analysis we used the Varimax to rotate three underlying factors of the STAT measures.

Rotated Component/Factor Matrix: *This table contains the rotated factor loadings (factor pattern matrix), which represent both how the variables are weighted for each factor but also the correlation between the variables and the factor. Because these are correlations, possible values range from -1 to +1.*

Figure 5.1 Component Plot in Rotated Space

The Component plot in Rotated Space *shows the items (here the STAT multiple measures) in the rotated factor space. Generally, this plot may help you to see how the items (variables) are organised in the common factor space.*

__The Interpretation__: Out of all potential components of the observed variables or measures (23), there are three significant and underlying constructions or factors (All the STAT measures overall are 3-dimentional). These three factors totally explain about 74 percent of total variance. These underlying factors can be conceptually labeled as follows:

1. Factor/ Dimension One: *Cruelty/ Negativity (-);*
2. Factor/ Dimension Two: *Compassion/ Positivity (+)*; and
3. Factor/ Dimension Three: *Intelligence/ Aptitude (+/-).*

The findings from the PCA have described a clear 3-component model that appears to elegantly capture a weighted system of hierarchical importance that alters a possible path progression of a major part of a developmental process. More precisely, the greatest weighted aspect appears to be negativity, with some quality of cruelty being a highly significant determining effect for altering social-emotional processes. Next, positivity with features of compassion has less salience for learning, in comparison with negativity, but is still critical for development. Both of these processes appear to impact the quality and outcome of intelligence. As Bremner (2005b) describes, with high-stress experiences, especially those suffused with a lot of negativity, (e.g. if there is attacking thinking, little social support, and especially if the emotional quality is undermining or cruel), these qualities will reduce the supportive aspects drastically and will likely have a significantly detrimental effect in the quality of thinking, social-emotional processing, and will drastically impinge the person's confidence and trust in themselves as well as others. This bidirectional cascade favours negative learning (therefore, negativity has a more significant impact) over and above the weighting positive aspects are prioritized. This data supports information as was outlined in the literature review, specifically, two processes of negativity versus positivity change an individual as well as a group, organisation, or a societies' capacity to think and develop. This impact upon learning needs to be investigated further.

Structural Equation Modeling (SEM)

To avoid any confusion the report carried out examining the SEM of the STAT psychometric and the related tests used to cross-validate and establish the SEM psychometric properties of this test has shown a very useful 13-factor model and a 5-factor model. All of the supporting information has been included within Appendix VII and supports the overall conclusions found by the statistical analysis that has been presented within Chapter 5.

Conclusion for Chapter 5

The highly significant results ($p<0.001$ level) demonstrate the hypothesis is rejected, indicating there is no significant relationship as predicted by the previous research/hypotheses. This data supports these findings for significant result levels for nearly all of the questions explored. There appears to be a very strong paradigm for negative learning, but this does appear to have positive effects, which modify the quality, capacity, and social-emotional structure of

learning and thinking. These appear to be a layering of primitive emotional and experiential processes that can be used to significantly discern clinical and non-clinical group membership as well as the degree of the spectrum of severely psychologically (perhaps physically) ill all of the way through to high levels of health and well being. Developmental experience does have some moderate link to these factors of health, but it appears they are more associated with outcome rather than causation.

In reviewing and summarising the Hypotheses central to the argument of the project:

1) Discerning significant differences between clinical and non-clinical groups:

Hypothesis 1: Null Hypothesis can be rejected as there are significant differences ($p<0.001$ levels) between clinical and non-clinical groups (using GHQ or WASAS, which is a better discriminator of symptomatic functioning) between clinical and non-clinical samples.

Negative and positive aspects of functioning were highlighted and this was demonstrated to statistically significant levels ($p<0.001$ levels).

2) Integrated neuropsychological framework:

2A) The effect of negative/positive emotions

Hypothesis 2: The Null Hypothesis can be rejected as there is a statistically significant relationship that can be drawn out for compassion and cruelty with the HADS and other key psychometrics many findings to $p<0.001$ level of significance for the sub scores. These findings demonstrated these negative and positive scores do quantitatively relate to psychological ill health and very good health in a negative→negative / positive→positive direction and relationship. Furthermore, these findings do demonstrate a highly significant relationship with self-alienation ($p<0.001$ level) and for the ROM-ATT test. These findings could indicate a subjective self-report linking the felt sense of social isolation or exclusion, which needs to be interlaced with the underlying information of what happens with social-neuro-biology.

2B) Levels of brain processes

Null Hypothesis can be rejected as the data suggest significant relationships ($p<0.001$ level of significance) about higher levels of fight/flight/ or dissociation and higher levels of trauma symptoms or disturbance (using GHQ or WASAS, etc.) with meaningful differences with the defensive, impulsive, and shut-down of more reflective qualities believed to be associated with higher cognitive processes.

2C) Environmental and social neuropsychology upon human stress response:

There do appear to be possible suggestions that emotional stress would be compounded with negative emotional group environments and ameliorated with positive social support as is found in other literature about these issues (Lanius et al., 2010).

Integrated Developmental History

Hypothesis 3: The Null Hypothesis can be moderately rejected (in most cases p<0.05 level of significance) in that there is some relationship with higher scores mostly for: 1) early, and to a lesser degree 2) lifetime trauma. However, there is a highly significant relationship to higher symptom scores.

Hypothesis 4: The Null Hypothesis is moderately rejected (p<0.05 level for aspects of self) so there is a moderate relationship between a conceptual sense of self. There is a strong relationship (p<0.001 level) for the interaction and influence of others on mental health.

Hypothesis 5: The Null Hypothesis is rejected in that there is a clear fit for a model that can account for the STAT framework, which appears to include negativity as the greatest factor, then positivity, and last intelligence—each in a descending weight of significance (p<0.001 level).

Overall Hypothesis: The STAT test is validated p<0.001 level of significance for all of its essential and related factors and subscores. For these reasons, as mapped out through the literature search, this quantitative study provides statistically significant evidence (much of which is significant p<0.001 level).

Summary Conclusion for Results:

The STAT test provides evidence of statistically significant findings (p<0.001 level) supporting an integrative approach to holistic health and psychological well-being building on research from neuropsychology findings. This model of looking at underlying dimensions, along with the first test, to have these aspects with a life-span developmental scoring system offers significant innovations in integrated clinical psychology psychometric testing. All of the subscores have been fully examined to mathematically ensure accurate cut-off scores have been found and full heath spectrum of 'very healthy,' 'ordinary-range,' 'clinical,' and 'severe' have been mapped for each of these 23 subscores. The subscores were then developed after extensive research into fundamental factors affecting assessment, clinical treatment, health and well-being, selection, and outcome. The STAT test's major underlying dimensions can be summarised as examining negativity, positive (compassionate) social relating, and how these impact on social, intellectual, emotional, and most-likely other dimensions of intelligence and health and well-being.

Chapter 6: Discussion

Drake and Heath (2011) critically examine the importance of the outcomes of the production of knowledge for a professional doctorate and the centrality of reflexivity for the process of appraising one's learning. This integration between changing professional practice research and focusing on its application (Siegel, 2012) or applied outputs is a difficult balancing act. However, this project lays claim to significantly innovating within the professional field of clinical psychological traumatology assessment and development of valuable new approaches in application within this field. Moreover, the creations of applied technological developments have been carried out as integral to this doctoral thesis and have the potential to positively affect areas outside the disciple itself.

Returning to addressing the aims, objectives and research questions that were introduced in the Literature Review in Chapter 2:
1). Answering important questions including Alexander's (1996) problem of contradictory models and clinically incompatible assessment and treatment trauma psychology practices within the field regarding:

a. What are the differences between clinical, non-clinical and vulnerable and resilient samples? This includes looking at linking together the spectrum of severely ill all of the way through very healthy functioning.

b. What is the relationship between trauma exposure and trauma symptoms—e.g. does early, late, or lifetime exposure to traumatic life events significantly negatively impact on symptom development?

c. Can a new integrated clinical trauma psychology model be reliably psychometrically evaluated and can this assist with developing a clearer psychometric test for assessment and treatment?

2). Can a new reflexive approach be developed to tackle gaps within the field as well as have possible broader applicability?

3). Can a better theoretical approach be evolved to integrate across the board information linking different specialties that could be used for individual and for larger social systems?

4). Can reliable integrated psychological assessment technology be developed that links up all of the theoretical and applied aspects of this research? If so what would it look like?

5). What would developmental application of these concepts look like and how would it work? This includes within the test and how these principles would help change the supporting infrastructure and feedback with innovative treatment approaches.

Examination of Questions

1). Answering important questions within the field regarding:

a. Understanding the differences between clinical and non-clinical and vulnerable and resilient samples is important because it helps better demarcate the essential points to improve treatment strategies.

The data from this doctoral project supports the hypothesis that the samples used for this study have a significant relationship where higher levels of psychopathology, lower positive psychological scores (as illustrated and corroborated by the collection of tests used to evaluate the STAT psychometric), and are more likely to be found in combination with psychological illness (Milana and Berenbaum, 2009). There is some predictive (Shalev et al., 1997 and 1996) and prospective (Shalev et al., 1998) data to suggest that trauma does have a contribution to the pathogenesis of later PTSD responses. Moreover, in attempting to find a coherent explanation and model for Alexander's (1996) question of what might account for these differences, clinical trauma and stress emotional response appears to be located in the reported high levels of self-reported negativity and the social impacts these dynamic processes can create. This supports these findings citing neural processes like conflict-threat detection as playing a role in the neuropsychological development of diseases like PTSD (Vasterling and Brewin, 2005). Equally, positive events have a protective function, which positively layers onto and further interacts with positive beliefs. There is a complex integration between what might be described as positive and negative factors. For example, anxiety or avoidance may be secondary constructs as compared with the positive and negative levels of analysis, which by the directionality of their relationship may have the most crucial aspect. These more rudimentary emotional functions may form the more raw elements of conflict that could then drive the higher-level behaviour, e.g. anxiety or avoidance—thereby shaping and reshaping these emotional and then behavioural components. Therefore, conflict could now be seen as a more central organising framework with various operating levels, which is supported with the neuro-anatomic dynamic descriptions given within the literature review.

In its most basic formulation, difficult events do contribute to dysfunctional thinking, just as positive events help develop positive experience and protective beliefs (Davidson, 2005). Furthermore, findings from this data highlight the importance of emotional learning experiences. Both positive and negative (particularly aversive) experiences appear likely to play a greater role than the author has seen previously within his investigation of PTSD and stress related illness. Negative learning experiences, which can be described under the heading of associated learning and conditioning (Schachtman and Reilly (2011), appear to be the strongest paradigm of human learning (Walker, 1984). The saliency of negative experience could explain why the STAT findings were as highly statistically significant (most frequently $p<0.001$ level). Moreover, being able to identify these underlying formative subjective behavioural patterns may provide a critical key to evolving sustainable and successful interventions to change these patterns of emotional functioning for individuals as well as for the contextualizing groups or organisations where this social functioning occurs.

The Relationship Between Negative and Positive Factors

Specifically, the research findings within this study support the critical function of negativity as a primary defining clinical feature that can be used as an overarching clinical concept to help trans-theoretically bridge different approaches and conceptualizations to improve holistic psychological treatment. Findings from this doctorate project support significant differences (e.g. consistent with Wingfield et al., (2009). When comparing psychiatric inpatients with controls, a clear difference between patients who use significantly more emotion-oriented coping styles in trying to manage negative life events compared to controls were seen.

This finding of using strong emotion-based coping styles correlated strongly with psychopathological difficulties can be linked to greater expressions of negative emotion. This study would refine Wingfield et al's (2009) findings to include a likelihood that the high-emotion-oriented coping within the clinical sample would be that of negative emotions (e.g. sadness, rage, pessimism, etc.) rather than exuberance or another positive emotion, thus, psychopathology appears significantly connected with the experience of negative emotions rather than simply just negative life events. This kind of high affectivity is likely to correlate with greater emotional responses such as fight, flight, freeze, or avoidance, as these cortico-limbic, HPA axis, autonomic functions are driven by fear responses that are imbedded in these social-relational processes (Schachtman and Reilly, 2011). Additionally, the data supports a similar pattern with higher negativity and emotionality compared with the clinical and non-clinical sample where healthier/more secure individuals use less fear-laden responses and are capable of more safely connecting with social support. Therefore, social-interrelationship with fear response and coping is important. This type of negative attachment-based relating, emotional-oriented coping styles for the clinical samples appeared to be linked to greater psychopathological difficulties or insecure attachments and therefore, more likely to relate to clinical outcomes.

This relationship of dysfunctional processes holds strongest for clinical samples (Wingfield et al., 2009) where even when positive aspects are present experientially, this will be greatly out-weighed by perceived negative cues, which are given greater importance for survival and right brain implicit learning (Schore, 2003b). The data presented here contextualizes the greater psychometric weight of negative scores relative to positive ones. The importance and speed of aversive learning and the attention-to-action (Vogt, 2009) can be seen within the anterior cingulate (ACC) (Vogt, 2009). This appears to have organising treat detecting and defusing processes similar to what is technically described under the term "defense mechanism" (Hentschel et al., 2004). Therefore, the prioritization of negative cues as they organize the threat detection processes and mediate psychological defenses was indeed what was found quantitatively. This conceptualization of high-speed emotional sense-making appears to support the conceptual model produced within this project's results, regarding highly complex judgments and decision making, especially mind reading the intentions and intent of another (Gallese, 2003).

Salmon et al., (2007) support earlier multiple findings where traumatized adults display exaggeratedly negative appraisals of themselves, others, and the world (their environment). These individuals have notable difficulty in integrating corrective neutral information or this data is mislabelled in critical terms or expecting pessimistic

outcomes. Knowing this high level of self-criticism is a central factor within the clinical group (Blatt, 2004) will help to change clinical practice. In better understanding how these negative emotional states function in everyday life this doctoral work has helped develop better strategies for identifying more coherent specific assessment and treatment approaches. These styles of self-criticism can increase in intensity and can be socially reinforcing. This project highlights that these patterns can function in a bi-directional manner, in negative as well as positive directions dependent on this self-other interaction.

Much of this project has been working to close the loop of critical gaps in how different levels of processes interact to present from the known research a pathway to begin to look at having a more integrated approach and narrative of understanding. It is from this perspective a summary of key ideas is presented: This project's findings appeared to highlight the critical importance of negativity in clinical samples. Linking up relevant research (e.g. Goulin et al., (2011)) has found that stressful experiences seem to create a cascade of negative emotions and impact with physiological responses, from neural inflammation all of the way up to the social level of stress response. This threat, fear, and exaggerated coping response appeared to run as a core theme through most of the different aspects of factors for psychopathology and trauma indices examined within the cross validated measures where healthy (resilient) and high distress or high psychopathology (vulnerable or stress-reactive) differences in response seemed to be present.

However, in building on greater detail of the model previously described, the issues of the importance and predominance of negativity on a neuronal level of modeling show equally as adaptive bidirectional capacity for survival and learning. Within neurons called astrocytes (which are a specific neuronal cell integrally related to the regulation of glutamate and its various metabolic forms) these cells produce several growth factors that selectively regulate the morphology, proliferation, differentiation, or survival of surrounding neurons with glutamate and play a pivotal effect in ordinary circumstances learning (neuronal development and repair), and in more challenging reactive processes including microglia cellular reactions seen for example with: infections, neuro-degeneration, inflammation, and trauma (Hof et al., 2004). Glutamate has a "good guy" role in learning and memory regulating the hippocampus by acting on the high density NMDA and AMPA receptors (Bremner, 2005b). Glutamate also has a "bad guy" role in excito-toxicity where high levels of kill neurons, extracellular glutamate increase ischemia—both leading to over-excitation and cell death (Bremner, 2005b). This spectrally related process of cellular modification could dynamically facilitate synaptic dendritic spines (evidence of learning) to microglial necrosis (cellular neurotoxicity). These glucocorticoid receptors interact with cortisol (stress activation neural-hormone) to switch on or off the DNA transcription process. This transcription process is integrally involved with transcription and epigenetic expression of these gene regulatory processes. Here at this level the centrality of these negative cellular destructive processes predominate.

The dynamic and complex neuro-chemical cascades involved with these processes involves the same key neuro-chemicals and cells. The astrocytes are related to the spectral dynamic neuro-chemical responses for converting

glutamate (an excitatory) and GABA (an inhibitory) neurotransmitter (Hof et al., 2004) to up or down regulate micro-processes (which is essential process in learning in making new neural connections). What this project is attempting to evolve are links to take the clinical phenomena found in more emotional reactions that carry with it a whole host of cognitive processes like dysfunctional thinking styles, physical symptoms like somatisation, and behaviours that function in a way that increases the person's risk and vulnerability and to contextualize these dynamic processes. These processes are similarly seen in these neuronal or cellular levels of dysfunctionality.

Moving to a significantly smaller quantum scale of resolution, the complex inter connections on learning and memory (and therefore, on intellectual processing or intelligence) include the neural peptides (for example NPY+/- that are capable of turning learning processes on or off), hormones, (for example the adrenal glands maintain bodily homeostasis when managing external challenge), or cortisol. Cortisol is the stress hormone that is produced by the adrenal cortex and has a direct biphasic influence on the psychical body and the nervous system (Lindau et al., 2010). Encoding and retrieval of emotional memories was associated with the amygdala, whereas the hippocampus was essential for non-emotional memories (Lindau et al., 2010). This process may help explain the gap that occurs with traumatic memory. Stress affects learning—like Aristotle's golden mean (Barnes, 1984), too little arousal or too much this will affect or even completely stop the learning process. There are physical, cognitive, and emotional stressors and all of these dynamic processes are polar extremes of responses that can attenuate and interact in very complex ways to alter cognition and behaviour.

In summary for this section, the differences between clinical and non-clinical samples were found where high negative and low positive levels existed for clinical samples and reverse trends for the non-clinical group. These findings support Maddox et al's (2004) conceptual predictions linking clinical samples with higher levels of vulnerability and healthier samples with greater levels and processes of resiliency. The author has mapped out a significantly linked-up layer of dynamic interacting processes. This integrated mapping has been done to illustrate what a more coherent approach in clinical psychology developed for understanding an evidence-based methodology may look like. A coherent linking together of these phenomenon is required, not having these factors existing as separate entities, but seeing them on a continuum of less and more helpful modes of thinking and behaviour. An important innovation is to include a developmental spectrum of maturation as a component of this core model. The findings suggest that distinct significances were found between the samples, thus supporting this projects hypothesis that clear distinctions are present in separate clinical and non-clinical samples. Within these respects of vulnerability and resiliency, these patterns could hold especially true for the extreme ends of the spectrums for these divergent samples. However, it should be noted there was some expected cross-over from student or fire samples having clinical scores, and some mediating factors included patients being on high doses of psychoactive medication, which most likely had the effect of lowering the severity of their scores of distress or dysfunctionality. Even with these caveats, the scores were still highly significant (p<0.001 level), which supports the separation of clinical and non-clinical groups using this distinction of high and low levels of negativity as being a crucial defining dependent factor.

1b. There is a relationship between trauma exposure and trauma symptoms—for early, late, or life time exposure to traumatic life events does negatively impact on self-development.

Negative and positive patterns of responses appear to hold both predictive power over diverse areas of psychopathology as outcome in psychotherapy (Van Staden, 2006) and increased vulnerability (Peterson et al., 2008). Vulnerability becomes the hallmark of additive processes that need to be contextualised to reinforce negative cycles and social processes. Conversely, positive indicators hold a protective factor in examining the area of trauma treatment, especially connecting this to previous findings about attachment and the subjective nature or self-interpretation of life events. This begins to add greater dimension to the importance of the subjective interpretation in shaping the experience of relationships with others, as even the (life) events themselves can be colored or more importantly they can emotionally be organised by these negative or positive valances (Soloman et al., 2008; Stamm, 1996). The project's findings support these trends that are much more complex self-interpretative processes than has been previously described within the literature. This process of subjective meaning making is modified through one's social responses, history, and even one's neuro-anatomy and neural peptide neural-chemistry interaction (Gilbert, 2005a).

Resick and Miller (2009) argue that evidence supports the claim that PTSD symptoms should be considered signs of re-experiencing trauma and not of anxiety symptoms as the DSM IV-TR (2000) has outlined. Elkit and Shevlin (2007) have also found their results do not support the DSM classification of PTSD symptoms as an anxiety disorder. However, Cloitre et al.'s (2009) study highlights the self-regulatory disturbances that Koenen et al., (2009) established occur even in the gene-environment interaction where traumatic stress vulnerability influences the level of genetic expression. This occurs just as much as positive well-being has neural-correlates of positive affective style (Davison, 2005) and probable positive gene-expression. Therefore, what can be seen as re-experiencing could be more precisely a conflictual rehearsal of strong emotional affect that is channelled through somatic systems and the cranial nerves as described in Porges (2011) poly-vagal theory where an intense "freeze response" can ensue with high enough trauma levels laying down trauma-created neural response patterns. This model fits with the quantitative data found within this study with the high level of clinical psychology scores with somatic symptoms as is well known in the link between depression and high somatisation (Simon et al. 1999).

One of the aspects that makes understanding life events so difficult is the modification of the psychic world where the objective occurrence of events interacts with the effects of the person's own subjective lens of interpretation. It is important to note this most likely is a two-way directionality where having a negative appraisal can lead to vulnerability. Likewise, having an increased vulnerability can contribute to a greater probability of having a negative appraisal. This is the important part; this change in how the person emotionally perceives these experiences is shunted into a social-behavioural matrix that is dynamically met with other's relationships from the outside world. This can further modify and blur or skew a negative or positive focus thus radically re-altering the perception, which appears to

have a significant effect on vulnerability and resilience effects and what primary direction this will take biasing one tendency over the other. For example, Salmon et al., (2007) found that 44% of the variance in children's vulnerability in acute stress reaction could be accounted for by children's negative appraisals. Therefore, the psychic realm matched by the external realities of the environment is an essential connected puzzle-piece in assembling this complex inter-related chain of external occurrence and internal appraisal and interpretation of the event.

Measuring developmental issues, especially contextualizing these within the framework of neuropsychological thinking, can help more precisely benchmark critical determining health factors (Taylor, 2011). For example, the degree of subjective negativity can distort even the person's sense of objective time related events (see Craig, 2010&2009). Mapping these bio-emotional distortional processes provide a crucial step in elucidating the previously unknown aspects that significantly alter almost every factor in human emotion-cognition and behaviour or action. Findings from the study suggest there is a relationship where higher levels of early and late life events do increase the symptom levels measured. However, the attachment score was not as significant as the degree of negativity reported. If this finding from the study is correct, it could dramatically change the problematic and completely ineffective perspective that is held—that there are no real evidence-based ways to measure how an individual's emotional life effects their perceptions, so as to help better separate the previously confounded relationships between these issues. Moreover, this could significantly contribute to the possibility of developing more precise psychological evidence-based interventions to address healing mental health difficulties to improve treatment as well as the ideal goal of preventing mental health disorders.
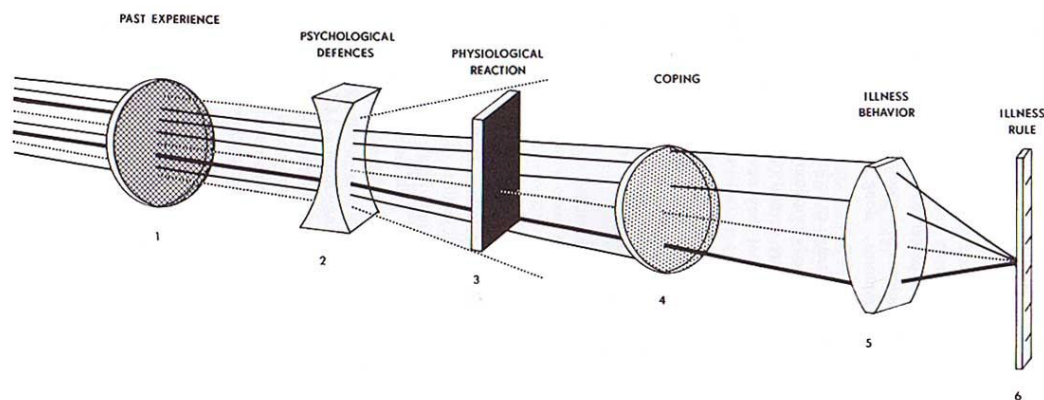
Figure 1. The pathway between subjects' exposure to recent life change and their near-future illness reports. Permission kindly granted by Archives of General Psychiatry.

Figure 6.1 Modifying Factors [Rahe in Dohrenwend and Dohrenwend, 1974, p. 75]
(Permission granted for reproduction.)

The above diagram (Figure 6.1) shows that as an optical system can bend and refract light beams, the layers of past experience interact with defenses, innate reactivity, coping, and illness behaviour. The illness rule should be rather thought of as a spectrum of both negative as well as positive response. STAT psychometric uses the 23 sub scores, full life-events patterning, and full spectrum of emotional health from very healthy to clinically severe for both positive as well as negative dimensions. A state-of-the-art psychometric like the STAT contextualizes these emotional aspects by

looking at the person's reported attachment measures, levels of negativity/positivity, and the probable emotional reactivity (linking to Porges', 2011, fight, flight, freeze). These scores are benchmarked with clear cut-off scores for clinical and non-clinical groups, and further detailed questionnaires ensure no clear information has been overlooked. Thorough individual assessment inroads to testing group contextualised psychological functioning are being currently developed. These innovations make the STAT the most cutting edge psychometric test that is currently available as it includes a complete (low to extremely high) functioning scale — all of which are benchmarked.

This project represents an important first step in linking a neuro-psychologically-based model of the social-human brain, with insights taken from learning and development, (Vygotsky, 1986), mentalization (Busch, 2008), and re-contextualised within the demands of emotional processing while working to examine these issues within a subjective meaningful context (Bolton and Hill, 2003). How conflict is experienced and processed (Forgas et al., 2011) is an essential part to understanding which track of positivity/negativity and resiliency/vulnerability the person or system is heading towards, how stable these processes are and how these emotional aspects might be carried or stored in the body. All of these factors effect the future beliefs of how the person sees himself/herself, other people, or the world, and this tension could be a major contributing factor to the mislabelling of threat versus trust, the spilling over of high affectivity, the shutting down of connecting and empathetic responses, as well as the difficulty in reading other's minds. Why would someone wish to emotionally connect to another person who was experienced as a threat to the person? This is why the concatenation of negativity, threat, cruelty, and anger/fear (and therefore, vulnerability) (Forgas et al., 2011) just as much as positivity, trust, compassion, and support/care or love (and therefore, resiliency) (Gilbert, 2005b) tend to connect within these particular groupings or social processes.
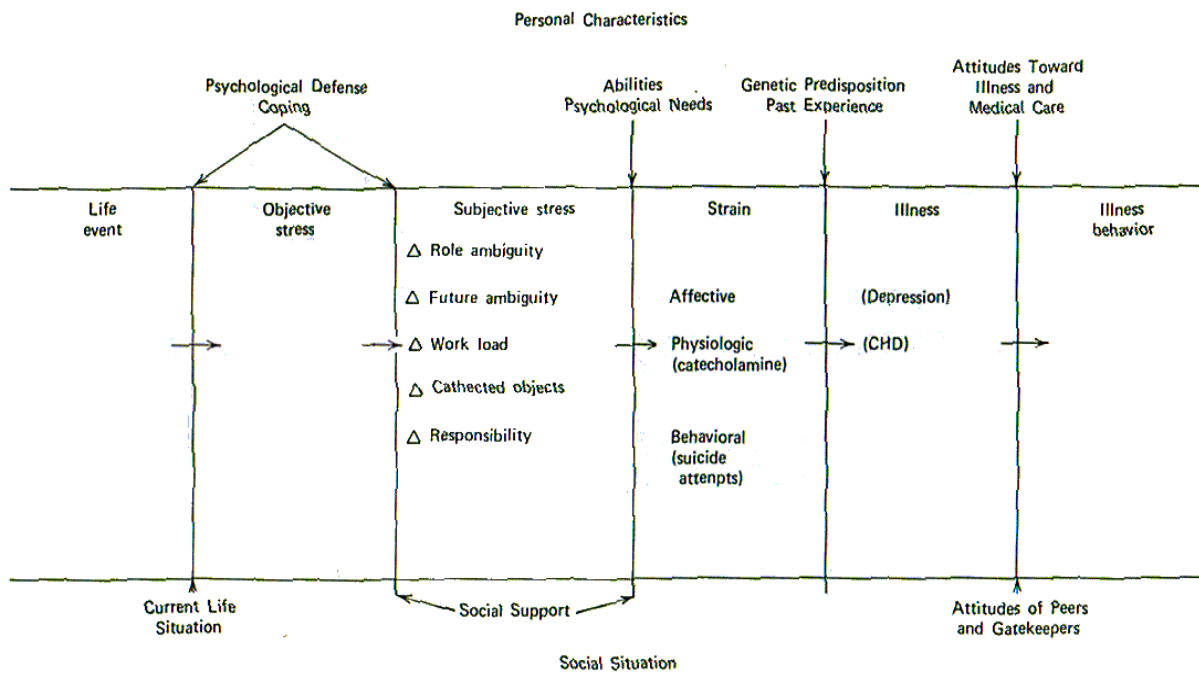
Figure 1. An oversimplified diagram to help clarify the relationship of life events to illness (items in parentheses were presented in the papers under discussion).

Figure 6.2 Personal Characteristics for Risk [Cobb in Dohrenwend, 1974, p. 153.]
(Permission granted for reproduction.)

These traumatic effects can greatly alter a sense of self. As Solomon et al, (2008) discussed with combat troops, stressful life events throughout the life cycle contribute significantly more to veterans' PTSD symptomatology, well beyond ordinary combat exposure. Also, it should be understood these complex patterns and their accompanying belief systems should be seen as often very subtle and multi-layered, especially if a deeper underlying pattern of distress or negativity is activated.

However, findings from Solomon et al's (2008) work show the most important factor in combat experience is not the traumatic event itself, but the support experienced after the war (e.g. lack of compassionate social support is understood to be more damaging) (Gilbert, 2005a), and this is followed by experience of negative childhood life events (which can be understood as an undermining of early compassionate support). It is probable from the findings there is a likely connection between the kinds of experiences people find themselves in, the support they experience after may be highly influenced by levels of negativity or positivity. This is important as it connects some of the interior beliefs with real experiences from an external environment. The person's response to the social environment then becomes a defining feature in changing the impact of difficult experiences and thus can reinforce cycles of increasing vulnerability if these distressed/distressing reactions are not attenuated. However, the author would highlight that what has not been looked at is the trajectory of experience throughout the person's life, such as how experience before, during, and after significant events relate and what relationship might exist between them. This is potentially another key innovation of the research and the technical development with the STAT psychometric and its

supporting psychological platform, including a built-in developmental life indicator. Therefore, one critical point that has been overlooked within the literature is how life-events relate to a dynamic social-emotional environment that then serves to reinforce, and even evolve an inner identity of self that develops through and over the individual's lifespan.

This project builds on existing models to help further explain and clarify additional significant innovations. However, in combining some of the thinking within quantum physics of how fundamental forces of energy interact together (e.g. strong force, weak force, electro-magnetic, and gravitational force) and how information and energy is expressed and conserved, these concepts add further insights to the illusive psychological processes. In revaluating the standard approaches outlined within the literature review (see Chapter 2), interactions between external life events, perceived stress, and psychological health still miss a crucial layer of detail. Sidorov and Chen (2003) examine some of the evidence of the biophysical mechanisms of genetic regulation, highlighting the effects of intent and mental states on biological subjects and systems. Specifically, the intent of the person and the emotional impact appears to affect the psycho-immunology—where the bi-directionality of these processes changes the coherent development of target fields. For example, a research experiment where negative electrodes with a strong electrical field were attached to a dog's bone marrow, this had the effect of stimulating significant levels of bone growth. However, by applying an extremely weak current to a frog's leg undergoing a similar procedure, the red blood cells induced a completely dedifferentiated process where the cells reverted to a primitive, or more undifferentiated cellular state. In other words, these experiments provide circumscribed evidence that different energy levels can modify the information and expression of potentiality, in what appears to be a bi-directionality of the field. To this effect size may be very different than predicted because of a different quantum pathway or energetic field. In applying this to the issue of life experiences, this reappraisal of the traditionally held effect of objective external events and their effect explains this inconsistency with the modeling of experience and subjective impact (see Dohrenwend and Dohrenwend, 1974b).

These examples provide some models of the complexity of interactions on multiple levels. This transformation is valuable when looking at the stress and oxytocin effects on cellular and biological system processes, because of these micro level cascades (see page 155-159 of this document). An example of some work that has been done to address these inconsistencies includes Tiller et al's (2001) research and Pitkanen's (2005) commentary on Tiller's research on the formation of holograms by time mirror mechanism as a key apparatus of intentional action. Tiller's work potentially captures a much more dynamic and subtle relational system then has been described thus far within the literature review (see Chapter 2).

In Tiller's (2001) system, which in physics experiments are conducted with lasers, mirrors, and timing devices (as a development on Bell's Theorem or experiment (see Rae, 2004, chapter 3.)) the negative wave pattern returning from the wave signal sent out is captured and mapped in much the way a hologram is made (Susskind and Lindesay,

2005).[11] The information of the nature of the representation of the captured returning wave (as is captured within the hologram) is profoundly changed depending on the energy and interference patterns (including emotional intent). Much of this interference pattern is impacted not only by negativity (energetically), but could be affected by the conscious emotional intent (see Tiller et al.'s 2001 work) where the interaction between information and energy is understood to be conserved, not lost.[12] These examples are relevant because it provides evidence and a possible experimental model that the energetic information has the capacity of impacting the object receiving this information on multiple levels, and potentially this conservation of information is integrated without significant loss of meaning with the intent of the sender. Einstein drew a connection between the integral relationship between space and time (Space-time) and that of matter and energy (E=MC2) that is integrally connected (Einstein, 1997). Both of these elements are almost inseparable components.

Stress responses are capable of creating vulnerability, which in turn can be understood to have an integral connection to neural chemical and energetic stress/trauma reactions. This bi-directionality can incorporate multiple aspects of how negative processes operate within a cascade of all the different levels of functioning processes and within the emotional melting pot of Space-time. Green (2005), highlights the work of the negative; this psychic emotional state is where essential aspects of emotional self-regulation required in separation-individuation (Space-time) are missing where, at least emotionally, one needs to manage loss or frustration through various levels of psychic creation that are oftentimes very much interfered with by a significant other. The psychological sense of "self" has an integral relationship with this fundamental experience of me (oneself/myself?) and/or the other. Equally, health, or more Green's (2005) focus on the development of psychopathology, has a dynamic process of movement recreating the ordinary objective experience where the subjective vantage-point can radically alter the fundamental nature of the felt sense of experience. Thus, this bridges the greater problem that has been avoided within previous examinations of psychological understanding of subjectivity and life-events.

Therefore, it is possible with this perspective to anchor life-events in two different ways. First, it is possible to see life-events as a marker for increased vulnerability, to help explain how childhood experiences of traumas increase PTSD symptom complexity (Briere et al., 2008) in a near-linear and almost rule-governed way (Cloitre et al.'s, 2009). It is worth noting that the impact of such childhood trauma, especially childhood rape and physical abuse, can have severe and individually diverse impacts. Symptomatic individuals appear at increased vulnerability to further trauma exposure, also with a multiplier effect (Rothbaum and Foa, 1996). This complexity increases conflict of self-identity, never mind of parent-child or later relationships. This last point raises the issue of the state of mind of the person

---

[11] It is important to note that a hologram epitomizes the notion that information like energy is conserved. So, if a hologram is broken the entire picture remains, it is just smaller and degraded related to the richness and complexity of the quality of information. This is significant related to this material because the quality of potentially invisable forces, for example, someones intent, could not be seen, but can have an effect. The emotionally rich environment as Ekman and Rosenberg, (2005) demonstrates the impact of facial micro-expressions on human emotional communication. This complex information is at some level conveyed and registered at varing degrees of clarity and comprehension.

[12] This finding of the conservation and integration of information appears to stay consistent even within the extreme examples of a black hole. Susskind overturned Hawkin's theory that energy was lost within the event horizon (Susskind, 2008; Susskind and Lindesay, 2005) and this new paradigm linking wave and particle energy within a meta-matrix of energy and holographic storage of information could provide a better model for projective identification in extreme psychological processes (see Fonagy and Bateman, 2008).

doing the action or behaviour and what his/her intent is upon the other person. Second, this mode of thinking or intent needs to be understood in relationship to pre-existing vulnerabilities from various levels of dysregulated enactments to be also possibly a contributing factor. Bolton and Hill (2003) emphasize that intentionality is observer-relative. This is why the person perceives the emotional valence of him/herself in a negative or positive light. With all of the layers of the intent and psychological theories of mind at work from parents/care takers, siblings, friends, and other significant people within his/her life this will take on very different impact upon the person. This understanding of intent adds an important dynamic structure to these interactions, but is also a point of contention from a more observed behaviour contextualised clinical approach such as found in psychiatry or clinical psychology rather than a considerably more subjective focused modality such as psychoanalysis (Bolton and Hill, 2003). The interaction of the subjective sense of self (for example using specific STAT sub scores, of self critical thinking, self esteem, or defensiveness) and sub score of relatively more external factors (for instance, traumatic events, positive or negative attachment score, or looking at the collective group scores) is important to inter-contextualize.

The interaction of the STAT sub scores can account for different aspects of coping, use of support, and social-emotional and cognitive intellectual capacity. That could better capture some quality of how this sense of intent may be working psychologically within the social environment and how this possibly impinges upon the person's own subjective sense of self. These experiences connect to a larger meta-emotional construct that is learned and this learning process, especially negative or aversive learning experiences, could be absolutely fundamental in organising meta-narrative organising self-schemas. These may much more accurately account for the psychopathology and dysfunctional thinking or behaviour outwardly expressed or inwardly felt or experienced. It is this quality of intent, flexibility of the expression of these dynamic processes, and the polymorphic capacity (of how often missed subtleties in human meaning and interaction manifest) that is often missing within most psychological approaches or models. Furthermore, these models equally do not have an assessment tool that adequately gleans the underlying psychological ethos and philosophy to be able to capture the sensitivity and speed of much of the complexity of real lived human interaction and relationships. The work developed through this doctoral project aims to be holistically bringing together a more integrated stance in all of these regards. In building a full spectrum of human functioning, the work of many of the theorists on post-traumatic growth (for example, Joseph and Linley, 2008; Calhoun Tedeschi, 2006) include the emotional and practical learning that one is capable of increasing from difficult or aversive experiences. Having a better way to understand what is blocking the healing process of that person would be an invaluable innovation.

How Life Events Relate

In re-examining the concepts of vulnerability and resiliency related to life event exposure, previous research on life events such as Rahe's (1974) model (Figure 6.1) helps illustrate how objective reality is experienced. Like a magnifying glass or a telescope, enhancements or distortions can occur that fundamentally reframe how we experience the world. Some of the original work on life events and stressors was pioneered by Homes and Rahe's work (1967)

which looked at life change units (LCU's) and how the pathway that "environmental stressors must "travel" is modified through "lenses" of experience which can lead to subjective experiences of illness (Rahe, 1974, p.74-5). The scaling system, which Rahe's model (1974) (figure 1) describes, is a systematic approach to classify life-events into a rigid classification structure. This is one of the most systematic and complete classification systems for examining life events, however, for various reasons including its complexity to score and the difficulty to become proficient with the measure, it has all but disappeared as a clinical/research tool. With the advanced computer technological developments now available the difficulties making a psychometric test that is easy to take and automatic (and absolutely consistent) in its scoring, have largely been resolved

The findings from this study supported by other research (Risch et al, 2009), suggested that life events are a reliable way to look at relative increase factors for anxiety, depression, and other psychological illness, but this is not the whole story. This dose-dependent relationship to traumatic experiences (Briere et al., 2008) sets up a traumatic affect-regulatory response (Schore, 2003b; 1994) that in turn appears to create a traumatic pattern (Katz, 2005) that could be understood to organize many levels of *both* individual and group processing. For example, with Figure 1, the experience (life event) is activated by the objective stress and the person's coping response. These are mediated through the subjective stress, which is layered. The coping and supplementary factors with the potential to develop into strain and illness and can become elaborated into illness behaviour.

As Clarke and Clarke (2000) correctly point out, even those with the high rates of life events have low rates of PTSD. Frazier et al. (2009) support findings that the types of trauma, for example, violence or sexual assault, will increase the incidence of PTSD responses compared to other events. Frequently this is because of the issue of shame (Mollon, 2002) or fear (LeDoux, 2002). It is valuable to understand these incidents have a complex interaction with the person's experience before (particularly early childhood), during the trauma, and after (especially with the support and care they receive) (Mollon, 2008).

This finding was also supported in that it seems that personal experience of violence or violent coercion does significantly contribute to pathological stress related symptoms. It is possible to understand that the innovations with the model the author is proposing includes a shifting blocking process that is conflict-based and structured around assessing levels of subjective negativity along with the psychological-emotional states of the other (e.g. the intent). The anterior cingulate (ACC) functions like a gating system when stressed; its neuroanatomical threat detecting system is hyper-sensitized to be combative, avoidant, or submissive depending on the responsive survival reaction. This reactive response includes grappling with varying levels of negative life events connected with high expressed emotion (EE), especially as is found with high levels of family negativity (Rutter, 2000) This occurs at ultra-fast, unconscious levels, including detection incorporating unconscious micro facial expressions (Eckman and Rosenberg, 2005).

It is possible when the neuropsychological aspects of conflict are organised, these in themselves can stimulate a distorting process in both mind (cognitively) and body (somatically), coalescing into a space-time unit of a subjective "global-emotional moment" (Craig, 2009). The interaction of cognitive and somato-sensory processing appears to link precisely with the neuro-anatomic areas of the anterior cingulated (ACC). The insula, where conflict is linked to a body-based system along with the hippocampus (memory), and the amygdala (fear-linked processing), are most likely channelled through the body in relation to feeling states (or emotions) but also as traumatic or panic body-based experiences (Busch et al., 2010), especially as these are fear-based learning (LeDoux, 2003). These same areas of the brain and the body are also where the focus is shifted to conflict-resolution focused around the ACC (Vogt, 2009), and support including memories of both of these aspects. This is why there is such an integral connection between facilitating a positive direction of development over a negative cycle, and how and what one remembers and links to that is significantly more nuanced than simply the person receiving support.

Section Summary

If we draw together this information to its possible implications for reappraising the impact of life events, the findings of support received is known to be one of the most significant mitigating effects in human experience (Cartwright and Cooper, 2009). However, in looking at redeveloping Freud's concept of the unconscious (Sandler et al. 1998), this notion of intent and this interaction gives significantly more weight to how the external experience is modified in very different directions of felt experience and understanding. The significance of the subjective relation to negative and positive emotions is especially important as this stands in relation to the centrality of conflict. The innovation with the STAT psychometric is that it is designed to check key issues with the person, to see if there is any central developmental time-period that appears to be reoccurring. As clinical experience supports using a more systematic clinical assessment in relationship to developing a framework to orgainise experiences, developmental patterns, and the valuable insights that can be found, treatment planning and outcomes have the potential to be transformed.

In much the way physics experiments look at the patterning of particles found, the STAT outputs show the directionality of character change that can be dynamically formed. These can be created either to heal and protect with positive-loving support and intent to heal, or they can fragment and undermine the coherence of the person's sense of self with social stress or abuse on these different levels. It is the socio-developmental support that can be understood as mediating distress/conflict to help process or fragment a coherent sense of self. This could be seen as a process of creating meaning that is again organised through this negative/positive reinforcing process, with some basis within the person's previous experiences in life (but not exclusively anchored within these experiences).

Development of an Integrated Clinical Psychology Trauma Model

The STAT test does appear to offer a statistically significant new integrated clinical trauma psychology assessment tool that is psychometrically validated and reliable for samples in this research. This test offers pathways for developing a clearer model for assessment and treatment by benchmarking the following findings:

The findings from this doctoral research support the cumulative effects where the more negative the environment matched by a similar internal appraisal, the more it appears to inhibit, in the majority of cases, the capacity to think and process (e.g. the capacity for emotional and intellectual capacity is reduced), this seems to have the effect on all levels of increasing the kinds of conflict creating a related increase risk for vulnerability and neurobehavioural problems; For example, these issues reduce trust, confidence, de-skilling the person in significant ways. This artificially stagnates and undermines healthy functioning and relationships. Positive processes seem to have the opposite effect, thus increasing resilient functioning, trust, and support. The results suggest the STAT test is both reliable and valid (which was found to be significant to $p<0.001$ levels) for the samples in this research. The entirety of this ICDS model has been independently verified and completely supported through Professor Kock who needed to run all of the data again to establish the higher level mathematics of the Structural Equation Modeling (SEM) by writing a computer code to develop the dynamic group modeling. This innovation is presented within (see Appendix XIII pp. 339-399). Professor Kock's findings entirely support this project's conclusions (see Appendix XIII pp. 339-399) that the ICDS model does appear to significantly predict the degree and quality of how a person and group will control negative emotions or not. This is very valuable on both the personal level of what is predictive of degrees of psychopathology (as outlined within this thesis) and how these factors would impact group and social relating.

The project's findings for the Principle Component Analysis (PCA) have highlighted a model that appears to make intuitive, clinical, and practical sense. In framing these findings from the present research with Milanak and Berenbaum (2009), results show that: "PTSD symptomatology is systematically associated with how individuals implicitly and automatically processed emotionally balanced stimuli. Importantly, findings support the relationship between PTSD and emotion varies depending on: (a) which PTSD symptoms one is examining; and (b) which facet of emotion one is examining" (p. 143). The crucial ingredient in the majority of the relevant findings relates to the nuanced real relationship Schore, (2003 a&b) describes within the live relationships with others. This theoretical point was supported within this study's findings with the use of the WASAS, the Social Life, Family, and Private Leisure which quantitatively showed how discordant relationships with others (family) and with oneself frequently trigger a real, highly-charged affect (That can be matched to subjects having higher scores within the reported pathology levels of GHQ 12 or HADS). Disturbed relationships frequently accompany aspects of emotional dysregulation in significant ways. This finding that stress undermines understanding other's minds as well as one's own mind and affect-regulatory capacities (Jurist et al, 2008). These emotional relating processes can become dysregulated enough to no longer be able to mentalize (see Busch, 2008, and Seigel's concept of Mind-sight, 2010a) (e.g. integrate and process emotional and experiential states about ones own or others' mind).

The following categories of personal, constitutional, and situational variables help to provide structures that objectively influence the dimensions of the persons experience and describe in a more nuanced way what could

contribute to a stress related illness and how external factors or internal feeling states may be (re) interpreted (see Figure 2).

Figure 1.1
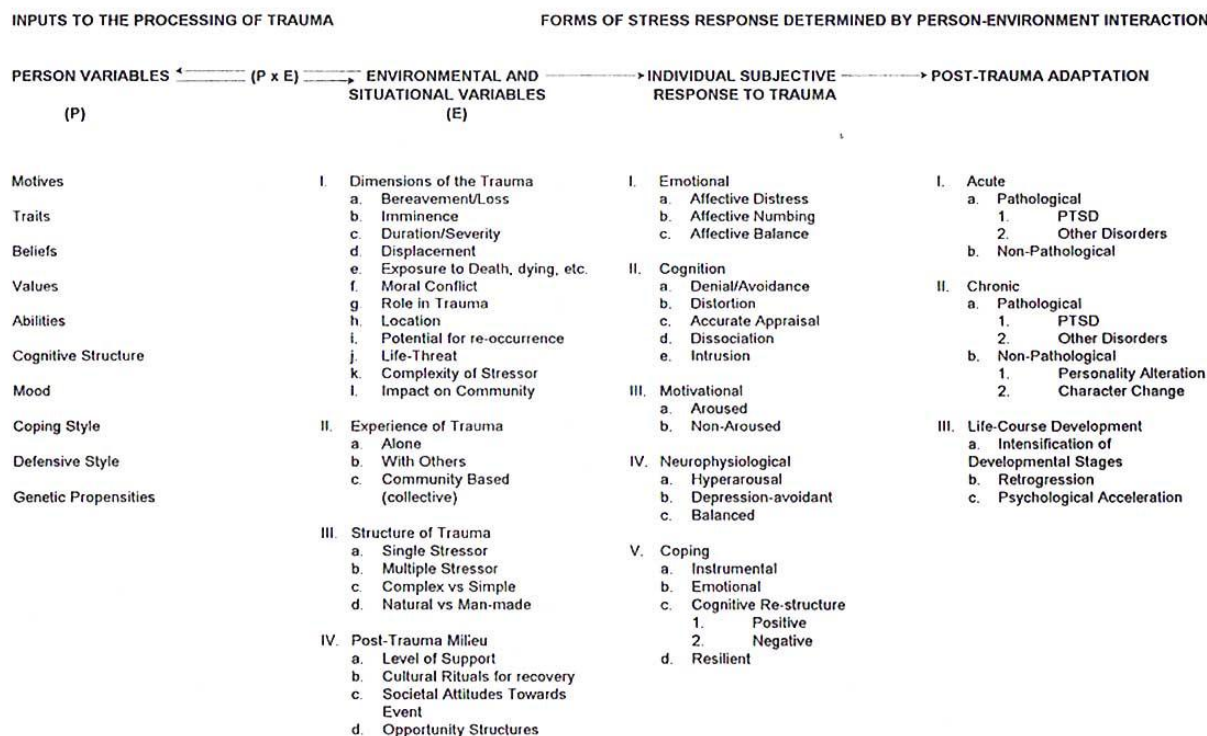**Elements for a Theory of Traumatic Stress Reactions**

INPUTS TO THE PROCESSING OF TRAUMA   FORMS OF STRESS RESPONSE DETERMINED BY PERSON-ENVIRONMENT INTERACTION

PERSON VARIABLES ◄———— (P x E) ————► ENVIRONMENTAL AND ————————► INDIVIDUAL SUBJECTIVE ————————► POST-TRAUMA ADAPTATION
(P)   SITUATIONAL VARIABLES   RESPONSE TO TRAUMA
                                                       (E)

Motives

Traits

Beliefs

Values

Abilities

Cognitive Structure

Mood

Coping Style

Defensive Style

Genetic Propensities

I. Dimensions of the Trauma
    a. Bereavement/Loss
    b. Imminence
    c. Duration/Severity
    d. Displacement
    e. Exposure to Death, dying, etc.
    f. Moral Conflict
    g. Role in Trauma
    h. Location
    i. Potential for re-occurrence
    j. Life-Threat
    k. Complexity of Stressor
    l. Impact on Community

II. Experience of Trauma
    a. Alone
    b. With Others
    c. Community Based
        (collective)

III. Structure of Trauma
    a. Single Stressor
    b. Multiple Stressor
    c. Complex vs Simple
    d. Natural vs Man-made

IV. Post-Trauma Milieu
    a. Level of Support
    b. Cultural Rituals for recovery
    c. Societal Attitudes Towards
        Event
    d. Opportunity Structures

I. Emotional
    a. Affective Distress
    b. Affective Numbing
    c. Affective Balance

II. Cognition
    a. Denial/Avoidance
    b. Distortion
    c. Accurate Appraisal
    d. Dissociation
    e. Intrusion

III. Motivational
    a. Aroused
    b. Non-Aroused

IV. Neurophysiological
    a. Hyperarousal
    b. Depression-avoidant
    c. Balanced

V. Coping
    a. Instrumental
    b. Emotional
    c. Cognitive Re-structure
        1. Positive
        2. Negative
    d. Resilient

I. Acute
    a. Pathological
        1. PTSD
        2. Other Disorders
    b. Non-Pathological

II. Chronic
    a. Pathological
        1. PTSD
        2. Other Disorders
    b. Non-Pathological
        1. Personality Alteration
        2. Character Change

III. Life-Course Development
    a. Intensification of
        Developmental Stages
    b. Retrogression
    c. Psychological Acceleration

Figure 6.3 Trauma Variables [Wilson in Miller, 1994, p. 6] (Permission granted for reproduction.)

The above diagram, Figure 6.3, outlines fundamental factors underlying the dynamic traumatic-stress interactions. Most of the fragmentation that affects the individual level (Leplore and Revenson, 2006) occurs on the organisational level (Bryman, 1988; Cooper, 2009), dynamically interacting to change individual and group processes in turn. This framework is a direct clinical response to follow from the thinking evolved from the STAT assessment test to dynamically approach systemic treatment to shift embedded negativity within all of the members of the family system, group, or the organisation. Work is being undertaken at the moment to develop the group dynamic assessment using structural equation modeling (SEM) and network analysis to look at contextualised group processes and the interactive process, in order to better understand individual functioning. This reconceptualised mapping beyond the individual level then encourages longer-lasting sustainable change, transitioning much of the propensities to stay 'stuck' instead of developing towards higher levels of compassionate maturity and a capacity to mediate negative emotions. This clearer real-world assessment helps to systematically work to repair ruptures within all of these areas to move everything towards a sustainable healthy mode of functioning. This is why the present mode of most trauma-based therapeutic work is problematically reductive and overly simplistic in its integration of essential curative factors and processes—both neuropsychologically, developmentally, and related to a subjective sense of creating meaning.

159

Neuropsychologically, if we know how our healthy brain is supposed to work (Keverne, 2005) we can better learn, take care of ourselves, and have benchmarks of healthy support (Huppert et al, 2005; Gilbert, 2005b). For development, likewise, clearer guideposts for more optimal versus detrimental trajectories can help better guide and inform best practice in all aspects of life and education from childcare to clinical prevention or treatment. Feeling happier assists us in creating meaning and better integrating this sustainably into our lives (Bolton and Hill, 2003).

Developing an Improved Model of Systems Integration with Wider Applicability

The author wishes to illustrate the potential multiple layering of these concepts that this project could profoundly add value to in exploring and in linking-up concepts. These conceptual insights include better understanding even of the quantum world, where this model could better inform how these quantum process may influence psychological practice. Similarly, this psychological model may have some insights to offer the field of physics. It is possible to look at findings from cutting edge physics research, which may metaphorically or even literally play a central role in theoretical design. As an example, consider particle physics negativity, which in physics does not have the emotionally laden aspect that it does with human emotions. More specifically, dark energy or dark matter is the most dominant entity in the universe (NASA, 2006). The report states:

> *Dark energy appears to be the dominant component of the physical Universe, yet there is no persuasive theoretical explanation for its existence or magnitude. The acceleration of the Universe is, along with dark matter, the observed phenomena that most directly demonstrate that our theories of fundamental particles and gravity are either incorrect or incomplete. Most experts believe that nothing short of a revolution in our understanding of fundamental physics will be required to achieve a full understanding of cosmic acceleration. (NASA, 2006, p.1)*

In directly applying what relevance this project has in shedding light on the abstruse quantum world, both the models of trauma psychology and theoretical physics have tremendous holes in their coherent understanding of the processes and connected models to adequately explain the phenomena seen. This project has a difficult balancing act in using the findings from the quantitative data while not stretching beyond the empirical findings, nor in missing essential patterns information that could help draw valuable insight to the larger professional discipline, as well as connecting these insights to better understanding the world. In thoughtfully and responsibly weighing these competing factors, a clear dynamic emerges: The author feels the similarities of the pervasiveness of this negative material (or for physics, dark matter or energy) throughout the physical body or social systems, as within the universe, could require that we change how we understand much of the value judgments and pessimistic appraisal we place on "negative emotions" or "negative psychological energy" or even dark energy or negative-matter. The balance and predominance of these psychological forces could require that we look at the strength or pull of these psychological forces to be adaptive within a much more connected psychical if not emotional environment. This is relevant because the findings from the doctorate project highlight that negativity could be the strongest force within all of these systems including

psychological systems, and our relationship to mediating these aspects could make the difference between mental and physical health or illness.

Understanding the pervasiveness of this negativity is valuable because first, if the same forces are present at all of these levels, including in understanding emotional or psychological experience, then is does corroborate another element, for example's Lisi's (2007) work to find a theory of everything (ToE). Meanwhile similar, or even the same processes (as was illustrated by the detailed descriptions of glutamate and cortisol as being smaller similar patterns in creating vulnerability (see pages 151-153) could help us to use all sorts of models to look at gaps within coherence of other models. This would help us to more clearly work through different disciplines, where they are becoming stuck in productive theoretical problem solving, in order to create more accurate modeling. It appears from the significance of the findings from the higher level modeling that this project has been a part in creating, this model does indeed have the quantitative data to support the predictive findings outlined within this project (see Appendix XIII pp. 339-399). Second, this project suggests a very real possibility that to profoundly move forward to innovate within not only the field of clinical psychology and affective traumatology assessment and treatments requires reflexively healing the way we understand the very nature and relationship to healing and care (Varma, 2011). Brendel (2006), Foucault (2001), and Laing (1960) among others, highlight the pervasive problems within psychiatry, psychotherapy, and clinical psychology in really compassionately and effectively treating the person who is psychologically or physically unwell.

This innovation within this project is not coming from the perspective of an add-on computer assessment process, but instead conceptualizes the different aspects of the assessment and treatment processes as being connected and mutually influencing the person's awareness of what they need to change and improve within his/her life. This tele-medicine system looks at healing the gaps that have been outlined and critiqued within the paper to best inform clinical practice. This process of assessment and treatment works by looking at intention, including how as treating clinical professionals understand and engage within this process of healing another human being. Understanding the sender's intent (including where we are as professionals within this process) and how this information (e.g. the clinician's compassionate stance) is received by the client/patient may seem simple, but it necessitates a profound unlearning and compassionate reflexive process of understanding. Better conceptualizing the effect of empathy and the interaction of the other person's experience of mind affects such aspects as human care, thinking, and development. For example, in the case of anger or even abuse, it is in no way sanctioning it, but it is in compassionately understanding the interconnected, even inter-generational layering of these effects and how these may manifest. Having a considerably deeper field of perspective improves one's approach thereby updating the expertise (Ericsson et al, 2006) and the professional decision-making (Montgomery et al, 2005). However, as a conceptual innovation in healing, the tools are used to assess illness, treat distress and pain and fix the coherence and effectiveness of how this work is accomplished. In doing so, these insights can provide the possibility to transform the previous ways we appraise and understand ourselves as well as others. This improvement in understanding, as the NASA (2006) position paper equally highlights a similar situation on a larger scale within the field of theoretical

physics, where possibly universal problems of incoherence are present in a similar way. Therefore, taking this more integrated approach could sustainably change every area or field by improving our comprehension of where these gaps stop better understanding.

This reappraisal and re-linking process could be applied in a similar way, to look at healing the gaps or inconsistencies to significantly improve the coherent integration of information and actions needed to improve functioning. How this process works more specifically, is by looking more precisely at the gaps or inconsistencies, what information or insight this could give to the process, and the course of corrective action stemming from a profound thoughtful intent to heal. This provides a basis for a greater scope for creativity and development than otherwise may previously have been available.

Exploring Fundamental Forces

The possibility that a similar layering of negative forces or energy may be a theme throughout this project and in the outside world draws together one interpretation that this project is at its core investigating what could be described as fundamental forces within psychological individual and social relationships. Additionally, these may be the same structures understood to be operating within the theoretical physics. For example, this project examines and integrates together the key strands of these theoretical concepts. The cornerstone of this thinking rests on the idea that through the cycles of trauma, high levels of stress erodes positive social support, including trust, confidence, empathy, mentalization (understanding another's perspective), and emotional rapport. These kinds of gaps in coherence lead to higher levels of anticipated threat detection, which undermines understanding and increases conflict. This then serves to undermine trust as well as care, thereby pushing others socially away from each other. However, overwhelming conflict moves social processes *towards* directions of vulnerability instead of resiliency by way of fearful threat detection and fearful anticipation of reprisal (Dickerson et al., 2011). If these ruptures occur too violently, this can create internal psychological blowouts (Bateman and Fonagy, 2004; Bromberg, 2009) or, within physics, space-time rips (Susskind and Lindesay, 2005). Neither of these fields has had any coherent way to account for these complex processes and challenging problems. This conundrum echoes Alexander et al.'s. (1993) finding of the social stress and dysfunctionality operating as a core aspect of the worst part of working within the police force without any clear recommendation of how to deal with this organisational dysfunctionality. These issues were similarly described as the most problematic when conducting research within the fire service. On the other hand, if possible implications can correctly be drawn not only from the data about the pervasiveness of negativity individually and systemically, then in more clearly designing a coherent framework for assessing what the particular challenges are, interventions can compassionately be put into place. Then, this pathway has a much better chance to develop effective strategies to ameliorate these difficulties. The additional Structural Equation Modeling (SEM) (see Appendix XIII, pp. 339-399) provides a quantitative basis to describe a similar interrelationship of these fundamental forces within the psychological realm. This has numerically been established from the SEM work on individual and group dynamic processes. This project brings this innovative model together.

2. More Critical Discussion of the New Reflexive Approach

The previous sections outline research findings from this project that unify a statistically significant model of stress and trauma assessment. These can reliably separate out clinical and non-clinical groups as well as determining what factors may have been neglected in better visualizing areas that may have been previously neglected in professional research within the area. This new reflexive approach, described in the doctoral project as *Integrated Systems Healing* (Richard Sherry © 2011), has been developed to tackle gaps within the field as well as having possible broader applicability in psychological screening. This project has innovated ways to organize sustained remote psycho-education that provides a computer e-learning component to assist the person to better understand what are the issues related to their negative and positive levels of psychological functioning. Additionally, this will provide resources to help educate them about these aspects and how to better manage these issues.

Integrated Neuropsychological Framework: Negative and Positive Perspectives on Emotion

A central part of addressing these gaps to clarify a coherent system is to carefully map out previously overlooked areas that have crucially needed to be included within psychological models.. This research provides some of the first comprehensive qualitative data of the complexities integrating a clear relationship to these opponent processes or possibly conflicting models. In part as outlined within the literature review, the neuro-anatomy of the ACC (Vogt, 2009; Etkin, 2008; Mayberg, 2007) begins to answer a similar part of the brain that manages threat detection, assessment, conflict resolution, and cooperation/compassion. If fear stimuli are present, then a cascade of emotional and intellectual dampening down begins that undermines social communication and support. This is why the finding that intelligence is an important mediating factor is a valuable result. Depending on the stresses present and how the person relates to these aspects, it will profoundly change if s/he is in survival mode or has higher level socially supporting functioning in operation.

An awareness of these essential processes of fragmentation requires understanding that these difficulties are possibly universal, but also need to be seen as a correctable problem. Measures can be developed to be able to overcome some of the significant blocks in developing healthier and sustainable systems. However, as clinical professionals we notice the effects of the fragmentation, but have not really developed a way to look at strategies to address the dynamic aspects of these processes. For example, like understanding the purpose of pain, negative emotionality likewise does not need to be reacted against, but rather understood within a context as a feedback mechanism and also how developmentally it is designed to be protective in its nature. Emotional structures need to be found and expressed through both internalizing and externalizing trauma-related behaviours. Salmon et al., (2007) also investigated children's stress reactions, finding the strongest predictor was the child expecting to being harmed again (e.g. the child having a negative vulnerable image of themselves).

This belief-structuring framework is probably more influential and stronger than previously understood. It is probable one significant innovation with the STAT test is that it is exponentially better at accurately picking up these central features of dysfunctional processes as well as indications of positive processes to see where the person lies within his/her own propensity for these behaviours. Additionally, the test looks at innovating ways to look at how the environment of the group could interact with these critical features. This is across a wider critical spectrum of key factors and looking at what level of cognitive-emotional functioning the person is most likely functioning from. In other words, is the person reacting emotionally even in a primitive or reactive way in the reflective and higher cognitive social-emotional level of processing, such as being able to be compassionate? This provides a clearer spectrum of this pathway and a way to demarcate a more complete mapping of these treatment factors in the clearest way psychologically known.

Levels of Brain Processes

With these chains of causality, it appears this concept of vulnerability could link to dynamic neural processes that connect to inner object relations (Kernberg, 2005) and attachment (Target, 2005) with the medial prefrontal lobes (Lanius et al., 2010) and the DlPfc (Kaufer, 2007). The mind has internalized relationships that modify neural-emotional processes and can potentially replay or even intensify these negative relationships internally. Moreover, this inner relationship is shared and reacted to socially as well as conscious and unconscious levels. This means that the degree of negativity interacts with elements such as autonomic behavioural responses including fight/flight/freeze, fear of separation, avoidance, impulsivity, etc. Each of these 23 factors of the STAT psychometric has been identified through the extensive literature review—both positive as well as negative factors—thereby intensifying and inculcating a stronger relationship towards processes of resiliency or of vulnerability. Belief about future experience is an important predictive indicator (McFarlane and Yehuda, 1996) and can capture strong deterministic processes that become templates for later developmental trajectories. There is a repeated theme coming up both in this present research as well in the supporting literature, of negative appraisals as a prognostic marker in many areas including outcome in psychotherapy (Van-Staden, 2006). This feature from the literature review, supported by robust findings from this research, could have significantly more important implications well beyond just psychotherapy outcome to include life in general.

As outlined within the literature review, brain development and processing has both a directional (negative/positive) and layered neuro-anatomic response. For example, Steptoe et al's (2008) findings support that positive affect is associated with better physiological function, protective psychosocial characteristics, and improved health. Negative affect was independently associated with negative relationships, greater exposure to chronic stress, depressed mood, pessimism, and avoidant coping (ibid). For the study, there is an emphasis as discussed in positive psychology (Carr, 2005) that health is not simply the absence of illness; it is the presence of factors that promote well-being (Huppert et al 2007). These marked differences could account for the disparity of the preponderance of negative scores and the

difference in consistently gaining clear positive scores as well as owning how different these two types of systems function.

In integrating all of the perspectives, spectrums, and levels, this doctoral project offers a foundation in reappraising the integration and high level of functionality in addressing the conceptual and practical frameworks. This could then point the way to more holistic and advanced strategies for change. This can be likened to how anaesthesia, antibiotics, or even sterile equipment revolutionized the outcomes and development in surgical practice. In developing a cleaner model for these processes and the significance of impact, this work hopes to demonstrate the relationship of these trends that can vitally change the developmental trajectory. This needs to be appreciated within the functioning of the importance of a coherent clinical neuropsychological system, networks, and the synergistic effects a model of reversible processes may have. Moreover, this project wishes to highlight the complex relationship between negative and positive processes, where negative functioning has greater impact on learning than positive, but that tolerating positive experiences is significantly more difficult and survival (e.g. core reticular and limbic) neural processes strongly override higher-level cognitive and emotional processes. The project's data support these findings.

Section Summary

This project has brought together a complete argument and evidence-base to pinpoint essential factors that could begin to account for a more holistic model within these processes, including the universal need to understand these issues in potentially every field across all disciplines. This is a bold statement and requires a conceptual leap by both the author and the reader to think multi-systemically instead of hyper-focusing on a singular entity or process to the detriment of the integrated whole. This is an important finding as results from this study link to the wider literature to contextualize the relationship between negative and positive factors. The possible implications of having one or the other mode as strongest therein changes in the individual and the system as the predominate mode present then re-sculpts the relationships in a deleterious or healing direction. The value of this kind of change development is a critical reason why leadership is at the center of much of this doctoral thinking including a core part of the professional doctoral toolkit (Stansfeild and Lee, 2009). This also demonstrates why the individual scores need to be understood within a social-emotional context of other relationships. This project establishes an applied approach to address this level of group analysis (see Appendix XIII, pp. 339-399).

The Development of a Coherent Theoretical and Clinical Assessment Model

This project has developed a theoretical approach that integrates information across different specialties that could be used for individual or larger social systems. Much of the quantitative data highlights how negative interactions mediate the development of stronger pathological responses. Moreover, it appears the models for conflict play a central role in switching the speed and complexity of response, such that the internal neuropsychological responses appear to trigger an inhibitory effect on early brain survival responses (Forgus et al., 2011) also associated with fear neuro-circuitry and exclusionary social interrelationships. These adaptive processes highlight some fundamental

questions, such as determining the relationship between individual and group or organisational processes that emerge through strong levels of conflict or are mediated through profound care and support. The paper has outlined some of the key differences between how these (mal) adaptive processes function, especially between vulnerable versus healthy individuals/groups or systems (or others) and how these insights can begin to be integrated into a system to conceptualize these changes to the dynamic processes.

The following screen shots are some of the outputs from the STAT test that are automatically generated when the STAT is completed. The cut off scores are systematically organised to assess the full coverage of very healthy, ordinary, clinical, and severe for each of the scores. There are positive (sub scores that measures health), as well as negative (sub scores that measure illness). For each score there is a developmentally integrated indicator that highlights any age that may be implicated in a change in the development of that sub score.

	Score Level 1	Score Level 2	Total Score	Cut-off Point (CP)	Score	Final Result	Always	0-5	6-10	11-15	16-20	21-25	26-30	31+
--Trauma	26	4	30	29.31	Clinical Score	Clinical Help	Low	Medium	-	Medium	Medium	High	-	-
--Anxiety	20	7	27	25.90	Clinical Score	Clinical Help	-	Low	-	Low	Medium	High	-	-
--Impulsivity	29	6	35	27.50	Clinical Score	Severely	-	Medium	High	-	Medium	High	-	-
+Self Awareness	23	4	27	42.27	Normal Score	Very Healthy	-	Medium	Medium	Low	High	Medium	-	Medium
--Frontal lobe (Lateral) Self-Critical Thoughts	19	5	24	34.25	Normal Score	Very Healthy	Medium	Low	Low	Low	Low	Medium	-	-
--Limbic Lobe (Midline Cortical) Separation/Fear	27	4	31	31.50	Normal Score	Normal	-	Medium	Medium	Low	High	High	-	-
--Defensiveness	22	3	25	26.73	Normal Score	Normal	-	Low	High	Low	Low	High	-	Low
+Conscientiousness	7	3	10	19.10	Normal Score	Very Healthy	-	Low	-	-	Low	High	-	-
+Intelligence	10	3	13	18.19	Normal Score	Very Healthy	-	Low	-	-	Low	High	-	Medium
+Self esteem	13	4	17	16.22	Clinical Score	Clinical Help	-	Medium	-	Medium	-	High	Low	-

--Negativity (Cruelty)	83	12	95	**95.50**	Normal Score	Normal	Medium	Low	Medium	Low	Low	High	-	-
+Positivity (Compassion)	44	8	52	**73.55**	Normal Score	Very Healthy	-	Medium	Medium	Medium	Low	Medium	Low	Medium
--Avoidance	6	2	8	**21.04**	Normal Score	Very Healthy	-	Medium	-	-	Medium	-	-	-
--Intrusion	8	3	11	**20.50**	Normal Score	Very Healthy	-	Low	-	-	Low	-	-	-
--Hyper-arousal	17	5	22	**18.13**	Clinical Score	Clinical Help	-	Medium	-	-	Medium	High	-	-
--Dissociation	12	3	15	**14.50**	Clinical Score	Clinical Help	-	-	-	-	Medium	High	-	-
+(Attachment) Positive Secure sense of self and safety	29	6	35	**44.50**	Normal Score	Very Healthy	-	Medium	Medium	Medium	High	Medium	Low	-
--(Attachment) Negative Disturbed sense of self and safety	47	8	55	**60.35**	Normal Score	Normal	Low	Medium	High	Low	Low	High	-	-
--Fight	11	3	14	**10.92**	Clinical Score	Severely	-	Low	-	-	Low	High	-	-
--Flight	20	4	24	**20.16**	Clinical Score	Clinical Help	-	Low	High	-	High	-	-	-
--Freeze	9	2	11	**14.06**	Normal Score	Normal	-	-	-	-	Medium	High	-	-
--Forensic/Pathological Scale	31	7	38	**30.50**	Clinical	Severely	-	Low	-	Low	High	High	-	Low
--Clinical Psychology Scale	20	5	25	**26.23**	Normal Score	Normal	-	Low	Medium	Low	High	High	-	-

Supplementary Clinical Psychology Test

6.2 (Screen Shot from the Psychological Systems STAT psychometric computer test summary.)

Using various approaches, such as looking at the positive and negative attachment score, the innovations being developed link individual and group scores, as well as various components of the poly-vagal (Porges, 2011) responses. All of these aspects help highlight some of the ways to link up the inter-subjectivity (Stern, 2005) and how this may capture a deeper and more meaningful complexity of the psychological processes under investigation. The complexities of how "the Self" and "the Other" are conceptualized are complicated (see Appendix IV, pages 260-261), but they function in a dynamic interface that is an essential part of any human relationship (Cuyler and Ackhart, 2009). Moreover, any psychometric examining complex trauma would ideally be able to identify these themes within the communication and relational experience.

Another significant innovation includes the ability to look at the styles of relating within the subscores (e.g. fight, flight, freeze, and dissociaction) with the different kinds of modifying factors (see the list of the 23 sub scores for the STAT) and how these neuropsychological markers of personality styles can create different emotional responses, behaviour, and where these are likely to lead to different kinds of outcomes. For example, Daniels (2010b) Cortical-limbic system disconnection model provides one of the best descriptions of what happens neuro-psychologically in the brain that captures the complexity of this kind of fragmentation. The spectrum of symptom presentations of "Emotional Under-modulation," (Re-experiencing) can be contrasted with "Emotional Over-modulation,"

(Dissociation). The strategies the mind and body employed to help manage traumatic experiences include a window of affective tolerance (Ogden, 2006) where the upper and lower limits that are surpassed push into a self and other protective system that appears to then utilize a breaking system akin to what Porges (2011) describes with his poly-vagal theory where there is a cutting-off response (that works like depressing the break and/or accelerator in a car simultaniously). Daniels (2010b) description of the cortical-limbic system disconnection model, where these processes work synergistically together provides a better explanatory model of how the person is likely to respond to severe stress and also perhaps the severity might provide a rough guideline of some of the person's psychological vulnerability. Each of these neural processes describes different ways emotions can be dampemend down or mediated by cognitive-emotional regulation.

The STAT psychometric has gone to significant lenths to begin to clarify the interface between social-emotional and cognitive strengths or intelligence. This provides a mapping at the other end of the spectrum for resilience, of where these higher level capacities like Theory of Mind (ToM) (Shamay-Tsoory et al., 2005), Compassion/Empathy (Gilbert, 2005b), and Mindfullness/Mindsight (Siegel, 2010; 2012) could be functioning. These kinds of higher-level socially linked mental states of caring reinforce feelings of safeness and the role of positive affects (p. 25)—especially of empathetic resonance (Shamay-Tsoory et al., 2005, p. 41). Moreover, these positive behaviours and cognitive processes are a direct antidote to the erosive processes of a spectrum of cruelty or even indifference and facilitate dynamic social caring responses from one's self and from others. Within the STAT psychometric both of these known elements of psychological functioning have been included.

The STAT psychometric has innovated an integrated system to ensure both the mind as well as the body is included together. In an attempt to control for confounding information, the relationship to trauma and the body is well known (van der Kolk, 1996), but evaluating research pertaining to areas of trauma, especially dissociation and numbing, do complicate the analysis of the research findings. For instance, Montaigne et al., (2007), found patients with depersonalization disorder do have reduced threat-related processing of facial expressions for anger, which is the emotion most closely allied with anxiety. This would severely complicate social relating. In an attempt for the system to cope with overwhelming anxiety, in these cases of depersonalization and dissociation, the person literally becomes numb to and ultimately reverses the process. These aspects of the body and minds' sophisticated strategies to manage near impossible situations have been evolutionarily developed by the body (Scaer, 2005). Equally, somatisation is also part of this equation and it is important to include this can be done by looking at some subsections of the sub scores. There is a responsibility to provide a cogent and aligned explanation for what cognitively might be happening with psychological vulnerability (Abela and McGirr, 2007) for many layers and levels of narrative many of which became fragmented because of the effects of trauma.

Section Summary

In trying to summarise key areas of the project's findings supported by the literature, it appears that the relational experiences are critical in how emotions and affect are learned, played out, and socially re-experienced. When stress or conflict is present, others are more likely to be perceived as a possible threat rather than seen as a support or comfort—as noted before, especially if there is contravening negative intent that is also present. These same external relationships appear likely to be internally reproduced as inner dialogues that can have negative or positive valences to them. There are many findings discussed here and normally these would be considered under the heading of each of the research objectives. Overall, the STAT could provide the most integrated psychometric platform individually. In addition, the innovations with an automatically generated report (created based on the sub score answers, the supplementary material, and the clear across the spectrum bench marking) are used to link to learning modules that are based on the individual psycho-educational and developmental needs identified with in the client/patient. This integrated platform has test re-test capability that can compare initial with post-treatment outcome scores. There is current work being undertaken to link the dynamic scores of the individual functioning with group or organisational processes. The computer code that establishes the veracity of this work is provided (see Appendix XIII, pp. 339-399). This thinking includes looking, with further precision, to see if Daniels (2010a&b) and Porges' (2011) models can be used to individually examine the person's functioning and to see if these scores and processes might be able to be looked at dynamically or within a social matrix. These findings within the equation modeling appear to be quantitatively supported with a significant predictive validity-score.

A reliable integrated psychological assessment technology has been developed that links up all of the theoretical and applied aspects of this research. An essential component of the work-based doctorate includes the development of different kinds of knowledge: Mode Two, trans-disciplinary knowledge, including the marketability and commercialization of knowledge (Gibbons et al, 1994) is set against the more academic, or domain-specific research, Mode One knowledge is developed within one's sphere of practice to innovate new applications to this thinking. The author will include the computerized platform of his STAT psychometric and supported e-learning at the end of this document. This is the URL-Link (supplementary page at end of document) that demonstrates the web-based business. This work establishes a significant applied professional learning that would constitute real-world innovation. Ideally, the 5000 level work would be applicable to innovate well beyond current modes to develop domains of expert knowledge and professional performance (Ericsson et al., 2006). Gibbons et al., (1994) had their critics for mode 1. (Drake and Heath, 2011) where these can be read like a list rather than a dynamic process of owned individualized reflection. The extensive depth of multiple specialisms of expertise has been learned in the process of undertaking this work, for example, telemedicine, (Zielinski et al., 2006; Tracey, 2004), patent law (WIPO, 2003), and marketing website design (Sweeny, 2009) among others. These approaches have been integrated within this holistic computerized approach to improve upon the clinical formulation and potential outreach of this research. Much of the thinking for this doctoral project can be demonstrated from the integrative literature search, revised synthetic methodology, and applications of new ways of professional applied knowledge, most particularly from the new

conceptual tools of *Integrated Systems Healing* and *Integrative Compassionate Developmental Sustainability* (ICDS) (both Copyright Richard Sherry © 2011) that underpins the practical applied professional clinical psychology approach for systemic assessment and treatment. The author has integrated these theoretical ideas into the development of the STAT test and the supporting computer platform, which forms an entire approach to addressing vulnerability and works to treat these issues from multiple, but integrated approaches.
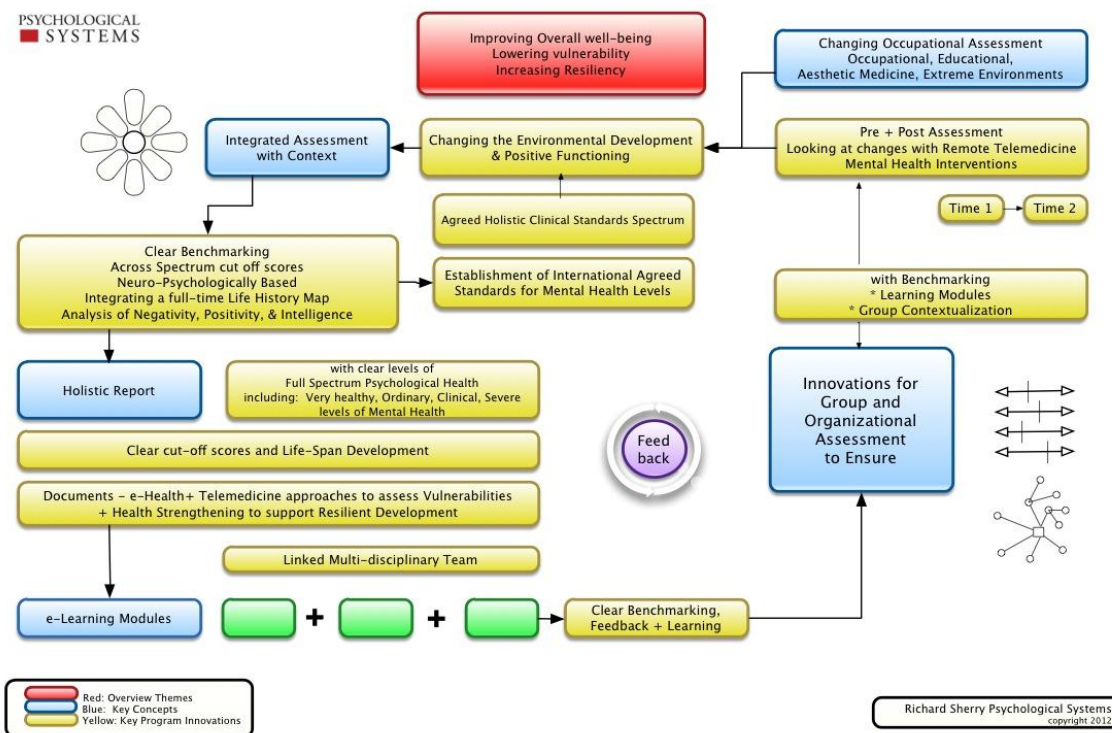
This diagram (x.1) demonstrates the conceptual mapping of how the Psychological Systems Testing Platform is joined up and works as part of an integrated developing system.

The STAT Test takes everything systematically outlined within the literature review. It has been developed and further extensive work has evolved to create both a computerized version of this research and the integrated computer-learning platform. This extra psycho-educational layer is designed with a computerized report and feedback learning content. Areas both flagged as problematic, or positive areas that would benefit from further coaching could be identified to help both the individuals and integrated to help organisations improve levels of compassion and collaborative support and help provide high quality material to support the person's emotional growth and development.

This holistic integrated feedback and technological innovation represents a radical new milestone within the field as it includes an integrated dynamic neuropsychological and developmental framework that will be linked with newer models for individual group interface. For example, the social applications of this work include the development of a

foundation for an integrated ethical framework that is being rewritten as a submission for a journal article. The establishment of a course is additionally underway, which the author and colleagues are working to have based in the Society of Apothecaries. This course focuses on addressing vulnerabilities throughout key developmental life stages across first, second, and third-world environments. This course is designed to function as a think-tank to improve assessment and effective interventions for these issues. There is a further discussion to link these to a research program, based at University of Westminster, on how to improve the healthful functioning of group processes, as well as to have this connect to link up several charities to improve the leadership and effectiveness for these groups. This work is planned with the goal in mind of creating an edited book looking at these issues across the spectrum of vulnerability and resiliency which will concretize this expert knowledge and focus on improving people's lives and well being.
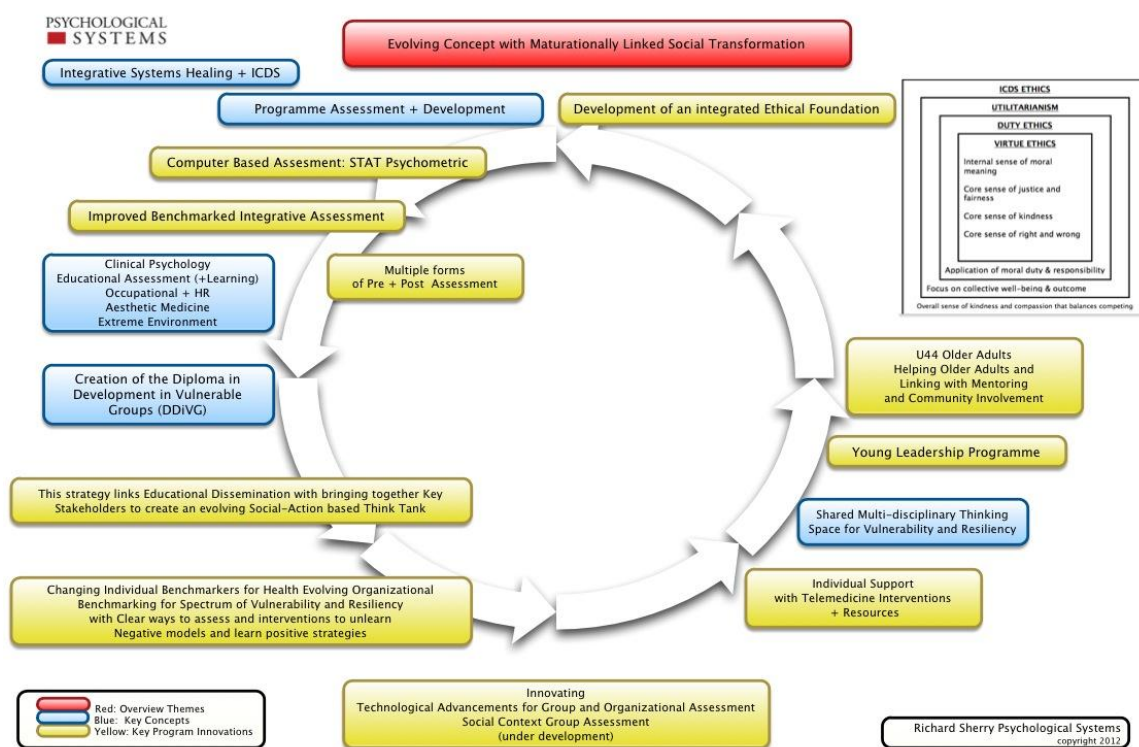
This diagram (x.2) maps out all of the significant innovations this doctoral project has and is developing to reduce vulnerability and stress and improve resiliency, positive learning, and support.

Section Summary

This doctoral work ties together substantial expertise from many inter-collated areas of expertise. The integrated platform has co-evolved out of a radically new integrative theoretical approach to improve the quality and emotional intent through the *ICDS System* captured under the concept of *Integrated Systems Healing* (both Copyrighted to Richard Sherry © 2011). This linked approach has substantially evolved the dynamic integration of psychological clinical and trauma test assessment to look at ways it can be used as a platform to identify critical factors for improving change and outcome, as well as to sustainably and compassionately facilitate this development.

Validating the STAT Test

The significant evolution of a most academic, experiential, professional, clinical, and technological learning pathway has lead to the creation of the *Sherry Trauma and Assessment Test (STAT)* psychometric (Copyright Richard Sherry © 2011). This test provides a holistic approach in theory, practice, and application to address areas of psychological difficulty and ways to address these no matter what level of low or high functioning. There is a built in psychometric platform that can be added for different areas of testing (for example, for occupational, educational, aesthetic medicine, extreme environments) and the learning content after the initial framework and material is designed as an evolving information document (e.g. co-authorship framework—see Zilenski et al., 2006), which can grow and ensure there are different kinds of resources available. This content will be professionally checked before it is uploaded to ensure clinical safety and quality.

Much of this work has developed to be able to distil the essential elements of the psychometric data. It is important to highlight the scope of the complexity as well as the sheer volume of all of the original data (approximately 500 pages) that has been integrated into very clear summary tables and charts. These data summaries provide a wealth of findings from the cross-validation of the STAT and the psychometric evaluation of this test within the wealth of very detailed psychometric data. The main analysis and implications have been distilled within the results section. However, it is valuable to outline the critical sign posting of the data to inform the reader. Part of this project aims to improve how psychometric information is developed and understood; moving from a one dimensional to multi-dimensional integration of information that ideally has feedback and strategies to improve areas of deficit linked to real-time test outputs. Much like writing for a single instrument is transformed when linked with other instruments to form a symphony—a major intellectual reconfiguration is required to see the integrated relationship with all of the pieces working in unison. This has been a challenging process of understanding. Equally, the findings have helped feedback to provide greater depth and shape to the entirety of the project.

Similarly, holding all of this data together shifts a fragmented paradigm/perspective and moves it towards an integrated perspective--one that highlights problematic gaps that need to be addressed from a 360-degree perspective. For instance, as outlined within the literature, the split between clinical and positive psychology was addressed within the STAT test as well as including both qualitative (measured) data as well as qualitative, more detailed descriptions of the person's life history, were included. Throughout the process of development the problems of key areas that were missed were taken up and addressed within the design of the psychometric test. For this reason it should be noted that it is vital that this data and the theories underpinning this work be read as quite radical departures from standard ways of thinking about data collection, assessment, and the treatment of traumatic processes as separate or unrelated. It is this degree of mindfulness and intent that also needs to be included as an innovation created through the work. Particularly, the data should be read as the first attempt to develop an entire coherent system to bridge as many of the big key questions and issues to produce valuable information for comparing different samples across the essential trauma factor critical areas both of negative and positive aspects of functioning. Additionally, it is important

to be able to compare the psychometric data with cross-validating the new integrative STAT test to push the theory and practical application of these elements to have a coherent model. There is also a considerable value in further evolving this model using feedback (see diagram on the following page 174). This newer approach, based on the *ICDS Model/System* (Copyrighted Richard Sherry © 2011) combined with highly significant evidence of the validity and reliability (see Appendix X, page 259 for full information about the STAT psychometric) and taken as an entire picture, this project works to integrate these separate areas of thinking into a coherent integrated picture that includes in its design an intention to compassionately improve people's quality of life.

It is important to conceptualize that this computerized psychometric test has integrated clinical research and thinking that connects to processes from every level. This includes work by Wheway et al, (2005) outlining the perfection of this negative/positive adaptive system, in adapting or overwhelming in regard to the stress response. In summarizing their study, there is a bimodal directional role that magnifies the T cells immuno-cellular response that can lead to immuno-suppression.[13] This ties with new findings with genetic cellular expression where certain genes can be turned on and off, which in animal models (and believed to operate with equal strength in human) learning can literally "be switched off" (Koenen et al., 2009).[vii] This is even more interesting when connecting what looks like the bidirectional impact with oxytocin as a way to significantly better manage stress and stress hormones as a way to override the basis of positive support. This switching off is most fascinating in resolving the critical question of what happens with conflict or blocks where many of these systems become utterly stuck when this gating system is triggered. Therefore, there appears to be important neuro-chemical responses to stress that organize mal/adaptive multiple processes even in the case of abuse changing oxytocin into a dysregulation neural-hormone (Schore, 2012). This level of detail has been examined to try and align many of these unbelievably complex processes to begin to look at fundamental organising principles to 'capture' a much more real-world feel to human dynamic functioning.
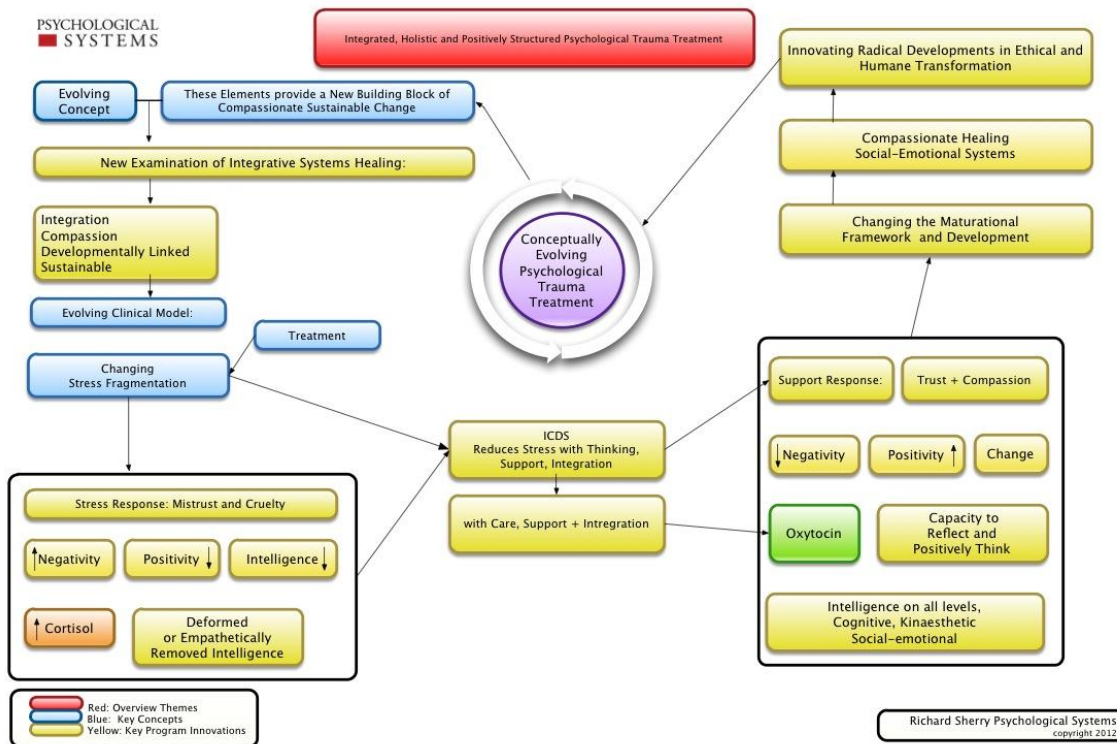
This diagram (x.3) shows some of the processes and methods to reduce stress and increase care and support to positively change a system.

Scott and Stradley (2001), similarly to Hart (2006), have examined the relationship of the psychobiology of PTSD in clinically relevant models and found biological underpinnings a useful approach to account for the dysregulation as well as clinically relevant approaches for treatment of stress related disorders. Newer conceptualizations of the relational processes within brain maturation dependent on caregiver responses (Schore, 2012, 2003a&b, and 1998) have been helped with findings about the relationship of the prefrontal cortex, the hippocampus, and amygdala (Shin et al., 2005). The integral relationship these structures have to the anterior cingulate cortex (Shin et al, 2007; Etkin, 2008) is in how conflict in relationships is managed. This relationship may even organize memory or lateral thinking (Vogt, 2009). This psychometric test works to capture this level of block/fragmentation and works to look at how to improve and even heal these difficulties on individual or even group levels of development. This can happen by properly assessing fundamental issues that are usually missed; highlighting what these are and also having a feedback system in place, which can help the individual, unlearn problematic thinking or behaviour. The author has also readapted these essential clinical psychology findings so the outputs can be helpfully linked into different multidisciplinary frameworks, including education (learning itself), aesthetic medicine (concepts of inner and outer self), extreme medicine/conservation medicine (complex external environments), and HR/organisational consultancy (larger group social processes). As previously outlined, this model is not thought of as static and is designed to move and evolve with the needs and demands professionally required.

In addition to the psychometric testing platform and the company Psychological Systems Ltd. (2012), other applied manifestations have been developed that use the *ICDS* (Copyrighted to Richard Sherry © 2011) approach to healing and health. One of these programs is developing the Young Global Leadership Program (Sherry in Press), and the Course the author has written (in Appendix XIV). These are examples of the applications of this developmental concept to *Integrated Systems Healing*.

In the Young Global Leadership program, the author's company (Psychological Systems Ltd.) works with younger students to develop high-level leadership training beginning from an early age. Equally the course and collaborative think-tank that the author has co-developed working in collaboration with a Emeritus Professor of Vascular Surgery from UCL and a retired Military Colonel and Barrister to design plans to address social isolation and hardship to work collaboratively. One of the direct applications of this neuro-developmental thinking is the Global Leadership Program (ibid) for which work is being presently undertaken to see if this programme can run hand-in-hand with a similar programme aimed at older adults helping to take care of and support other adults. This program is U4U—where a socially supportive environment is created to facilitate companionship and mutual support for older populations. The author has been working to build a sustainable bridge so the disenfranchised groups of younger people can work together to support and mentor each other thus providing a critical missing link where the social structure has broken down and needs to be repaired. This innovation in compassion-based social support (Gilbert, 2005b) provides a key pathway to improve quality of life and heal social aspects of functioning.

Both of these programmes, Young Global Leaders and U4U work to create environments that teach leadership. These are a culmination of one of the highest levels of social neuropsychology and compassion is socially critical for higher-level development. The depth of change that is possible with this new kind of leadership (or change development) becomes significant when one begins to look at the patterns of difficulties and strengths or themes that emerge in the development and cultural history of social relating often connecting from multiple generations in a family or over the wider scope of organisational history. Both of these programmes holistically work to reduce vulnerability and to strengthen aspects that if left unaddressed could foster negativity or distress. Alimo-Metcalfe (2005) highlighted that the single most important factor in leadership is empathy or emotional intelligence. This finding does connect to the previous discussion of the importance of understanding intent and what implications owning this level of vision, belief, and forward planning related to change management (Mintzberg, 2007). These are higher order brain social and emotional processes working within resiliency. Equally, psychological mindedness in pathological attachments with early maladaptive schemas (EMS) (Mason et al., 2005) contains meta-narratives that restructure much of the perceived/accessed-shared reality. Findings support a general inverse relationship between early maladaptive schemas (EMS) and adjustment, where the more maladaptive, the worse the adjustment. Partial support is seen for the opposite—where the positive relationship between psychological mindedness (PM) and adjustment (Petrides et al., 2004) can also be seen to protect and facilitate problem solving. In looking at how we can do this on a social level, we can radically restructure vulnerabilities and positive/creative problem solving. It is this shift from threat detection

and response to greater social-emotional and cognitive flexibility and problem solving that is a key transition in what this project is able to bring to bear on collaborative development.

From this standpoint, leadership contains key change agent responsibility in sifting cycles and patterns in relation to vulnerability and resiliency (Negative/Positive) functioning. In applying these findings it is likely these differences in levels of negativity could also be applicable to understanding effective versus ineffectual leadership as being a significant part related to the levels of negativity thus impacting on emotional intelligence (Goleman, 1998) and socially creating linked and coherent problem solving.

Concepts like Emotional Intelligence or psychological-mindedness have convergent properties with these higher-order positive structures (Salovey et al., 2004) and moderate the effect of stress on memory and attention during stressful conditions (Mikolajczak et al., 2009). A key question is understanding how, as researchers and clinicians, we may begin to understand the layered concepts that would be of most clinical relevance. This project has outlined that looking at using evidence-based problem-solving to improve clinical assessment models, linking systems to develop applied tools, ethical approaches, and social innovations can help establish a coherent theoretical underpinning. Much of this innovation has been brought together within a working company (Psychological Systems Ltd.) that has been built through the development of this project. The author is working to understand how broad a positive social effect this change could have on improving vulnerabilities and strengthening resiliencies to improve people' well-being and helping to further develop a future vision of what this framework could be able to develop over time.

Contextualizing these findings to the inter-relationships of individuals and their supporting systems highlights the profound importance of understanding how defragmenting and identifying the patterns, and in establishing how pervasive these trends of vulnerability (and negativity) and resiliency (and positivity) are. Additionally, working to improve baseline levels of functioning can change systems and how the critical social-neuro-psychological interface can encourage sustainable positive leadership and change. Moreover, these findings offer a significant window into changing the focus and technical innovations within clinical psychology trauma treatment where the clinicians capacity to properly transform high-levels of negativity and facilitate positive emotional growth alters the dynamics of vulnerability towards strengthening resiliency. Moreover, this appears to alter every aspect of intellectual (IQ) and emotional-social intelligence (EQ), and the related findings on somatisation, dissociation, and numbing point to the importance of areas of neuro-anatomy, like the insula, and trauma's distorting physical effects on aspects like kinesthetic intelligence. From clinical experience with properly treated patient-reports there appear to be significant and meaningful transformations in increasing the capacities within patients experience, related to these areas of having a better linked up communication throughout the multi-disciplinary (MDT) team.

Section Summary

This section highlights the integrated vision of this project and looks at what profound capacity for change occurs when vulnerability and negativity are significantly altered in such a way. This frees up greater levels of capacity and heals the socio-emotional and cognitive aspects of intelligence. When dysfunctional, it can work against the self and be used to attack or undermine; conversely when healed it can release significant degrees of creativity and compassion. In looking at changing the social systems with vulnerable or disenfranchised groups, *Integrated Systems Healing* and the *ICDS Model/System* (both Copyrighted to Richard Sherry © 2011) provide tremendous innovations in ways to work systemically and holistically improving people's quality of life, their health, and the depth of their social relationships. This is an important conceptual development that draws on all aspects of science and the healing arts (Varma, 2011). The process of thoughtfully following through how looking at the gaps or misfit of information can provide valuable information that can provide better assessment capability as well as assist in intervention areas, for example with using tools like, psycho-educational learning opportunities or focused learning opportunities within organisations.

Summary

In sum, the completeness of this conceptual approach has necessitated practical innovations and social processes to be implemented. Both function to help co-evolve further refinements and new ways to improve the human condition towards a platform of compassion and to reframe them to be able to grow from these difficult challenges towards what the author might consider a framework of limitless learning, where intellectual capacities are not used in destructive or nihilistic ways. Instead, the work developed within this project can be used to precisely assess a global aspect of functioning, and a process of unlearning more problematic modes of being. These can be supported through compassion-based learning platforms (some of which are virtual as exemplified with the STAT and some community-based projects such as the Young Global Leaders Project or U4U). This project work exemplifies holistic and multi-disciplinary frameworks whose intent is to facilitate healing, creativity, and meaningful levels of engaged development.

Chapter 7: How has the DProf and the doctorate project influenced my own professional practice?

My professional identity as a clinical psychologist and a specialist in trauma has helped me develop a depth of responsibility for how I can positively impact my patients and the people within their lives. These standards of excellence, described within the field of medical professionalism (Spandorfer et al, 2010), have helped me to appreciate the values espoused by Beauchamp and Childress (2009): non-malfeasance, beneficence, social justice, professionalism (e.g. trust, and honesty), patient autonomy and good moral character. By patiently examining the literature and the practical challenges that emerge out of lived work-related experience (Roodhouse and Mumford, 2010), I appreciate more where the gaps emerge within the theory and how my expertise can provide solutions that can innovate beyond where the current standards of thinking have left off. For example, I have been working on a framework (see Sherry, 2012) to resolve some of the inherent current ethical contradictions (see Misselbrook, 2004). This approach of thinking beyond the current horizons of professional practice, I believe, is captured by this high meta-level development in thinking, that has been clearly described by Fook's (2006) reworking of the "critical" in critical reflection. To move beyond current thinking, one has to find highly novel and very effective solutions thus including a broader focus and understanding (Bush, 2008) while at the same time capturing multiple levels of detail that have been previously missed.

The doctoral training has helped me to appreciate how this process of problem solving integrally links to an understanding in a two directional way. First, this professional expertise requires that one needs to deeply understand the context and the historical development at work within the issues under examination. In better appreciating how to move beyond the blocks or difficulties towards a lived experience of well-being requires expertise to integrate disjointed gaps in understanding, communication, and functioning to ensuring there is a clear evidence-based narrative to design interventions to improve where these problems lie. Second, valuing the feedback that emerges from evaluating the learning outcomes that are part of my working practice, and developing my expertise that underpins my own work-based learning improves the integration and communication from the entire process.

I would characterize my experience of professional change as an emergent thoughtfulness, awareness, and a capacity for transformation that is linked to the completion of this doctoral project. I appreciate in a new way the unique interplay of experience and learning that pushes me to understand *any* material I am working on with much deeper levels of integration, *with a feeling of compassion* accompanying this thinking. For example, I compare clinical psychology, with social neuroscience and political psychology to see how these different areas of learning can inform and address blind spots within the other fields. I am continuously aware of how I can implement my learning throughout my life and within my professional field to help reduce suffering. To further explain the influence of my project and the doctorate course on my professional practice, I will discuss how changing the professional, conceptual and philosophical tools have redefined how I understand learning and health not just as ideas, but how these also contain profound emotional capacities.

Introduction

My doctoral work has provided an opportunity for me to develop expertise to address the complex issues within emotional dysregulation and vulnerability. Part of the goal that has emerged out of my professional doctorate has been to better understand these dysfunctional states and develop effective interventions towards helping to heal these aspects of psychopathology to move to less fragile, and hopefully more resilient, and highly performing capacities.

The first step towards this kind of change is an evaluative assessment. Understanding is critical in responsibly committing resources to the building of meaningful projects, which can be a serious challenge. Rugg and Petre (2004) describe this capacity for authority, which is a prerequisite for a change, as a pre-emptive accountability for individuals as well as for social groups. This doctoral experience has helped me move from a sole interest in the individuals to better understand my further specialist training in-group processes. This work has improved my ability to critically revaluate both individuals and systems as interconnected processes and appreciate how they powerfully influence one another.

These changes extend beyond the completion of this project, bringing into my everyday professional practice the goal of working to create a sustainable and meaningful change—of seeing myself as a leader and owning this level of responsibility. I am working to make my professional thinking and my reach more accessible and relevant to others. For example, in placing my STAT psychometric test online, it has provided other clinicians with a new helpful tool with which to accurately assess their patients/clients (for evidence please see the psychometric section within the company website: psychologicalsystems.org). From a broader perspective, it remains my intent to help and create an accessible assessment and a performance enhancement package that can help the person learn how to understand and better themselves.

The professional impact of my work is changing. For instance, I have presented my research at an international conference at Cape Town, South Africa this summer. I am also beginning to look at publishing some of my work and creating a second major psychometric test which will examine ethical, moral and educational functioning, along with how to innovate individual scores to link them to larger social dynamic processes. The scope of what I feel I am capable of within my clinical and research work has drastically changed, particularly how trauma assessment and treatment are approached, potentially on an international scale. I did not expect that I could have even considered this responsibility for changing clinical interventions at this level of impact when I started the doctorate programme. For example, much of my understanding of learning environments, before I began the doctoral programme, did not factor in understanding the experiential aspect of learning, never mind where I feel I have arrived by the end of this doctoral experience to innovate creative solutions into seemingly intractable problems. I have contributed to a journal article (Weller et al, 2010) about the challenge of understanding the dynamic process of organizational change and surviving the often-difficult impact on the person innovating this leadership change. Much of this work has formed the seeds of developing a new organization to address these issues on both a national and hopefully international scale. Along with a colleague and friend I have developed the Institute for Applied Social Innovation (IASI), whose vision

statement is to address practical and meaningful solutions to help heal many of the challenges that have not been able to be resolved, as many of these difficulties have not been understood as part of traumatic processes. Much of the splitting and siloed effects that have stopped successful solutions from working will utilize the ICDS model developed within this project and use this helpful framework to look at improving the world through these contextualized principles and a practical psychological tool (see Appendix XIII, pp. 339-399).

Status of the STAT within the doctorate in relation to the concept of Integrated Systems Healing

The professional insights mentioned above raise some valuable questions. Specifically, how does this doctoral learning relate to my development of the STAT psychometric test? I will look at the status of the STAT psychometric test in relation to the concept of Integrated Systems Healing (Sherry, copyrighted 2012) and discuss how these areas interrelate. First, I will briefly summarise some key factors of each area and discuss how they have influenced my professional practice.

My professional expertise within clinical psycho-traumatology has deeply influenced the questions and methodology that has underpinned my STAT psychometric test and psychometric learning platform. I have developed this tele-medicine approach as a tool for identifying points of unnecessary fragmentation and incoherence. Within this doctoral thesis, I have outlined how underlying effects of trauma and stress-related disorders are linked at a core level with the biological, behavioural, and social processes of dysregulation. The supporting theoretical framework of the ICDS model provides a philosophical and practical approach to sustainably and compassionately re-integrate and repair these processes towards evolving a more fully functioning system.

The Activities Involved

The research, development and implementation of this project, along with the STAT psychometric instrument, form a part of the realised manifestation of the DProf work. Much of this thinking has integrated into a relaiable application of this thinking, which is outlined within this paper and where output has been to develop a highly relevant clinical psychometric tool.

What Has Been Produced:

Part of the professional attainment of the doctorate is dissemination of new outcomes of knowledge. I can trace the development of this test back to two main sources.

Most importantly, my professional experience helped contextualise the first-hand problems that would be missed or would not be deemed relevant for a researcher. The Sherry Trauma Assessment Test or (STAT) was developed out of severity of complex clinical cases I was required to assess and treat when I headed the clinical psychology section for the US Military inpatients Treatment Centre for Europe, based in London. I began to question whether there was any

available psychometric test instrument that would be comparable in its scope and accuracy to the medical equivalent of what an MRI scanner can do for visual diagnosis of physical trauma. Specifically, this problem of assessment was contrasted with my experience of working with my father, who is Associate Professor of Neuroradiology at the Virginia Tech-Carilion School of Medicine, where within his medical discipline, there is a much greater concordance and consistency of diagnosis as opposed to the field of mental health. This professional combination of significant need within the face of extreme necessity along with an awareness of the shortcoming of standardised psychological psychometric testing created a professional opportunity for substantial change that I took up with my doctoral dissertation.

The professional practice outcomes for this project include a reliable and validated new computer-based psychometric test and a supportive telemedicine approach that has a new testing innovation to be able to look at positive and negative processes, which can be benchmarked as very healthy, ordinary, clinical, and severe. Each of these individual scores, within these 23 functional categories, is examined to look at important developmental time periods. The psychometric test is designed to examine a clear and reliable psychometric strategy to produce a superior psychological assessment. Each of these aspects is organised around a much more integrated neuropsychological trauma approach. These aspects are then linked to a computer-generated report. These aspects each have definitions, and e-learning resources, that are designed to provide a flexible tele-medicine assessment and an initial approach that has been modified and diversified to be able to address many of the central problems seen within the areas of clinical psychology, education, organisational / HR work, extreme environments, aesthetic medicine, and client interface.

I have spent considerable time in and around valuable and complex learning environments and have accrued a benefit from understanding the human psychological interface within each of these sub-specialties. I am currently working on the informatics and the quantitative frameworks, with the aim to link up the individual scores to provide insight into group dynamics, personality and developmental factors integrated within a dynamic social context. This work has helped to quantitatively revaluate the present core model of trauma, proposing that emotional or psychological negativity may be a more accurate measurement to evaluate significant contributing effects on psychopathology. The new trauma model, taken together with a pathway to qualitatively examine the group social process, could offer valuable solutions to a series of longstanding problems (see Appendix VII, page 268) including how we dynamically socially model these personality and developmentally model these within social spheres of interaction (see Appendix VII). This product of the telemedicine psychometric test has changed my professional practice. It has realised my goal of creating an integrated and reliable psychometric test (as well as a limited liability company to support this work) that can consistently assist clinicians and patients with clear guidelines to understand what are the issues (both positive and negative) that are affecting them in a dynamic and developmentally accurate way. This inclusion of the social-neuroscience (Decety and Cacioppo, 2011) to match up with Fook's (2006) idea about inclusion of the individual, within the social context, carries the possibility of marrying the best description of work-based philosophy from my occupational specialty.

Moving from the theory and the creation of a dynamic modelling system (see Appendix XIII, pp. 339-399) uses this data to then accurately provide a clear evidence-based practical approach to inform psycho-education and better inform treatment interventions, capturing some of the goals of the work-based doctorate (Portwood, 2000). Portwood's (2000) model in examining the balance between intelligent scepticism and focused intelligence (in the way *I* have looked at his work helps) to evolve Schon's (1983) reflective practice where experience changes one's professional horizons and reflecting on improving one's learning that can then be reapplied back into one's professional capacity. With Portwood's (2000) former concept, (intelligent scepticism), there needs to be a curiosity to enter into uncertainty and not readily accept what one is offered. However, this needs to be counterbalanced with using the second capacity, (focused intelligence), and using one's expertise and skills-base to facilitate learning varying levels of depth to appropriately helping meaningful narratives emerge from the data that is evolving from a co-created work within a collaborative professional partnership—whether it be a patient or organisational narratives. In sum, learning requires accurate and contextualized meaning to emerge from the work collaboratively undertaken.

What Difference This Project Will Make:

The status of the STAT psychometric test needs to be understood in relation to the concept of Integrated Systems Healing (Sherry Copyrighted, 2012). Both of these concepts necessitate an inter-relationship where the STAT psychometric can be understood as existing within a holistic clinical philosophy framework that aims to facilitate this dialogue of accurate meaning to emerge within individual narratives as well as possibly precisely linking these together to form larger social narratives of meaning. The innovations developed from this doctoral work provide a platform and a new methodology that uses negativity as possibly as one of the best predictors of clinical pathology and function. Additionally, this process of negativity could be a major contributing factor to the emotional dysregulation of trust and care within the individual, and this equally operates within the social group as well. Thinking about the differences or gaps in comparative practice has helped me re-examine a systematic methodology: to test several key hypotheses within the data and to examine the meaning and context of these findings. I feel that using creative problem solving capacities within this professional degree has pushed and changed both my practice and the enfranchised responsibility beyond recognition. The multidisciplinary nature of the training has linked together my numerous higher-level degrees and trainings I have undertaken (or nearing completion). This cross-training forms the basis for the interconnected 'trans-disciplinary' thinking that Critten (2009) so crucially emphasizes as being a core component to the DProf doctoral work. The concepts of Integrated Systems Healing and the STAT operate together within the research methodology and development of the evolving tele-medicine platform.

Within this doctoral project a clear methodological framework of psychometric testing and quantitative analysis has helped an integrative approach with the STAT platform to create clearer meaning from the patient's subjective reported experience. What does my expertise bring to this process of research methodology? I would say the professional challenges within the discourse of colleagues and conferences (for example, a recent conference, ("Is Virtue Ethics Good Enough?"), and the challenges patients ask their clinicians (what does it *really* mean that I may have borderline personality disorder or Asperger syndrome?"). Cutting-edge questions such as these have not been

satisfactorily answered. There is an interconnected interface between the challenging unsatisfactory realities of the everyday working environment with patients or the screening needs of ordinary organizations. These needs are contrasted with the possibilities of what theoretically could be presented or improved (what is the missed potential) within all aspects of the working environment. Trying to look beyond an overly simplistic prediction or explanation of the individual, and the social systems level requires a combination of reliable and valid evidence to systematically ensure best practice is achieved to accurately account for these differences. Part of what has changed with this project has been a better appreciation for the clarity of this information, as well as underscoring how much remains unknown.

This project represents a reflexivity of thinking and learning that can improve the quality and potential outcome of these processes by trying to really reach into and more closely assess the psychological aspects of human beings and their social relationships. This approach, and the information it reveals, is privileged and must be respected with the responsibility that is commensurate with, and goes beyond purely medical information, because the person's emotional feelings and life are also bound up with these aspects. For instance, my clinical experience and knowledge helped me as a researcher with the practical problems of many of the complex patients I have treated. In correctly addressing the clinical problems it is possible then to help people move towards greater health and well-being. With these insights I can possibly change my professional field to improve the models and effective kinds of interventions that could be used.

b. What is meant by a 'new reflexive approach'?

New definition of reflexiveness

It has been exceptionally difficult to predict the learning outcomes that have naturally evolved from this project. The findings, that I am beginning to look at now, have meaning within the gaps of information and how we can begin to understand the contextualized aspects of learning. One of the qualities, which I think makes this project different from others and worthy of the doctoral level work, includes the meta-theoretical revaluation that potentially can be reapplied to any field. It is by looking at the gaps and what might account for this discrepancy in integration—e.g. by reading the fault lines and examining possible ways of connecting where the problems are and what might account for these issues and what are the consequences these elements bring with them? In better understanding human learning theory and the importance that aversive learning plays (Walker, 1984), there is a new understanding in looking at individual and organizational trauma and ways that distressing highly charged emotional learning experiences (see Jarvela, 2011) (especially if these are repeated, for example, in violent homes), can shape personality development (Lanius et al, 2010). One of the other aspects, that was a complete shock to me, was the learning outcome of looking afresh at *how we learn* and the subjective/objective interrelationship in learning theory (Schunk, 2012) and how this can profoundly change the experience, the knowledge, and the quality of outcome (e.g. the application, quality of understanding etc.) by connecting up insight into how these processes can be improved. For example, knowing how our memory or motivation works can possibly facilitate change that may not have been achievable before.

The completeness of the process of learning in my doctoral project, even to examine the discipline and process of learning to bring together the best of the theory and link it to many different aspects of my own experience and that of my practice (both my research and my clinical work) has been a revelation for me. In being able to see how in re-evaluating the foundations of knowledge and understanding (for example, how my ethics course helped me in reappraising how the main ethical theories contradict each other), these confounding factors do have an effect and have largely been neglected by the central thinkers within ethics. Furthermore, in solidly working through these problems, reappraising these issues, this more reflexive process permits a greater chance to think and understand how well information integrates and also the emotional value or implications for following these processes through to their conclusion entails. On the first level if there is a problem with how information links together: For example, with this project, the problems inherent in properly assessing psychological traumatology with its lack of clear definitions, benchmarking, and agreement on what are the issues that underpin psychological distress have been highlighted. The second level, if there is no real cohesive order to what the issues are it is therefore relatively unlikely that any valuable emotional meaning can be drawn, which further undermines good treatment and outcomes. This project tackles how these roots of understanding dovetail into improved assessment strategies, how an integration of the best approaches can also link into a process of feedback and a development that pushes the forefront of telemedicine.

Professional development as highlighted by Reid et al's (2011) shift from the "expert student to the novice professional," asks that we are able to strategically have the expert knowledge and technical capacity to take a step back and be able to critically reflect on the professional ritual's that are inherent within and outside of professional fields. I understand these to occur in a by-directional manner where the professional has expectations about himself or herself. The professional holds another overlapping view, and the interacting social sphere modifies all of these conceptions. New thinking does not easily find a place to redefine how any or all of these stakeholders will effortlessly take up the practice or technical innovations. This reflexiveness also includes understanding the limitations or caveats on the knowledge claims within both the methodologies chosen and the problems inherent in any study. These limitations raise new questions and problems that require future work to address and try to professionally integrate into a growing but circumspect knowledge-base that can weigh-up these conditions without disowning the process nor the information found. This must be contextualized and conditions placed on this information on many levels.

The link and integration between innovating my own practice and research has been essential. Critten (2009) has described, "At the heart of the DProf is bringing about change either to a profession or an organization (p. 34)." Psychological Systems Ltd. has been developed to change the profession in many ways. This doctoral research has pointed to a possibility that aversive learning is one of the strongest biological paths to learning. To ignore its effects as a central concept in educational institutions (or even our clinical environments) could significantly reduce opportunities for improving learning development (or healing). These concepts and the professional impact that could evolve from having greater accuracy from the definitions as well as a more coherent model of the spectrum of illness and well-being changes the vision of what individuals (and their capacity for positive leadership) and how healthy

organizations can evolve into healthier places. Critten goes on to emphasize that DProf doctoral work needs to be "trans-disciplinary" (p. 34). Again, my conceptualization of reworking this philosophical perspective conceptually and critically pushes the idea of a "trans-disciplinary" approach to examine the communication gaps in integrating the inconsistencies and to look at valuable information that might be missed to find new opportunities to facilitate meaningful change.

The most significant change noticed during my doctoral experience was from accruing and consolidating my professional knowledge and expertise to thinking differently how to meaningfully own the process and responsibility of change. The definition to the process for me feels like it has gone full circle to transform how I see possibilities of development wherever I am now that never would have even occurred to me. Also, more importantly, what has shifted is how I feel I can help others properly become responsible stakeholders within this process themselves. I have noticed I have developed the capacity to be proactive and, when difficulties are encountered, how I can see challenges as a new space for my own learning and development as well as how I can use my expertise to improve practice around me. For example, during my Conflict and Catastrophe Medicine Diploma course, I discussed with the course organizer the areas that did not integrate in the syllabus and what impact this may have on the student's understanding of the material. The course head asked if I could redraft a more integrated version of it, which I did. This work eventually facilitated having a new approach, a new course director was appointed, and a revised syllabus (based on the work I had carried out) was put in place.

This project has changed how I reflect and has encouraged me to think differently. When I compare my experience and my vantage point as a student to the larger frameworks that organize or underpin these experiences, like looking at learning theory (Schachtman and Reilly, 2011) these two perspectives permit a much clearer three-dimensional view of the educational process. Where things do not clearly match up (what/who) facilitates the critical thinking capacities where I can better employ intelligent scepticism (Portwood, 2000), or a constructive awkwardness (Naylor, 2008) to think at a deeper level about my work and myself within this process. One critical aspect I hope this doctoral thesis demonstrates is this process does indeed change practice. The evaluative processes of questioning needs to be counterbalanced, to integrate information with the goal to innovate a way to improve on the person's sense of well-being and understand the value of intellectual capital (Garnet and Gibbs, 2007). As in this instance of the Conflict and Catastrophe Diploma, it requires an entire path of compassionate, but critical thinking about aspects where there are problematic gaps, asking challenging questions, and engaging in a social process of responsible and sustainable change. In this case, I have been working to have the faculty allow non-medics to take the exam to become part of the faculty. Up until this time only medical doctors, dentists, and nurses, could be permitted to take the exam. My vantage point of constructively challenging areas where there are problematic gaps—from my experience can facilitate very important innovations that improve the practice of everyone who comes into contact with these changes.

In trying to integrate some of my thinking about this project, I have come to better appreciate how I have lost some of my authority or power by not more fully owning how I see my clinical tools and the theoretical frameworks that could

be applied to real world problems. Some of these shortcomings are a function of being able to slowly reflect on my work, versus being caught up in the research process to develop the test or being focused on a clinical treatment case rather than take grater ownership of where my work and professional life has been heading. Some of the research findings, which could very much have an important impact on the larger world, include the likely link between stressful environments and the partial nature of the integration of information. For example, during my research I found from the literature search explored within this thesis that there had been shockingly little integration within any of the fields of contextualizing and integrating the spectrum of clinical psychology with positive psychology. If as I described earlier within my literature review, ethically and morally clinicians want to reduce the distress of unnecessary stigma of a mental health condition it makes perfect sense to properly contextualize this relationship. From this perspective of arguably not going beyond a reactive fear of stress and mental health conditions, the larger clinical field unknowingly reinforces the very issues it is trying to address, thus making things worse. It is therefore important to be able to professionally work to create change that establishes a responsible relationship between methodology, understanding, philosophy, and professional product (Scott, et al., 2008) beyond merely capability and competency. Much of these changes require creating collaborative working environments.

The doctoral training increases the knowledge and skills-base to identify weakness or gaps in how systems are functioning. More importantly, the strategic use of this understanding helps develop an effective methodology to create a sustainable or shared intervention/goal. In being able to professionally and ethically work from one's vision to sustainably realize these leadership and management outcomes is much of what the professional doctorate teaches. As well, without losing the unique developmental and personality picture this psychometric test integrates this rich information together. Much of my STAT psychometric has brought me through the many layers of literature review to examine the question, develop the tools to test and refine the validity and reliability of the measure, and determine how this could fit into a larger clinical psychology picture of assessment and treatment. However, now the clinical tool has been created (along with further developments such as innovating structural equation modeling to link up social processes, and web-based treatment e-learning modules), there is a question how these tele-medicine technologies might be further implemented and what are the philosophical innovations that may come from these developments.

The second aspect I have become professionally focused on was developing a method to advance these learning points to improve not only the individual, but also to increase the well-being of the social environment. Much of my university interest was focused on the impact of social collapse and dysfunctional organizational processes versus how could these detrimental processes are significantly healed. These questions could be addressed in my doctoral project and examined with Integrated Systems Healing, which includes the ICDS Model (see page 340) and contains within it an innovative way to quantitatively test for these social issues using a structural equation modeling (SEM) to examine these inter-relationships (see Appendix VII). This holistic framework could identify issues that have not been addressed (or have been missed) that could lead to innovation and important improvements in people's health (mental and physical well-being). In being more able to thoughtfully contextualize the problems and look at ways these issues

may be healed has helped me understand how the doctoral framework I have developed can be learned and further assist in developing a potentially truly compassionate environment.

The struggle I have found during throughout my doctorate, and this has been an issue that I have tried to thoughtfully digest and reflect on, is how to meaningfully put this understanding into a legacy of valuable and benevolent change. I feel increasingly by trying to work with the greater social context to ensure meaning and value they are found from the interventions that are emerging within the therapeutic work together I have been able to help my clients and patients be able to better understand themselves and their relationships on significant scales. I recognize I am trying to implement the degree of healthy change within individuals or systems that can prevent dysfunctional outcomes, but this vision and degree of change offers many challenges including the need to have supporters or stakeholders to help assist with this mode of transformation.

I have come to understand there is a quality of learning, that for me has evolved, that can be summarised as a kind of compassionate wisdom. Different kinds of knowledge can philosophically and practically affect change in different ways. Starting with a deeper conscious intent of health and well-being and working to try to support these changes in the right way (e.g. to compassionately reduce vulnerability and to strengthen resiliency) increases the likelihood of meaningful change occurring. Critten (2009) highlights three areas that are at the heart of the DProf. These aspects of work-based learning include practice that is trans-disciplinary, the learning needs to be evolved alongside real-world problem solving, and collaborative working is essential to assist in these levels of large-scale change.

This reflective capacity has evolved to where I feel I have been able to look at the concepts or experience again in a way where completely new possibilities emerge in ways that may have not been thought of before. For instance, during this project my exploration of learning, especially the neuropsychology of learning where there is knowledge in looking at gaps in the integration of how aversive learning can strongly organize experience and educational aspects of learning. By applying fields that would not necessarily traditionally have been connected, like behaviorism, education, neuroscience, and leadership; these areas could offer better opportunities to overcome previous shortcomings in how learning is designed and developed.

Possibilities

The professional context and how changing the professional and conceptual/philosophical tools provide a possibility to redefine how we might understand learning and health or well-being. Being able to critically reflect on the gaps in the information to be able to use these insights has helped me deepen the methodology within this project. In sum, 'how has the DProf and the doctorate project influenced my own professional practice?' I would answer this by pointing towards using the tools to develop a framework to address how stress or trauma appears to disrupt the integration of information; how fear increases the likelihood that responses will be reactionary and non-compassionate; how de-contextualized experiences are likely to not be appropriately linked to the level of development or intervention needed for an individual or environment; as well as how most approaches are most likely

not going to be sustainable. My doctoral project has helped me look at how I can focus on working to make high impact and meaningful change that is valued by everyone involved.

Summary

To reiterate the key points made within this section and to give greater professional context within my project I would include:

My professional experience of working has been greatly deepened through my doctoral project with the focus on methodological research skills and reflexive thinking (Drake and Heath, 2011). This bidirectional appreciation for how understanding and problem solving are deepened with systematically examining one's working context. The fragmented breakdowns in communication, knowledge, and understanding require systematic study of these gaps. The professional challenge is to have the discipline to systematically research these areas of difficulty and to know how to use these findings to inform practical solutions that can change professional practice.

Ideally, the working environment will also improve fundamental aspects of the quality of life as I hope this doctoral project both practically, with the advent of the validated assessment psychometric test and supportive tele-medicine treatment e-learning modules can significantly contribute to well-being and philosophically has the potential of changing both professional and client understanding of many of the issues outlined within this thesis.

Outcomes of the project:

In discussing the is research with my patients and colleagues, who are familiar with my work, there has been a genuine appreciation for the work that has gone into this project and how both in the intent and clinical outcome how necessary this work is in facilitating change and development in a deeply meaningful way by everyone who is involved with the assessment test and the (ICDS) theory that underpins this work. The STAT psychometric test builds on several new innovations including development of a new dynamic structural equation modeling (SEM) (see Appendix VII) that is just being finished as to its modeling of group dynamic effects that connects the complex relationships of individual and social group interaction, pairing these findings with developmentally sensitive life events. This work highlights gaps in connecting up problematic areas of functioning and offers frameworks to assist in helping to identify and treat these issues. Together with working to build an e-learning platform to help and make available the best research clinical recommendations for important areas of psychological functioning, this integrated approach offers a very robust system of psychological medicine that addresses many of the essential areas that can be understood to have been missed in previous psychological theories and practical approaches. I feel proud of this project and inspired to continue to develop this work further to follow these frameworks into what I can envision what it may develop into in the future.

Changes to Professional Practice:

In a recent lecture this December (Sherry, 2013) I was invited to give to the Aesthetic Medicine section, I recently outlined the challenges to a clear and holistic approach to mental health screening, especially within complex presentations in screening cosmetic surgery patients (Sarwer, 2013) where there is a high incidence of body dysmorphic disorder (BDD) and other related self image distortions pose challenging opportunities not only to potentially de-risk detrimental medico-legal action, the STAT and its evolved additional sections can allow for positive health and well being questions to be included. For example asking about exercise, nutrition, social relationships many of the spectrum of well-being not only can be consistently followed through with, but the positive end of preventative health can also be reliably examined and included as a matter of course. The different forms of the additional sections of the STAT can work as a flexible framework that can be utilised to address potentially very difficult psychological assessment problems. In addition, further e-learning, e-coaching, and e-therapy modules have and are being developed that can fit these specific frameworks. The interaction of these systems of assessment and intervention provide important opportunities to improve functioning and well-being on individual and larger social systems of behaviour. Professionally, as can be seen with the verbal feedback from my lecture in aesthetic medicine and developing a Psychological Aesthetic Medicine Assessment (PAMA) this work demonstrates how the basic application of the STAT psychometric can be used in even more creative applications that can bring the learning points from the insights from clinical psychology into other professional disciplines via the development of this clinical tool. These multiple-professional areas of feedback also provide an opportunity to see how these other areas can be equally used to improve the psychometric tools and functionality within this conceptual and theoretical applied approach (see diagram (x.1), pg 170). In envisioning an entire system of integrated and holistic care, this provides an important transition towards a clearer conceptualisation of an integrated professional multi-disciplinary approach whose explicit goal would be higher levels of health and well-being. This is what this doctorate project that been working to demonstrate how this can reliably be achieved.

Chapter 8: Conclusions and Recommendations

Central aspects of this project boil down to very clear and simple findings. The balance of positive versus negative functioning changes the functioning and quality of the individuals or systems, which are involved. Porges' (2011) model of the poly-vagus nerve serves as a breaking mechanism for the autonomic nervous system, from the sub-cortical l through to the cortical neuro-anatomic systems. In being able to change the risks, it is then possible to change problematic functioning on multiple levels, from the cellular level possibly up to the societal. This process of assessing and healing dysfunction includes many co-occurring maps of complex functions. For example, one such map could include the individual level connecting up to the essential cranial nerves, which appears to play a vital role in framing how experience shapes cognitive understanding and how anxiety and avoidance operate within the biological system. Such a map is especially specific to the amygdala fear processing system, which has an over-riding cut-out or breaking system to aid with survival. By adding a clearer neuropsychological model of the brain with different sub-cortical functioning, it can be better linked to the effects of extreme stress or fear and the impacts this has on functioning, thinking, and learning, thus moving models of healing towards an evidence-based view of emotional systems and learning (Panksepp, 1998).

This research has identified many differences from clinical to non-clinical groups in one of the most thorough studies of this topic to date. In addition, this research has resulted in the development of an integrated, underlying neuropsychological explanation of how these systems may interact in illness (vulnerability) and in health (resiliency). The project's data supports that clinical samples appear to be related to a systemic level of negativity that is relying on more primitive levels of survival brain function. These functions are reinforced within the anterior cingulate and the insula as critical brain areas, so the somatic experiences are integrally linked to the part of the brain that mediates conflict (and vice-versa).

An important question at the heart of this doctoral work is: If the cure itself is faulty, what does that mean for the treatment and the outcome? From an extensive literature review (see Chapter 2 of this document) it does appear most psychological approaches previously have contained significant flaws (Brendle, 2006). One possible answer is a very similar disconnection that can be seen, for example, in the split found between clinical psychology and positive psychology (as outlined with the problems found in the literature search) that seems to be in operation much like the disconnection with Daniels (2010b) cortical-disconnection hypothesis, or Porges (2011) poly-vagal response. As Maddux describes (2008), many of the clinical tools needed to look at the entirety of the individuals functioning—in both their deficits and strengths—appear to not only be linked, but there are other issues as well. The background of appropriate literature seems to misguide clinicians, regarding which evidence-based approaches in outlining are the best approaches and are most effective strategies for psychological patient treatment. In other words, this dearth of a

clear clinical framework has profound effects on psychological practice and understandably this would impact on patient treatment and outcome.[14]

Overview

In the broadest sense this data is presenting a coherent system, which brings much more valuable and contextualised information compared with a fragmented system. A newer fine-grained model of conflict and negativity (using survival/defensive responses) is employed when highly expressed emotional conflict interferes or overwhelms the person's coping capacity. It appears the project data supports a model where the balance of negative versus positive factors is mediated by levels of intelligence and intellectual (cognitive, e.g. IQ), emotional (EQ), and social intelligence should be seen as being ideally connected. These can be positively or negatively influenced in a dynamic direction by the interplay of external and internal experiences that become developmentally established over time. These aspects of intelligence are mediated by stress versus support, the intent of the other is central as to influencing the outcome, and then the underlying brain levels (the neuropsychological processing outlined within this paper) could play a crucial role in deciding how negative versus positive cycles of vulnerability versus resiliency evolve and are maintained or changed. Moreover, this definition of threat detection could reflect what is happening with clinical samples when high levels of negativity (which has greater sensitivity) are projected internally or externally. This is important because encouraging individuals towards higher and healthier social and emotional connectivity could be understood to be the aims and methods of clinical psychology interventions, but these must be contextualised within social-emotional environments where the conceptual goals must find a realistic path to be practically put into action.

These cycles contrast socially connected supportive processes with defensively structured protective/blocking thinking and behaviour. The very same mechanisms that are mediating compassion can also reverse and reorganize these relational processes into self-protective structures. In defensive modes of processing, social interactions with others are blocked where one might relate in potentially self-protective or hurtful ways. This negative response can elicit cruel and destructive behaviour within the person or group using earlier layers of brain processing. However, when these aspects are resolved, the data supports the *ICDS Model/System* (Copyrighted to Richard Sherry © 2011) to look at expressions of compassion and connectedness that can emerge when this more primitive fragmentation is not triggered and more social-relational processes are created. It is possible that this model could trans-theoretically cut across most problematic areas of clinical psychology treatment, including resolving a better explanation of what is to be assessed clinically, as well as how trauma needs to be looked at and treated.

Furthermore, the ways that help to work towards higher levels of development have significantly evolved and can now begin to be more integrated through innovations developed as an outcome of this doctoral project. These include the STAT psychometric platform, which has clearly defined across the spectrum cut off scores for very healthy, ordinary,

---

[14] It is worth noting that in an indepth research process looking into ethical frameworks, there is a signficiant problem with how the main ethical frameworks actually function to undermine the other approaches. See Sherry (2012 in press) for further details. This aspects of coherently healing and unifying a sustainable ethical framework has been developed as part of the extensive depth of configuring this project (see page 172 figure X.2).

clinical, and severe scores for each of the neuro-psychologically derived sub scores. Each of these aspects is also linked to a full-life spectrum developmental score. Moreover, a detailed fill-in-the-blank description for further biographical clinical data supports this assessment strategy and is included on the computer platform. This information is collected to form a clinical report, and these cut-off scores are computer linked to e-learning modules with telemedicine psychological supplementary information to help identify central treatment issues. This assessment process utilises different developmental ages as key indicators that may modify these psychological problems. Using patient personal history as a rich resource to help access and address these difficulties are all included and can be easily missed provides a very helpful pathway to ameliorate trauma. There is a supplementary resource to be able to retest the person to compare scores, and the author is looking at how to develop computer algorithms to dynamically link individual scores with both the group and organisational scores to examine how these may interact.

In understanding how this fits into a central concept of *ICDS* (©Sherry, 2011), the integration of strategies to sustainably and compassionately address these difficulties in achievable and appropriate developmental chunks of work provides one of the first holistic approaches with moving through a spectrum of problematic functioning. This will help evolve healthier modes of functioning. This approach of *Integrated Systems Healing* (©Sherry, 2011) provides a larger picture of how to sustainably address the complexities of individual and group change management. Conceptualising that, negative events (for example traumatic loss) are found frequently not only to be more salient, and thereby felt to be more important compared with positive events, but moreover, the balance of this ratio of positivity to negativity is biologically preprogrammed to be out-weighed by these negative experiences.

Becoming a reflexive practitioner (Lee, 2009) requires the professional to contextualise the processes that occur in the individual, who has sustained some sort of psychological distress, and to recontextualise these to create a meaningful picture (Bolton and Hill, 2003). Part of the task with these findings is to link these types of negative processes and emotional reactivity to explain how these may play a part for those being helped as well as with the mental health profession. If one were blind to one's own limitations and the effects of the impact of the systems one is working with, this inevitably would block the truest kind of integrated, compassionate, and sustainable thinking in how these fragmented pieces can coherently be reassembled to reveal a meaningful structure. Therefore, it is valuable to have a clearer model of how these negative versus positive cycles of processes relate to each other and the full dynamic spectrums of illness and health. Additionally, there is an order of psychological interventions required with working across the spectrum difficulty along with correcting them to reach the level of high performance and peak experience. See the diagram (Figure 6.4) below that captures this revised developmental thinking of the integration of a spectrum of clinical approaches across the degree of psychological severity and how this changes as health is achieved.
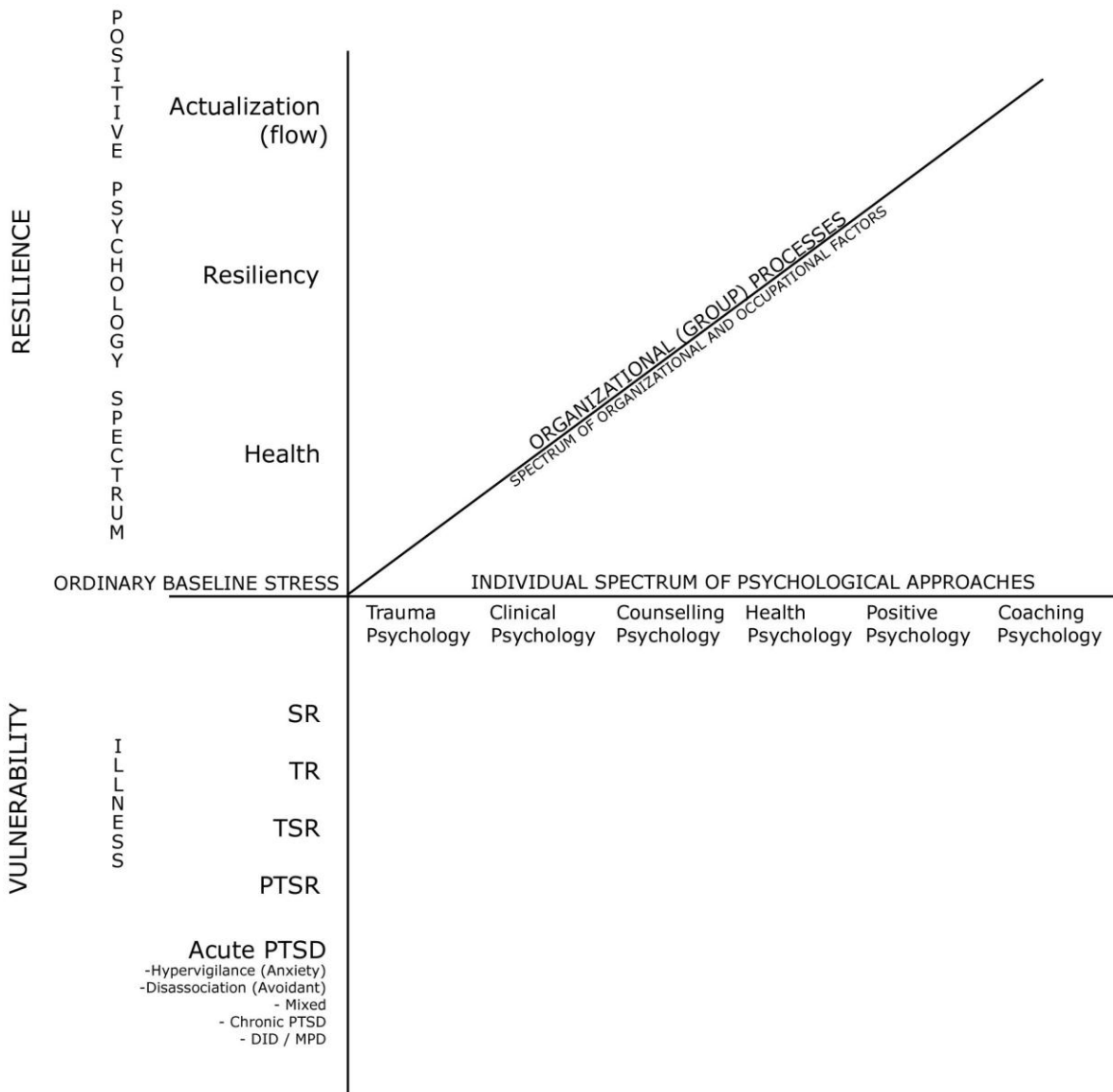
Figure 6.4 Spectrum of illness and psychological interventions chart

In analysing the results from the study there does appear to be a significant relationship between fearful attachment relationships, negative emotional experiences, and an inverse relationship to positive indicators for psychopathology including psychiatric illness. These significant relationships exists as if there are clear trends occurring both for the subjective impact of stress and vulnerability as well as significant links to early exposure, depression, anxiety, personality factors, and attachment styles. Overall, the author feels that this research makes a contribution to practice for those involved in the fields of clinical psychology, psychotherapy, and psychiatry, by developing a benchmarked standardized approach. STAT research has evolved a very practical and effective psychometric tool with a holistic supporting approach to the compassionate treatment of mental health issues that will enable the more accurate and appropriate assessment and evaluation of individuals (themselves) and professionals within the psychological and therapeutic development schools as outlined in the project.

The STAT research is important because it is one of the first more systematic attempts to look at human psychological functioning examining the effects of trauma, namely fragmentation, and to understand the clinical neuropsychological underpinning of how conflict is structured as well as how trauma or blocks can be resolved—and to attempt to try to accomplish this in an integration between individual and social functioning. Moreover, the STAT test culminates in one clear strategy to begin to address many of these key clinical treatment issues to heal traumatic experiences and reconnect healed whole fields so well-being can predominate. It does this on the individual level (including much clearer integrated explanations for the underpinning neurobiology), on the group, organisational, and possibly given more support in regards to coordinated planning, in relation to societal assessment and programme innovation.

Limitations of the Study

Awareness of Limitations with Sample Size

Correlations between and within group designs have been chosen as quantitative methods for the project's statistical analysis. This is because it offers an effective method of taking a large set of variables, particularly in the development and evaluation of tests and scales and clearly showing reliable trends to answer some of the questions relating to the hypothesis. The greater number of tests being used reduced the number of participants who were willing to volunteer or outpatients' data collected. There is a limitation with the self-report measure where using many tests can contribute to questionnaire fatigue, and other confounding factors for example, response biases (putting answers down repetitively without thinking about their correctness or meaning), recall issues, and saliency (memory confounds) can also come into effect to alter the precision of the person's answers. These issues have been addressed, especially with the 150 person sample size and checked with statistical assurances to ensure no unnecessary problems exist, which have counterbalanced any of these issues. One important problem highlighted the sample size, this N, could be supported with a larger number of participants. The number of variables explored, make knowledge claims more complicated and thus the statistical frameworks have been rigorously examined. Epistemologically it should be highlighted that absolute knowledge claims to the wider population cannot be made without some responsible reservations defining the limits of the data set size, the problems of any statistics used, and that no knowledge claims can be made without some caveats.

Equally, having all of the participants fill in every question so that data was not lost, as well as with the clinical sample most of the more disturbed participants did not return all of their psychometric tests, thereby reducing this sub-population from being more fully represented. This demonstrates even stronger division between the clinical and non-clinical is most likely present, possibly significantly lowering the scores of how different the clinical and non-clinical samples are between the two groups. However, it should be noted that this study has some limitations, which prevent more universal claims, where the samples are proportionally small, compared to having a wider comparison to the general population or society. Namely, the clinical samples were not clinically matched participants. The clinical populations were interviewed and their STAT test was part of an informal psychological assessment interview and

treatment process. In addition many of the clinical sample had an accompanying psychiatric formal diagnosis and psychiatric interview (See Chart B, pg. 178), but this process because of costs and time could not be duplicated with non-clinical matched pairs. There was an attempt to try to approximate this as best as possible given the constraints.

Strengths of the study

This project offers a link to look at the issue of psychological trauma from a multi-disciplinary framework including examining gaps within the research as outlined in the literature review and working to bridge between the individual and the social. The theoretical learning points offer a possibility that the field of learning and education themselves could be re-examined with the insights derived within this project just as much as the practical psychological issues of assessment and a connected tele-medicine computer e-learning platform offers a path to successfully benchmark and more clearly demarcate underlying and possibly neglected important contributing factors such as negativity or self-critical thinking. The development of this assessment tool has been shown to be reliable and valid, and work is presently being undertaken to join the individual psychometric scores with dynamic social psychometric results that could better contextualize the relationship between individual and social effects for mental health. This offers another potential strength for the study.

Recommendations for Future Research

In this study the author would ideally like to return to these questions with a larger sample using Principal Component Analysis (PCA) that will be analysed using version PASW data software to see if there were any underlying factors that could be clearly discerned across the data and to cross validate the findings within the present study. Work is being undertaken at the moment to develop a mathematical model to dynamically link the individual score with group or social functioning. In discussing the utility and feasibility of using factor analysis with several qualified researchers, there is an agreed consensus that even though this sample size is estimated from 25 to 50 participants for combined samples, the ideal subject participant size would be greater than the standard 150+ (Pallant, 2005) per group or ideally getting a combined sample approaching 500 participants to insure the number of questions could be better statistically accounted for. The next study would wish to better take account of this lack of test return for this sub-population. The author would wish to rerun the data with an even larger sample size to ensure the significant findings are stable across size, perhaps 150+ per group for the next study to check each sample with this number of participants. Furthermore, if greater resources and funding were available in a desire to carefully control for age, gender, and socio-economic factors, a further level of research could match each of the controlled-matched participant samples for clinical and non-clinical groups. For the next study the computer integration will include a built in inclusion for the results to retain the information about the factor categories with the developmental measurement of the age bracket if such details are present and a larger more systematic study would like to be undertaken to better account for each of the issues raised.

The examination of the interface between clinical and positive psychology has been an area that has raised important questions and the tentative claims about the lack of integration between the parts of the spectrum requiring further

evidence-based work to fully substantiate the findings from this initial work. This necessitates for this to be more clearly investigated on what might be happening neuro-chemically as well as psychologically. There is a keen interest to see how the integration of new biophysiological technology, like having the STAT integrated with a recorded heart-rate monitor, timing cut-offs, or even with pupil dilation. Work has begun to take the individual scores from the STAT test to develop an integrated algorithm to dynamically link individual scores within the context of group or organisational dynamics. Moreover, the focus on the clinical psychology interface is being widened to look at the related fields of educational, organisational, aesthetic medicine, and extreme environments as the findings for the STAT test all have relevance for human and performance factors within these fields (Ericsson et al., 2006).

Summary

In summary, the author's claim for a contribution to professional practice is that the STAT test and the theoretical innovations developed with *Integrated Systems Healing* and the *ICDS approach* (both Copyrighted to Richard Sherry © 2011) can be understood as a technological development to positively change dysfunctional processes within a wide range of areas. The clear cut off scores and system linked learning content for each area allows for innovations in access to extremely high level assessment and resources to flexibly meet the psychological health needs of a large and diverse sample.

This doctoral project offers evidence as to the importance of subjective factors over objective events where the balance of negative measures of psychopathology appears to be significantly higher in the outpatient clinical sample, when compared to the student non-clinical sample. An inverse finding of significantly higher positive psychology measures and lower psychopathology scores were found overall. These findings offer a clearer, more integrated clinical and supporting theoretical model that is significantly better in addressing these gaps within individual and larger social systems. The explanation appears to offer the possibility that psychopathology could be linked to an over-concentration between negative to positive focus on one's interpretation of their subjective experience. Furthermore, this trend may reflect a bias within the profession of clinical psychology where a problem seems to be seen with linking an integrated spectrum approach in developing a clinically useful model that does not discount positive strengths, nor unhelpfully separates out one side of psychopathology from the other end of the spectrum of psychological strengths and achievement. This integration has been used to develop both a multi-dimensional new developmental and neuropsychologically sensitive psychometric test that is in-built with specific learning content. Together these innovations within the professional field of clinical trauma psychology offers one of the most complete systems of thinking and practical advances that could possibly be used to improve health across other spectrums as well.

In conclusion, the STAT psychometric platform and related theoretical underpinning with *Integrated Systems Healing* and the *ICDS approach* (both Copyrighted to Richard Sherry © 2011) provide a coherent and important clinical pathway to dimensionally assess, benchmark, and remotely provide supportive treatment via a telemedicine approach

in a way that serves to 'heal the psychological tools that heal.' This innovation of reflexively understanding where there are trauma-related gaps that need to be resolved provides a more integrated and sustainable pathway to improve the effectiveness of compassion-based interventions. In better understanding the value and leadership potential of an individual person and how they can be part of a meaningful process of change, the synergistic effects of this approach bring a much more mindful appreciation of the significance of a healthy social environment. This work provides a critical awareness of an evidence-based investigation and reasoned steps towards the creation of an integrated model for stress and resiliency. This framework could effectively be used to implement changes on individual and group levels for assessment and psycho-educational interventions with the goal of improving mental health and well-being.

References:

Abbott, D., Davies, P.C.W., and Pati, A.K., (eds.)(2008) Quantum Aspects of Life. London: Imperial College Press.

Abdennur, A., (2000) *Camouflaged Aggression: the hidden threat to individuals and organisations.* Calgary: Delseteg Enterprises Ltd.

Abela, J.R.Z., and McGirr, A., (2007) Operationalizing cognitive vulnerability and stress from the perspective of the hopelessness theory: A multi-wave longitudinal study of children of affectively ill parents. British Journal of Clinical Psychology. November; Vol. 46, pp. 377-395.

Adair, G. J., Dushenko, W.T., and Lindsay, C.L.R., (1985) Ethical Regulations and Their Impact on Research Practice. *American Psychologist*. January; Vol. 40, No 1, pp. 59-72.

Adair, J., (1988) *Developing Leaders*. Guildford: The Talbot Adair Press.

Adam, K.S., Sheldon Keller, A.E., and West, M., (1995). Attachment Organisation and Vulnerability to Loss, Separation, and Abuse in Disturbed Adolescents. *In Susan Goldberg, Roy Muir and John Kerr Attachment Theory: Social, Developmental, and Clinical Perspectives*. London: The Analytic Press. Part.3, pp.309- 341.

Ainsworth, M.D.S., (1967). *Infancy in Uganda: Infant care and the growth of love,* Baltimore: John Hopkins University Press.

Ainsworth, M.D.S., (1973). 'The development of infant-mother attachment', in B.M. Caldwell and H.N. Ricciuti, (Eds.) *Review of child development research* (Vol. 3, pp.1-94) Chicago: University of Chicago Press.

Alexander, D.A., and Klein, S., (2001) *British Journal of Psychiatry*, 178. Pp 76-81.

Alexander, D.A., (2012) Robert Gordon University (RGU) Research Website.
http://www4.rgu.ac.uk/actr/general/page.cfm?pge=42593 (at Jan 2013)

Alexander, D.A., (1996) Trauma Research: A New Era. *Journal of Psychosomatic Research*, Vol., 41, No. 1, pp. 1-5.

Alexander, D.A., Walker, L.G., Innes, G., and Irving, B.L., (1993) *Police Stress at Work*. The London: Police Foundation.

Alimo-Metcalfe, B. and Alban-Metcalfe, J., (2000) *Heaven Can Wait*. Health Service Journal October 12, 2000 26-29.

Alimo-Metcalfe, B. and Alban-Metcalfe, J., (2005) Leadership: Time for a new Direction? In *"Leadership Volume"* 1 (1) 51-71.

Alimo-Metcalfe, B., and Alimo-Metcalfe, J., (2005) Leadership: Time for a New Direction? *Leadership. 1(1)*. pp. 51-71.

Alvarez, J., & Hunt, M., (2005) Risk and resilience in canine search and rescue handlers after 9/11. *Journal of Traumatic Stress, 18*, pp. 497-505.

American Psychiatric Association (2010-03-09). "APA Modifies *DSM* Naming Convention to Reflect Publication Changes". Retrieved 2010-06-11.

American Psychiatric Association, (2010) "309.81 Posttraumatic Stress Disorder: Proposed Revision". American Psychiatric Association. 2010. Retrieved 2010-03-20.

Amodio, D.M. and Ratner, K.G., (2011) Mechanisms for the Regulation for Intergroup Response: A Social Neuroscience Analysis. Chapt. 48. in Decety, J., and Cacioppo, J.T., (eds.)(2011) *The Oxford Handbook of Social Neuroscience*. Oxford: Oxford University Press. pp. 729-741.

Anastasi, A. (1996). *Psychological testing*. NY: Pearson Pub.

Andreasen, C. N., (2001) Brave New Brain. *Conquering Mental Illness in the era of the Genome*. Oxford University Press.

Andrews, B., and Wilding, J.M., (2004) The relation of depression and anxiety to life-stress and achievement in students. *British Journal of Psychology*. November; Vol. 95, pp. 509- 521.

Antonacopoulou, E.P & Bento, R.F., (2004) Methods of 'learning leadership': taught and experiential. In: J. Story, ed. 2004. *Leadership in organisations: current issues and key trends*. Abingdon: Routledge, pp. 81-102.

Argyris, C., (2000) Integrating the Individual and the Organisation. London: Transaction Pub.

Argyris, C., (1990) *Integrating the individual and the organisation*. New Brunswick: Transaction Publishers.

Armstrong, D., (2005) *Organisation in the Mind: Psychoanalysis, Group Relations, and Organisational Consultancy* (ed. by French, R.,). London: Karnac.

Auerbach, J.S., Levy, K.N., and Schaffer, C.E., (Eds.) (2005) *Relatedness, Self-Definition and Mental Representation: Essays in honor of Sidney J. Blatt*. Hove: Routledge.

Austin, J.H., (2001) *Zen and The Brain*. London: MIT Press.

Baars, B.J., and Gage, N.M., (2010) *Cognition, Brain, and Consciousness: An introduction to neuroscience 2nd edn*. AP Press: New York.

Baddeley, A.D., (2001) Is Working Memory Still Working? *European Psychologist,* Vol. 7, No. 2, June 2002, pp. 85–97.

Barnes, J., (ed) (1984) The Complete Works of Aristotle. Revised Oxford Translation. Oxford: Oxford University Press.

Baron-Cohen, S., (2011) *Zero Degrees of Empathy: A New Theory of Human Cruelty*. London: Allen Lane.

Bateman, A., and Fonagy, P., (2004) *Psychotherapy for Borderline Personality Disorder: Mentalization-based treatment*. Oxford: Oxford University Press

Beaton R, Murphy S, Johnson C, Pike K, Cornell W. (1998) Exposure to duty-related incident stressors in urban firefighters and paramedics. *Journal of Traumatic Stress 11*. pp. 821– 828.

Beauchamp, T.L., and Childress, J.F., (2009) *Principles of Biomedical Ethics, 6th edn*. Oxford: Oxford University Press.

Behrendt, R-P. (2011) Neuroanatomy of Social Behaviour: An Evolutionary and Psychoanalytic Perspective. London: Karnac.

Bell, J., (1993) *Doing Your Research Project (2nd ed.)*. Buckingham: Open University Press.

Benamer, S., & White, K., (2008) *Trauma and Attachment*. London: Karnac.

Berlin, H.A., Rolls, E.T., and Kischka, U., (2004) Impulsivity, time perception, emotion and reinforcement sensitivity in patients with orbitofrontal cortex lesions. *Brain*, Vol. 127, No. 5., 1108-1126.

Biddle, S.J.H. and Ekkekakis, P., (2005) Physically active lifestyles and well-being. Chapter 6. Pp. 140168. Huppert, F.A., Baylis, N., and Keverne, B., (2005) *The Science of Well-being*. Oxford: Oxford University Press.

Biddle, S.J.H., and Mutrie, N., (2001) *Psychology of physical activity; determinants, well-being and interventions*. Routledge: London.

Bissiere, S., Planchta, N., Hoyer, D., Olpe, H-R., Grace, A.A., (2008) The Rostral Anterior Cingulate Cortex Modulates the Efficiency of the Amygdala-Dependent Fear Learning. *Biological Psychiatry*, 63(9), pp. 821-831.

Bisson, J.I., McFarlane, A.C., Rose, S., Ruzek, J.I., and Watson, P.J., (2009) Psychological Debriefing for Adults, (Chapt. 4), in Foa, E.B., Keane, T.M., Friedman, M.J., and Cohen, J.A., (2009) *Effective Treatments for PTSD: Practice Guidelines from the International Society for Traumatic Stress Studies* (2nd edn.) pp. 83-105

Black, S., Hardy, G., Turpin, G., and Parry, G., (2005) Self-reported attachment styles and therapeutic orientation of therapists and their relationship with reported general alliance quality and problems in therapy. Psychology and Psychotherapy: Theory, Research and Practice. September; Vol. 78**.** pp. 363-277.

Blake, D. D. et al. (1995) The development of a clinician-administered PTSD scale. J. Trauma. Stress 8, pp. 75-90.

Blake, D. D., Weathers F. W., Nagy, L. N., Kaloupek, D.G., Klauminzer, G., Charney, D.S., and Keane, T.M. (1990b) Clinician-Administered PTSD Scale (CAPS). In *Handbook of Psychiatric Measures,* (2008, 2nd edn.), Ch. 23, pp. 551-553.

Blake, D.D., Weathers F.W., Nagy, L.N., Kaloupek, D.G., Klauminzer, G., Charney, D.S., Keane, T. M. (1990a). A clinician rating scale for assessing current and lifetime PTSD: the CAPS-1. *Behaviour Therapy.* 1990; 13. pp. 187-188.

Blatt, S.J. (2004) *Experiences of Depression: Theoretical, Clinical and Research Perspectives*. Washington, D.C; American Psychology Association.

Blatt, S.J., and Felson, I., (1993) Different kinds of folks need different kinds of strokes: The effects of patient's characteristics on the therapeutic process outcome. *Psychotherapy Research*. Vol. 3, pp. 245-259.

Blaxter, L., Hughes, C., Tight, M., (2001) *How to Research (2nd ed.)*. Buckingham: Open University Press.

Bledsoe, G.H., Manyak, M.J., Townes, D.A., (eds.) (2009) *Expedition and Wilderness Medicine*. Cambridge: Cambridge University Press.

Bloch, S., and Harari, E., (2005) Family Therapy. Chart. 6. in Gabbard, G.O., Beck, J.S., and Holmes, J., (eds.) (2005) *Oxford Textbook of Psychotherapy*. Oxford: Oxford University Press. pp. 57-66.

Bloom, H., (2008) Shakespeare: The Invention of the Human. London: Fourth Estates.

Bolton, D., and Hill, J., (2003) *Mind, Meaning, and Mental Disorder: The Nature of Causal Explanation in Psychology and Psychiatry (2nd edn)*. Oxford: Oxford University Press.

Bonne, O., Brandes, D., Gilboa, A., Gomori, J.M., Shenton, M.E., Pitman, R.K., Shalev, A.Y. (2001). Longitudinal MRI study of hippocampal volume in trauma survivors with PTSD. *American Journal of Psychiatry 158*. pp. 1248 – 1251.

Booth, W., Colomb, G., and Williams, J., (2003) *The Craft of Research (2nd edn.)*. Chicago: University of Chicago Press.

Boozer, R., (1998) *Psychotraumatology and the Fire service: A Comprehensive Program for Managing Psychotaumatic Injury*. Miami Institute of Psychology Doctoral Thesis. UMI Number: 9825588.

Bosse, R., Spiro, A., & Levenson, M.R., 1997. Retirement as a Stressful Life Event. In Thomas W. Miller, *Clinical Disorders and Stressful Life Events*. International University Press. Ch. 15. pp. 325-350.

Bowlby, J. (1982) (2nd edn) *Attachment and Loss, Volume I: Attachment:* New York: Basic Books

Bowlby, J. (1982) (2nd edn) *Attachment and Loss, Volume I: Attachment:* New York: Basic Books

Bowlby, J. (1980) *Attachment and Loss, Volume III: Loss: Sadness and Depression*, New York: Basic Books.

Bracken, D.W., Dalton, M.A., Jako, R.A., McCauley, C.D., & Pollman, V.A. (1997). *Should 360-degree feedback be used only for developmental purposes?* Greensboro, NC: Center for Creative Leadership.

Bradley, S., (2000) *Affect Regulation and The Development of Psychopathology*. New York & London: The Guilford Press.

Brailey, K., Vasterling, J.J., et al (2007). PTSD Symptoms, Life Evens, and Unit Cohesion in U.S. Soldiers: Baseline Findings From the Neurocognition Development Health Study. *Journal of Traumatic Stress, Vol. 20(4), August*; pp. 495- 504.

Braun, K., Lange, E., Metzger, M., and Poeggel, G., (2000) Maternal separation followed by early social deprivation affects the development of monoaminergic fiber systems in the medial prefrontal cortex of *octagon degus*. *Neuroscience*, 95, pp. 309-318.

Bremner, J.D., (2005a) *Brain Imaging Handbook*. London: W.W. Norton & Company.

Bremner, J.D., (2005b) *Does Stress Damage the Brain: Understanding Trauma-Related Disorders from a Mind-Body Perspective*. London: W.W. Norton & Company.

Bremner, J.D., Vermetten, E., and Mazure, C.M. (2000) Development and preliminary psychometric properties of an instrument for the measurement of childhood trauma: Early Trauma Inventory. *Depression and Anxiety*. Vol. **12**, pp1—12. New York: Wiley- Liss, Inc.

Brendel, D.H., (2006) *Healing Psychiatry: Bridging the Science/Humanistic Divide*. London: MIT Press.

Brennan, K. A., Clark, C. L., and Shaver, P.E., (1998) *Self- Report Measurement of Adult Attachment. An Integrative Overview. Attachment theory and close relationships*. New York: Guilford Press, pp. 46-76.

Breslau, N., Davis, G.C., Andreski, P., & Peterson, E. (1991) Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry*, 48, pp. 216-222.

Breslau, N., and Davis, G.C., (1987) Posttraumatic stress disorder: the stressor criterion. *Journal of Nervous Mental Disease.* 175. pp. 255-264.

Bretherton, R., and Orner, R.J., 2004. Positive Psychology and Psychotherapy: An Existential Approach. In P. Alex Linley and S. Joseph. *Positive Psychology in Practice*. New Jersey: John Wiley & Sons, Inc. Ch. 26. Pp. 420-430.

Brewin, C.R., Andrews, B., Valentine, J.D., (2000) Meta-Analysis of Risk Factors for Posttraumatic Stress Disorder in Trauma-Exposed Adults. *Journal of Consulting and Clinical Psychology*. Vol. 68, No. 5, pp. 748-766.

Brewin, C.R. (2001) Cognitive and emotional reactions to traumatic events: implications for short-term intervention. *Advances in Mind—Body Medicine*, 17., pp. 163-168.

Brewin, C.R., (2005) Encoding and Retrieval of Traumatic Memories. In Vasterling, J.J. and Brewin, C.R., (eds.). *Neuropsychology of PTSD: Biological, Cognitive, and Clinical Perspectives*. New York: The Guilford Press. Ch.6. pp. 131-150.

Brewin, C.R., (2003) The Puzzle of Emotional Memory. *Post-traumatic Stress Disorder: Malady or Myth?* New Haven & London: Yale University Press. Ch. 5.

Briere, J., Kaltman, S., and Green, B. L., (2008) Accumulated Childhood Trauma and Symptom Complexity. *Journal of Trauma Stress.* April; Vol. **21**, No.2, pp. 223-226.

Briere, J., (1996) Psychometric review of the Trauma Symptom Checklist-40. In B.H.

Briere, J., and Runtz, M., (1989) The Trauma Symptom Checklist (TSC-33): Early data on a new scale. *Journal of Interpersonal Violence, 4, pp. 151-163*.

British Psychology Society (2006) (March) *Code of Ethics and Conduct.* London: BPS.

British Psychology Society—Division of Clinical Psychology (1995, 2001*). Professional practice guidelines.* Leicester: British Psychological Society.

British Psychology Society (2008) (February, 2nd ed.) *Generic Professional Practice Guidelines.* London: BPS. http://www.bps.org.uk/sites/default/files/documents/generic_professional_practice_guidelines.pdf

Bromberg, P.M., (2006) *Awakening the Dreamer: A Clinical Journey*. London: The Analytic Press.

Bromberg, P.M., (2011) *The Shadow of the Tsunami and the Growth of the Relational Mind*. London: Routledge.

Brown, G.W., and Harris, T.O., (eds.) (1989) *Life Events and Illness* New York: Guilford

Brown, G.W., & Harris, T.O., (1978) *Social Origins of Depression: A study of Psychiatric Disorder in Women.* New York: The Free Press.

Brown, G.W., (1974) Meaning, Measurement, and Stress of Life events. In *Stressful Life Events: Their Nature and Effects*. Chapt. 14., Dohrenwend, B.S., and Dohrenwend, B.P. (eds.) London: John Wiley & Sons Pub. pp. 217-245.

Brown, G.W. (2000) Some thoughts on the future of social psychiatry in Harris, T., *Where Inner and Outer Worlds Meet: Psychosocial research in the tradition of George W. Brown* London: Routledge pp.291-317.

Brown, L.S., and Wright, J., (2003) The relationship between attachment strategies and psychopathology in adolescence. *Psychology and Psychotherapy: Theory, Research and Practice*. December; Vol. **76**, pp. 351-367.

Brown, P.J., Recupero, P.R., Stout, R., (1995) PTSD Substance abuse comorbidity and treatment utilization. *Journal of Addictive Behaviours*, Volume 20, Issue 2, March–April 1995, pp 251–254.

Brownescombe-Heller, M., (2010) Attachment and Its Relationship To Mind, Brain, Trauma and the Therapeutic Endeavour. in Woolfe, R., Strawbridge, S., Douglas, B., and Dryden, W., (eds.) (2010) *Handbook of Counseling Psychology (3rd ed.)*. London: Sage. pp. 653-670.

Bryman, A. (Ed.), (1988) *Doing research in Organisations*. London: Routledge.

Bulger, R.E., Heitman, E., and Reiser, S.J., (2002) *The Ethical Dimensions of the Biological and Health Sciences* (2nd ed.). Cambridge: Cambridge University Press.

Busch, F.N., (ed.)(2008) *Mentalization*. New York: Analytic Press.

Busch, F.N., Oquendo, M.A., Sullivan, G.M., Sandberg, L.S., (2010) An Integrated Model of Panic Disorder. *Neuropsychoanalysis. 12 (1)*. pp. 67-79.

Bush, D.E.A., Sotres-Bylon, F., & LeDoux, J.E., (2007) Individual Differences in Fear: Isolating Fear Reactivity and Fear Recovery Phenotypes. *Journal of Traumatic Stress*, Vol. 20(4), August; pp. 413-422.

Bush, G., Luu, P., Posner, M.L., (2000) Cognitive and emotional influences in anterior cingulated cortex. *Trends in Cognitive Science*. Vol. 4 No. 6., June, pp. 215-218.

Bush, T., (2008) *Leadership and Management Development in Education*. London: Sage Press.

Calhoun, G.L., & Tedeschi, R.G., (2006) The Foundation of Posttraumatic Growth: An Expanded Framework. In Lawrence G. Calhoun and Richard G. Tedeschi, *Handbook of Posttraumatic Growth: Research and Practice.* New York: Lawrence Erlbaum Associates. Ch.1. pp. 3-23.

Cannon, W.B. (1939) *The wisdom of the body*. (2nd edn.). New York: W.W. Simon.

Capra, F., (2002) *The Hidden Connections*. London: Flamingo.

Capra, F., (1996) The *Web of Life: A New Synthesis of Mind and Matter*. London: Flamingo.

Carlson, N.R. (7th edn) (2001) *Physiology of Behaviour,* Boston: Allyn & Bacon.

Carmines, E. G., & Zeller, R. (1979). *Reliability and validity assessment*. CA: Sage Publications, Incorporated.

Carr, A., (2006) Intellectual, learning and communication disabilities, (Ch.8, pp.257- 324). *The Handbook of Child and Adolescent Clinical Psychology: A Contextual Approach.* London and New York: Routledge.

Carr, A., & McNulty, M., (2006) Intake interviews, testing and report writing. In A. Carr, (ed.). *The handbook of Adult Clinical Psychology: An Evidence – Based Practice Approach.* London and New York: Routledge.

Carr, A., (2004) *Positive Psychology: The Science of Happiness and Human Strengths.* London and New York: Routledge.

Carr, A., (2006) Reputation Problems, (Ch. 13, pp. 542- 585). *The Handbook of Child and Adolescent Clinical Psychology: A Contextual Approach.* London and New York: Routledge.

Carter, S., Harris, J., and Porges, S., (2009) Neural and Evolutionary Perspectives on Empathy. Chapt 13. in Decety, J., and Ickes, W., (2009) The Social Neuroscience of Empathy. Cambridge Massachusetts: MIT Press. pp. 169-182.

Carter, S., and Porges, S., (2011) The Neurobiology of Social Bonding and Attachment. Chapt 9. in Decety, J., and Cacioppo, J.T., (ed.)(2011) The Oxford Handbook of Social Neuroscience. Oxford: Oxford University Press. pp. 151-163.

Cartwright, S., and Cooper, C., (eds.)(2010) *Innovations in Stress and Health*. London: Palgrave Pub.

Caspi, A, Sugden, K., Moffitt, T.E., Taylor, A., Craig, I.W., Harrington, H.L., McClay, J., Mill, J., Martin, J., Braithwaite, A., Poulton, R., (2003) Influence of Life Stress on Depression: Moderation in the 5-HTT Gene. Science 301. pp. 386-389.

Chatterton, R.T., Hill, P.D., Aldag, J.C., Hodges, K.R., Belknap, S.M., (2000) Relation of Plasma Oxytocin and Prolactin Concentrations to Milk Production in Mothers of Preterm Infants: Influence of Stress. *The Journal of Clinical Endocrinology and Metabolism*. Vol. 85. No. 10. pp. 3661-3668.

Chen, K.W., and Sidov, L., (2003) Effects of Intent and Mental Status on Biological Subjects: A Review and its Implications for Medical Research. in Roy, R., (ed.)(2003) *Science of Whole Person Healing: Proceeding of the first interdisciplinary international conference. Vol. 1*. New York: iUniverse Inc. e-book. pp. 175-195.

Chertoff, J., (1998) Psychodynamic Assessment and Treatment of Traumatized Patients, *Journal of Psychotherapy Practice Research*. Vol. **7**, pp 35-46.

Cheshire, K., & Pilgrim, D., (2004a) Clinical Psychology Training (pp.64-85). *A short introduction to Clinical Psychology.* London: Sage Publications.

Cheshire, K., & Pilgrim, D., (2004b) Internal and External Relationships (pp. 119-136). *A short introduction to Clinical Psychology.* London: Sage Publications.

Cheshire, K., & Pilgrim, D., (2004c) The knowledge base of clinical psychology (pp. 24-42). *A short introduction to Clinical Psychology.* London: Sage Publications.

Churchland, P., (2011) Brain trust. Princeton: Princeton University Trust.

Clarke, A.D.B., & Clarke, A.M., (2000) *Early Experience and the Life Path*. London: Jessica Kingsley Publishers.

Clements, B., (2009) Disasters and Public Health: Planning and Response. London: BH Pub.

Clinton, A., (2008) Mastering AIT Practice: Clinical Manuel.

Cloitre, M., Stolbach, C.B., et al (2009) A Developmental Approach to Complex PTSD: Childhood and Adult Cumulative Trauma as Predictors of Symptom Complexity. *Journal of Traumatic Stress.* October; Vol. **22,** No. 5, pp. 399-408.

Cloitre, M., Stovall-McClough, C., Zorbas, P., and Charuvastra, A., (2008) Attachment Organisation, Emotion Regulation, and Expectations of Support in a Clinical Sample of Women with Childhood Abuse Histories. *Journal of Trauma Stress*. June; Vol. **21**, No. 3, pp. 282- 289.

Cobb, S., (1974) A Model for Life Events and Their Consequences. In S Dohrenwend, B.S., and Dohrenwend, B.P., (eds.) *Stressful Life Events: Their Nature and Effects*. London: John Wiley & Sons Pub. Chapter 9, pp. 151-156.

Coldwell, K., Henshaw, L., and Taylor, G., (2005) Developing a framework for critiquing health research. *Journal of Health, Social and Environmental Issues*. Vol. **6**, No 1, pp. 45- 53.

Colman, A. M. (2001). *Oxford dictionary of Psychology*. NY: Oxford University Press.

Conrad, C.D., (2011) *The Handbook of Stress: Neuropsychological Effects on the Brain*. Chirchester: Wiley-Blackwell books.

Cook, M. (1998). *Personnel selection: Adding value through people* (3rd ed.). England: John Wiley and Sons Limited.

Coon, D.W., Robinson-Shurgot, G., Gillisipe, Z., Cardenas, V., Gallagjer-Thompson, D., (2005) Cognitive-behaviour group interventions. in Gabbard, G.O., Beck, J.S., and Holmes, J., (eds.) (2005) *Oxford Textbook of Psychotherapy*. Oxford: Oxford University Press. pp. 45-55.

Cooper, C.L., Campbell-Quick, J., Schabaracq, M.J., (eds.) (2009) In *International Handbook of Work and Health Psychology (3rd Ed)*. John Wiley & Sons, Ltd, Publications.

Cooper, D., & Robertson, I. T. (1995). *The psychology of personnel selection*. Oxford: Routledge.

Cooper, D. R., & Schindler, P. S. (2003). *Business research methods*. (8th ed.). Singapore: McGraw Hill.

Corkin, S., (2008) The sense-of-self and unconscious emotional conflict: lessons learned from the amnesic patient, H.M. *from The 9th International Neuro-psychoanalysis Congress Montreal, July, 2008, DVD*, Disc 8. Presentation 2.

Craig, A.D., (2009) How do you feel—now? The anterior insula and the human awareness. *Nature Neuroscience Review*. Vol. 10., January, pp. 59-70.

Craig, A.D., (2010) The Sentient Self. *Brain Structural Function*. Vol. 214. pp. 563-577.

Critchley H.D., Wiens, S., Rotshtein, P., Ohman, A., and Dolan, R.J., (2004) "Neural systems supporting interoceptive awareness". *Nat. Neurosci.* **7** (2): 189–95.

Crittenden, P.M., (1985) Social networks, quality of child rearing, and child development. *Child Development*, 56, pp. 1299-1313.

Critten, P., (2009) Middlesex University Business School: Returning to Vocational 'Routes.' Chapt. 3., in Garnett, J., Costley, C., and Workman, B., (eds.)(2009) *Work based Learning: Journeys to the Core of Higher Education*. London: Middlesex University Press. pp. 27-37.

Crockenberg, S., (1981) Infant Irritability, Mother Responsiveness, and Social Support Influences on the Security of Infant-Mother Attachment. *Child Development*, Vol. 52, No. 3 (Sep., 1981), pp. 857-865. Stable URL: http://www.jstor.org/stable/1129087. 13/02/2011 10:51

Crombie, I., (1996) *The Pocket Guide to Critical Appraisal*. London: BMJ Publishing.

Cromer, DeMarni, L., Freyd, J.J., et al (2006) What is the Risk in Asking? Participant reaction to Trauma History Questions Compared With Reaction to Other Personal Questions. *Ethics & Behaviour.* Vol. **16**, No 4, pp. 347-362.

Crottaz-Herbette, S., Menon, V., (2006) Where and When the Anterior Cingulate Cortex Modulates Attentional Response: Combined fMRI and ERP Evidence. *Journal of Cognitive Neuroscience*. Vol. 18. No. 5, pp. 766-780.

Cuyler, E., Ackhart, M., (eds.)(2009) *Psychology of Relationships*. New York: Nova.

Czoty, P.W., Morgan, D., and Nader, M.A., (2011) Group Processes: Social Dominance. Chapt 47. in Decety, J., and Cacioppo, J.T., (eds.)(2011) *The Oxford Handbook of Social Neuroscience*. Oxford: Oxford University Press. pp. 716-728.

Damasio, A., (2000) *The Feeling of What Happens: body, emotion, and the making of consciousness*. London: Vintage.

Damasio, A., (2010) Self Comes to Mind: Constructing the Conscious Brain, New York: Pantheon.

Daniels, J.K., Frewen, P., McKinnon, M.C., Lanius, R.A., (2010b) Default mode alterations in posttraumatic stress disorder related to early-life trauma: a developmental perspective. *Journal of Psychiatric Neuroscience.* 36(1), pp. 56-59.

Daniels, J.K., McFarlane, A.C., Bluhm, R.L., Moores, K.A., Clark, C.R., Shaw, M.E., Williamson, P.C., Densmore, M., Lanius, R.A., (2010a) Switching between executive and default mode networks in posttraumatic stress disorder: alterations in functional connectivity. *Journal of Psychiatric Neuroscience.* 35(4), pp. 258-266.

Davidson, C.N., and Goldberg, D.T., (2010) *The Future of Thinking: Learning Institutions in a Digital Age. MacArthur Foundation*. London: MIT Press

Davidson, R., (2005) Well-being and Affective Style: neural substrates and bio-behavioural correlates. In F.A. Huppert, et al., (eds.) *The science of well-being*. Oxford: Oxford University Press. Ch. 5.

de Carvalho-Leite, S.C., de Drachler, M., Killett, A., Kale, S., Nacoul, L., McAuthur, M., Hong, C.S., O'Driscoll, L., Pheby, D., Champon, P., Lacerda, E., Poland, F., (2011) Social Support needs for equity in health and social care: a thematic analysis of experiences of people with chronic fatigue syndrome/neuralgic. *Int journal Equality in Health*. 2011, Nov 2; 10(2). pp. 10-46.

Decety, J., and Cacioppo, J.T., (eds.)(2011) *The Oxford Handbook of Social Neuroscience*. Oxford: Oxford University Press.

Decety, J., and Lamm, C., (2009) Empathy versus Personal Distress: Recent Evidence from Social Neuroscience. Chapt. 15. in Decety, J., and Ickes, W., (ed.)(2009) The Social Neuroscience of Empathy. Cambridge Massachusetts: MIT Press. pp. 199-213.

Devilly, G.J., & Spence, S.H., (1999) The relative efficacy and treatment distress of EMDR and a cognitive behavioural trauma treatment protocol in the amelioration of post traumatic stress disorder. *Journal of Anxiety Disorders*, *13*. pp.131-157.

De weid, D., Diamont, M., and Fodor, M., (1993) Central nervous system effects of the neurohpophyseal hormones and related peptides. *Frontal Neuroendocrinology*. 14. pp. 251-302.

Dickerson, S.S., Grunewald, T.L., and Kemeny, M.E., (2011) Physiological Effects of Social Threat: Implications of Health. Chapt 52. in Decety, J., and Cacioppo, J.T., (eds.)(2011) The Oxford Handbook of Social Neuroscience. Oxford: Oxford University Press. pp. 787-803.

Doctor, R.M., and Shiromoto, F,N., (2010) *The Encyclopaedia of Facts on File*. Infobase pub. E-book.

Dohrenwend, B.P., Turner, B., Turse, N.A., et al (2007) Continuing Controversy Over the Psychological Risks of Vietnam for U.S. Veterans. Journal of Traumatic Stress, Vol.20 (4), August; pp. 449- 466.

Dohrenwend, B.S., and Dohrenwend, B.P., (1974b) Overview and Prospects for Research on Stressful Life Events, **in** Dohrenwend, B.S., and Dohrenwend, B.P., (Eds.) *Stressful Life Events: Their Nature and Effects*. London pp. 313-331.

Dohrenwend, B.S., and Dohrenwend, B.P., (eds.) (1974a) *Stressful Life Events: Their Nature and Effects*. London: John Wiley & Sons Pub.

Doi, Y., & Minowa, M. (2003) Factor structure of the 12-item General Health Questionnaire in the Japanese general adult population. *Psychiatry and Clinical Neurosciences*, 57, 379-383.

Domino, G., Domino, M.L., (2006) *Psychological Testing an Introduction (2nd edn.) Psychological Testing an Introduction (2nd edn.)* Cambridge: Cambridge University Press.

Downing, S.M., Haladyna, T.M., (eds.) (2006) Twelve Steps for Effective Test Development. Chapt 1. in Downing, S.M., (2006) *Handbook of Test Development*. London: LEA. pp. 3-26.

Drake, P., and Heath, L., (2011) *Practitioner Research at Doctoral Level: Developing Research Coherent Methodologies*. London: Routledge.

Dreifuss, J.J., Dubois-Dauphin, M., Widmer, H. & Raggenbass, M. (1992). Electrophysiology of oxytocin actions on ventral neurons. *Annals of the New York Academy of Sciences, 652,* 46-57.
Dreifus, Dubois-Dauphin, Widmer, and Raggenbass, 1992—in Taylor et al, 2000).

DSM_V *Depression and Anxiety* **28**: 750–769. doi:10.1002/da.20767.

DSM_V (2012)
www.dsm5.org/ProposedRevisions/Pages/ConditionsProposedbyOutsideSources.aspx.

DSM-IV-TR (2000) *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition—Text Revision*. Arlington VA: APA.

Duckett, S., (2010) Forum: Psychology, philosophy and plumbing. *The Psychologist Journal*. Vol. 23, No. 1, p. 3.

Dunbar, M., Ford, G., Hunt, K., & Der, G. (2000) A confirmatory factor analysis of the hospital anxiety and depression scale: comparing empirically and theoretically derived structures. *British journal of clinical psychology*, 39, 79-94.

Eagle, M., (1995) The Developmental Perspectives of Attachments and Psychoanalytic Theory. *In Susan Goldberg, Roy Muir and John Kerr Attachment Theory: Social, Developmental, and Clinical Perspectives*. London: The Analytic Press. Part.1, pp.123-150.

Einstein, A., (1997) *The Collected Papers of Albert Einstein. Vol. 6. The Berlin Years: Writings 1914-1917. Kox, A.J., Klein, M.J., and Schulmann, R., (eds.). Doc 30: The Foundation of the General Theory of Relativity.* Princeton: Princeton University Press.

Ekman, P., & Rosenberg, E.L., (2005*) What the face reveals: Basic and Applied Studies of Spontaneous Expression Using the Facial Action Coding System (FACS), (2nd edn.).* New York: Oxford University Press.

Eleftheriadou, Z., (2010) Cross-Cultural Counseling Psychology. in Woolfe, R., Strawbridge, S., Douglas, B., and Dryden, W., (eds.) (2010) *Handbook of Counseling Psychology (3rd ed.)*. London: Sage. pp. 195-212.

Elhai, J. D., Miller, M. E., Ford, J. D., Biehn, T. L., Palmieri, P. A., & Frueh, B. C. (in press). "Posttraumatic stress disorder in DSM-5: Estimates of prevalence and symptom structure in a nonclinical sample of college students." *Journal of Anxiety Disorders*. doi:10.1016/j.janxdis.2011.08.013.

Elklit, A., and Shevlin, M., (2007) The structure of PTSD symptoms: A test of alternative models using confirmatory factor analysis. *British Journal of Clinical Psychology*. September; Vol. **46**, pp. 299-313.

Elliott, D., and Briere, J., (1992) Sexual abuse among professional women: Validating the Trauma Symptom Checklist—40 (TSC-40). *Child Abuse and Neglect, 16, pp. 391-398*.

Ellison, J., Weinstein, C., and Hodel-Malinofsky, C., (1994) *The Psychotherapist's Guide to Neuropsychiatry: Diagnostic and Treatment Issues*. Washington, DC: American Psychiatry Press, Inc.

Engdahl, B., & Eberly, R.E., (1997) The Course of Chronic Posttraumatic Stress Disorder. In Thomas W. Miller, *Clinical Disorders and Stressful Life Events*. International University Press. Ch. 1. pp. 3-17.

Ericsson, K.A., Charness, N., Feltovich, P.J., Hoffman, R.R., (2006) *The Cambridge handbook of Expertise and Expert Performance*. Cambridge: Cambridge University Press.

Eriksen, K., and Kress, V.E., (2005) *Beyond the DSM Story: Ethical Quandaries, Challenges, and Best Practices*. London: Sage Pub.

Etkin, A., (2008) A neural circuit view of implicit emotion regulation by the medial prefrontal cortex. from The *9th International Neuro-psychoanalysis Congress Montreal, July, DVD*, Disc 7.

Etkin, A., Egner, T., and Kalisch, R., (2011) Emotional processing in anterior cingulated and medial prefrontal cortex. *Trends in Cognitive Science*, February, 15(2), pp. 85-93.

Etkin, A., Prater, K.E., Hoeft, F., Menon, V., and Schatzberg, A.F., (2010) Failure of Anterior Cingulate Activation and Connectivity with the Amygdala During Implicit Regulation of Emotional Processing in Generalized Anxiety Disorder. American Journal of Psychiatry. 167(5), May, pp. 545-554.

European Union Parliament (1993) Directive on Medical Devices.
http://www.conformance.co.uk/directives/Resources/01993L0042-20071011-en_bookmarked.pdf

Fan, J., Hof, P.R., Guise, K.G., Fossella, J.A., and Posner, M., (2008) The Functional Integration of the Anterior Cingular Cortex during Conflict Processing. *Cerebral Cortex*, April, 18, pp. 796-805.

Ferenzci, S., (1994) Further Contributions to the theory and technique of Psycho-analysis. London: Karnac Classics.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

15FQ+ (2002) Retrieved Sept. 2012. *Psytech 15FQ+ Technical Manuel*.
http://www.psytech.com/Manuals/15FQplusMan.pdf.

Field, A., (2009). *Discovering Statistics Using SPSS (3rd Ed)*. London: Sage.

Fink, G., (ed.)(2010) *Stress Consequences: Mental, Neuropsychological and Socioeconomic*. London: Elsevier Press.

Fischer. P.C., (2006) The Link Between Posttraumatic Growth and Forgiveness: An Intuitive Truth. In Lawrence G. Calhoun and Richard G. Tedeschi, *Handbook of Posttraumatic Growth: Research and Practice.* New York: Lawrence Erlbaum Associates. Ch. 16. pp. 311-333.

Foa E.B, Hearst-Ikeda D., Perry K.J., (1995) Evaluation of a brief cognitive behavioural program for the prevention of chronic PTSD in recent assault victims. J Consult Clin Psychol. 63., pp. 948–955.

Foa, E.B., Keane, T.M., and Friedman, M.J, (eds.) (2000) *Treatment guidelines for Post Traumatic Stress Disorder*. New York: Guilford Press.

Foa, E.B., Keane, T.M., and Friedman, M.J., Cohen, J.A., (eds.) (2009) *Effective Treatments for PTSD: Practice Guidelines from the International Society for Traumatic Stress (2nd edn.)*. New York: Guilford Press.

Follette, V.M, and Ruzek, J.I., (eds.) (2006) *Cognitive-Behaviour Therapies for Trauma (2nd edn)*. London: Guilford Press.

Fonagy, P., et al., (2004) *Affect Regulation, Mentalization, and the Development of the Self*. London: Karnac.

Fonagy, P., Luyten, P., and Strathearn, L., (2011) Borderline Personality Disorder, Mentalizaion, and the Neurobiology of Attachment. *Infant Mental Health Journal*. Vol. 32 (1), pp. 47-69.

Fonagy, P., Steel, M., Steel, H., Leigh, T., Kennedy, R., Mattoon, G., and Target, M., (1995) Attachment, the Reflective Self, and Borderline States: The Predictive Specificity of the Adult Attachment Interview and Pathological Emotional Development. *In Susan Goldberg, Roy Muir and John Kerr Attachment Theory: Social, Developmental, and Clinical Perspectives*. London: The Analytic Press. Part.3, pp. 233-278.

Fonagy, P., Steele, M., Steele, H., Moran, G., and Higgitt, A., (1991) *Bulletin of the Anna Freud Centre.* Vol. **14**, pp. 115- 131.

Fook, J. (2006) Beyond reflective practice: reworking the "critical" in critical reflection, *Professional lifelong learning: beyond reflective practice*. Keynote address, 2006. July 3rd, University of Leeds.

Foot, H., and Sanford, A., (2004) The use and abuse of student participants. *The Psychologist Journal.* May, Vol. **17**, No 5, pp. 256-259.

Forgus, J.P., Kruglanski, A.W., Williams, K.D., (eds.)(2011) *The Psychology of Social Conflict and Aggression*. London: Psychology Press.

Foucault, M., (2001) *Madness and Civilization*. London: Routledge.

Foy, D., Sipprelle. R., Rueger, D., and Carroll, E., (1984) Etiology of posttraumatic stress disorder in Vietnam Veterans: Analysis of paramilitary, military, and combat exposure influences. *Journal of Consulting and Clinical Psychology*. Vol. **52**, pp 79-87.

Fredrickson, B.L., (2005) The broaden-and-build theory of positive emotions. In F.A. Huppert, et al., (eds.). *The science of well-being*. Oxford University Press. Ch. 8. pp. 217-238.

Freud, S., (1926) Inhibitions, Symptoms and Anxiety, Standard Edition, **XX** (2nd ed.), London: Hogarth Press, 1955.

Friedman, M.J., McDonagh-Coyle, A.S., Jalowiec, J.E., Wang, S., Fournier, D.A., and McHugo, G.J., (2001) Neuro-hormonal findings during treatment of women with PTSD due to childhood sexual abuse. Symposium presented at the annual meeting of the International Society for Traumatic Stress Studies, New Orleans, L.A. Abstract for the 17th Annual Meeting for the International Society for Traumatic Stress Studies, New Orleans, LA. p 45.

Friedman, M.J., Resick, P.A., Bryant, R.A., & Brewin, C.R. (2011). "Considering PTSD for DSM5. Depression and Anxiety. Vol. 28, 9. pp 737-749, Sept 2011.

Friedman, M.J., and Rosenman, R.H., (1959) Association of specific overt behaviour pattern with blood and cardiovascular findings. *Journal of American Medical Association*, 169, pp. 1286-1296.

Frith, C.D., and Wolpert, D.M., (eds.)(2003) *The Neuroscience of Social Interaction: Decoding, imitating, and influencing the actions of others*. Oxford: The Royal Society and Oxford University Press.

Gallese, V., (2007) Commentary on "Towards a Neuroscience of Empathy: Integrating Affective and Cognitive Perspectives." *Neuro-Psychoanalysis*, 9(2), pp. 146-151.

Gallese, V., (2003) The manifold nature of interpersonal relations: the quest for a common mechanism. in Frith, C.D., and Wolpert, D.M., (eds.)(2003) *The Neuroscience of Social Interaction: Decoding, imitating, and influencing the actions of others*. Oxford: The Royal Society and Oxford University Press. pp. 159-182.

Gerhardt, S., (2004) *Why love matters: How affection shapes a baby's brain*. London: Bruner-Routledge.

Gever, J (10 February 2010). "DSM-V Draft Promises Big Changes in Some Psychiatric Diagnoses". Retrieved 10 February 2010.

Ghaemi, S.N. (2009) *A clinician's guide to statistics and epidemiology in mental health: measuring truth and uncertainty.* Boston, USA: Cambridge University Press

Gianaros, P.J., Horenstiein, J.A., Cohen, S., Matthews, K.A., Brown, S.M., Flory, J.D., Critcheley, H.D., Maunuck, S.B., and Hairi, A.R., (2007) Perigenual anterior cingulated morphology covaries with perceived social standing. *SCAN*, 2, pp. 161-173

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., and Trow, M., (eds.) (1994) *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies.* London: Sage Pub.

Gibbs, Paul and Garnett, Jonathan (2007) *Work-based learning as a field of study.* Research in post-compulsory education, 12 (3). pp. 409-421. ISSN 1359-6748

Gilbert, P., (ed.) (2005b) *Compassion: Conceptualization, Research, and Use in Psychotherapy*. London: Routledge.

Gilbert, P., (ed.) (2005a) Compassion and Cruelty: A Biosocial approach. In Gilbert, P., (ed.) (2005) *Compassion: Conceptualization, Research, and Use in Psychotherapy*. London: Routledge.

Gilbertson, M., Shenton, M., Ciszewski, A., Kasai, K., Lasko, N., Orr. S., and Pitman, R., (2002) Smaller hippocampal volume predicts pathologic vulnerability to psychological trauma. *Nature Neuroscience*.

Glaros, A.G., and Kline, R.B.. (1988) Understanding the Accuracy of Tests with Cutting Scores, *Journal of Clinical Psychology,* November Issue (Vol. 44), No. 6.

Goenjian, A.K., Molina, L., Steinberg, A.M., Fairbanks, L.A., Alvarez, M.A., Goenjian, H.A., and Pynoos, R.A., (2001) Posttraumatic Stress and Depressive Reactions Among Nicaraguan Adolescents After Hurricane Mitch. *American Journal of Psychiatry*, May 2001; 158. pp. 788 – 794.

Goenjian, A.K., Steinberg, A.M., Najarian, L.M., Fairbanks, L.A., Tashjian, M., and Pynoos, R.A., (2000) Prospective Study of Posttraumatic Stress, Anxiety, and Depressive Reactions After Earthquake and Political Violence. *Am J Psychiatry,* Jun 2000; 157. pp. 911 - 895.

Goetz, D.R., Caron, W., (2005) Systemic Healing: An Ecosystemic Biopsychosocial Integration Applied to Clinical Practice in the Care of Sick Children. *Clinical Child Psychol Psychiatry, 2005, 10:* pp. 53-63.

Goldberg, D.P., and Hillier, V.F., (1979) A scaled version of the General Heath Questionnaire. *Psychological Medicine*. 9, pp. 139-145.

Goldberg, D.P and Williams, P., (1988) *A user's guide to the General Health Questionnaire*. Windsor UK: NFER-Nelson.

Goldberg, S., Muir, R., and Kerr, J., (1995) *Attachment Theory: Social, Developmental, and Clinical Perspectives*. London: The Analytic Press.

Goldberger, L., and Breznitz, S., (eds.)(1993) *Handbook of Stress: Theoretical and Clinical Aspects 2nd Ed*. London: The Free Press.

Goleman, D., (1998) *Working with Emotional Intelligence*. New York: Bantam Books.

Goodman, L.A., Thompson, K.M., Weinfurt, K., Corl, S., Acker, P., Mueser, K.T., and Rosenberg, S.D., (1998) Reliability of Reports of Violent Victimization and Posttraumatic Stress Disorder Among Men and Women With Serious Mental Illness. *Journal of Traumatic Stress*. June; Vol. **12**, No 4, pp. 587-599.

Goodwin, I., Holmes, G., Cochrane, R., and Mason, O., (2003) The ability of adult mental health services to meet client's attachment needs: The development and implementation of the Service Attachment Questionnaire. *Psychology and Psychotherapy: Theory, Research and Practice.* June; Vol. **76**, pp. 145-161.

Gordon, M., (2009) *The Roots of Empathy*. The Experiment: New York.

Gouin, J-P., Hantsoo, L.V., and Kiecolt-Glaser, J.K., (2011) Stress, Negative Emotions, and Inflammation. Chapt. 53. in Decety, J., and Cacioppo, J.T., (eds.)(2011) *The Oxford Handbook of Social Neuroscience*. Oxford: Oxford University Press. pp. 814-829.

Grawe, K., (2007). Neural Correlates of Mental Health: Neural correlates of generalized anxiety disorder. *Neuropsychotherapy: How the Neuroscience Inform Effective Psychotherapy.* London: Lawrence Erlbaum Associates, Publishers.

Green, A., (2005) *Key Ideas for a Contemporary Psychoanalysis: Misrecognition and recognition of the Unconscious*. New Library of Psychoanalysis. London: Routledge.

Greenberg, M.T., (1999) Attachment and Psychopathology in Childhood. Chapt. 21. in Cassidy, J.C., and Shaver, P.R., (1999) Handbook of Attachment: Theory, Research and Clinical Applications. London: Guilford Press. pp. 469-496.

Green, B.L., Kramer, T.L., Grace, M.C., et al (1997) 'Traumatic Events Over the Life Span: Survivors of the Buffalo Creek Disaster' **in** Miller, T.W, (Ed.) *Clinical Disorders and Stressful Life Events'* Connecticut, pp. 283-305.

Greene, B., (2004) The Fabric of the Cosmos: Space, Time and the Texture of Reality. London: Penguin Books.

Greenhalagh, T., (2001) *How to read a paper: The basics of evidence based medicine*. London: BMJ Books. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Greve, K.W., Bianchini, K.J., (2004) Setting empirical cut-offs on psychometric indicators of negative response bias: a methodological commentary with recommendations, *Archives of Clinical Neuropsychology* 19 (2004): 533–541.

Grey, N., (2009) *A Casebook of Cognitive Therapy for Traumatic Stress Reactions*. London: Routledge.

Griffin, G.M., Resick, A.P., Waldrop, E. A., and Mechanic, Mindy B., (2003) Participation in Trauma Research: Is There Evidence of Harm?. *Journal of Traumatic Stress*. June; Vol. **16**, No 3, pp. 221- 227.

Grossmann, K.E., (1995) The Evolution and History of Attachment Research and Theory. *In Susan Goldberg, Roy Muir and John Kerr Attachment Theory: Social, Developmental, and Clinical Perspectives*. London: The Analytic Press. Part.1, pp. 85- 122.

Hafler, J.P. & Hafferty, F.W. (2011) Extraordinary learning in the workplace. In J.P. Hafler (ed), *The Hidden Curriculum, Structural Disconnects, and the Socialization of New Professionals*. London: Springer Press. pp. 17-35.

Hair, J.F., et al. (2010) *Multivariate Data Analysis,* 7th Edition, New York: Prentice Hall.

Haladyna, T.M., (2004) Developing and Validating Multiple –Choice Test Items, (3rd edn.). London: Lawrence Erlbaum Associates, Publishers.

Hall, G.M., (2003) *How to Write a Paper, (3rd edn.)*. London: BMJ Press. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*].

Harris, I.B., (2011) Extraordinary learning in the workplace. In J.P. Hafler (ed)(2011) *The Hidden Curriculum, Structural Disconnects, and the Socialization of New Professionals*. London: Springer Press. pp. 39-62.

Harris, T., (ed.) (2000) *Where the Inner and Outer Worlds Meet: Psychosocial research in the tradition of George W. Brown*. London: Routledge.

Hart, S., (2006) *Brain, Attachment, and Personality: An Introduction to Neuro-affective Development.* London: Karnac.

Haslam, C. and Mallon, K. (2003) "A preliminary investigation of posttraumatic stress symptoms among firefighters." Work and Stress, 17 (3), pp. 277-288.

Hazen, C., and Shaver, P., (1990) Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology,* Vol. 52., pp. 511-524.

Health Development Agency (HAD) (2002) Manual for the Fast Alcohol Screening Test (FAST): Fast screening for alcohol problems.
http://www.nice.org.uk/aboutnice/whoweare/aboutthehda/hdapublications/manual_for_the_fast_alcohol_screen_test_f ast_fast_screening_for_alcohol_problems.jsp.

Heinrichs, M., Baumgartner, T., Kirschbaum, C., Ehlert, U., (2003) Social Support and Oxytocin Interact to Suppress Cortisol and Subjective Responses to Psychological Stress. *Society of Biological Psychiatry*. Vol. 54. Pp. 1389-1398.

Heintschel, U., Smith, G., Draguns, J.G., and Ehlers, W., (eds.) (2004) *Defense Mechanisms: Theoretical, Research, and Clinical Perspectives*. London: Elsevier.

Heinzel, A., Bermphohl, F., Niese, R., Pfenning, A., Pasual-Leone, P., Schlaug, G., and Northoff, G., (2005) How do we modulate our emotions? Parametric fMRI reveals cortical midline structures specifically involved in the processing of emotional valences. *Cognitive Brain Research*. 25, pp. 348-358.

Hof, P.R., Trapp, P.R., deVellis, B.D., Cladio, L., Coleman, J., Coleman, L., and Coleman, D.R., (2004) Cellular Components of Nervous Tissue in Byrne, J.H., and Roberts, J.L., (2004) From Molecules to Networks.: An introduction to Cellular and Molecular Neuroscience. London: Elsevier. pp. 1-29.

Hogan, R., & Hogan, J. (2001). Assessing leadership: A view from the dark side. *International Journal of Selection and Assessment, 9,* pp. 40–51.

Holmes, J., (1995) "Something There .Doesn't Love a Wall": John Bowlby, Attachment Theory, and Psychoanalysis. *In Susan Goldberg, Roy Muir and John Kerr Attachment Theory: Social, Developmental, and Clinical Perspectives*. London: The Analytic Press. Part.1, pp.19- 43.

Homes, T.H., and Rahe, R.H., (1967) The Social Readjustment Rating Scale. *Journal of Psychosomatic Research*, 11, pp. 213-218.

Horowitz, M.J., (1976) *Stress-Response Syndromes*. Northvale, N.J: Jason Aronson.

Houdment, J., and Leka, S., (Eds.) (2010). *Contemporary Occupational Health Psychology: Global perspectives on research and practice.* Chichester: John Wiley & Sons.

Huck, S.W., (2012) *Reading statistics and research.* Boston, USA: Pearson Education Inc.

Hulley, S.B., Cummings, S.R., Browner, W.S., Grady, D.G., and Newman, T.B. (2007) Designing Clinical Research (3rd ed.). USA: Lippincott Williams & Wilkins. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*].

Hulsizer, M.R., & Woolf, L.M., (2009) *A guide to teaching statistics: innovations and best practices.* West Sussex, England: Wiley-Blackwell.

Huppert, F.A., Baylis, N., and Keverne, B., (2005) *The Science of Well-being*. Oxford: Oxford University Press.

Irons, C., Gilbert, P., Baldwin, M.W., Baccus, J.R., and Palmer, M., (2006) Parental recall, attachment relating and self-attacking/ self-reassurance: Their relationship with depression. *British Journal of Clinical Psychology*. September; Vol. **45**. pp. 297-308.

James, B., (1994) Long- Term Treatment for Children with Severe Trauma History. In Williams, M.B., Jr. Sommer, J.F. (eds.), *Handbook of Post-Traumatic Therapy.* Part 2: pp.51-68 London: Greenwood Press. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*].

Janoff-Bulman, R., (2006) Schema-Change Perspectives on Posttraumatic Growth. In Lawrence G. Calhoun and Richard G. Tedeschi, *Handbook of Posttraumatic Growth: Research and Practice.* New York: Lawrence Erlbaum Associates. Ch. 5. pp. 81-99.

Jarvela, S., (2011) *Social and emotional aspects of learning.* Oxford, UK: Elsevier Ltd.

Jobson, L., and O'Kearney, R., (2008) Cultural differences in personal identity in post-traumatic stress disorder. *British Journal of Clinical Psychology*. March; Vol. **47**, pp. 95-109. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*].

Johnson, R.A., & Bhattacharyya, G.K., (2010) *Statistics: principles and methods.* USA: John Wiley & Sons inc.

Johnstone, B.M., Garrity, T.F., & Straus, R., (1997) The Relationship Between Alcohol And Life Stress. In Thomas W. Miller, *Clinical Disorders and Stressful Life Events.* International University Press. Ch.12. pp. 247-279. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*].

Jordan, L., (2010) Relational Trauma. In Ray Woolfe, ed. *Handbook of Counseling Psychology (3rd Ed).* London: Sage. Ch.12. pp. 235-256.

Jorm, F. A., Kelly, M. C., and Morgan, J. A., (2007) Participant distress in psychiatric research: a systematic review. Psychological Medicine.

Joseph, S., (2004) Client-centered therapy, post-traumatic stress disorder and post-traumatic growth: Theoretical perspectives and practical implications. *Psychology and Psychotherapy: Theory, Research and Practice.* March; Vol. **77**, pp. 101-119.

Joseph, S., Linley, P.A., Harwood, J., Lewis C.A., and McCollam, P., (2004) Rapid assessment of well-being: The Short Depression –Happiness Scale (SDHS). *Psychology and Psychotherapy: Theory, Research and Practice.* December; Vol. **77**, pp. 463-478.

Joseph, S., & Linley, P.A., (2008a) Positive Psychological Perspectives on Posttraumatic Stress: An Integrative Psychosocial Framework. In S. Joseph and P. Alex Linley. *Trauma, Recovery, and Growth: Positive Psychological Perspectives on Posttraumatic Stress.* New

Joseph, S., & Linley, P.A., (2008b) Psychological Assessment of Growth Following Adversity: A Review. In S. Joseph and P. Alex Linley. *Trauma, Recovery, and Growth: Positive Psychological Perspectives on Posttraumatic Stress.* New Jersey: John Wiley & Sons, Inc. Ch. 2. pp. 21-36.

Joseph, S., & Linley, P.A., (2008c) Reflections on Theory and Practice in Trauma, Recovery, and Growth: A Paradigm Shift for the Field of Traumatic Stress. In S. Joseph and P. Alex Linley. *Trauma, Recovery, and Growth: Positive Psychological Perspectives on Posttraumatic Stress.* New Jersey: John Wiley & Sons, Inc. Ch. 17. pp. 339-356.

Jurist, E. L., Slade, A., and Bergner, S. (2008) *Mind to Mind: Infant research, neuroscience, and psychoanalysis.* New York: Other Press.

Kabbat-Zinn, J., (2001) *Full Catastrophe Living: How to cope with stress, pain and illness using mindfulness meditation*. New York: Random House.

Kandel, E.R., (2005) *Psychiatry, Psychoanalysis, and The New Biology of the Mind.* London: American Psychiatric Publishing.

Kane, M., (2006) Content-Related Validity Evidence in Test Development. Chapt 7 in Downing, S.M., and Haladyna, T.M., (eds.) (2006) *Handbook of Test Development*. London: LEA. pp. 131-154.

Kaplan, G.B., Leite-Morris, K.A., (2002) Introduction to Neural Signaling Pathway. Chapt 2. Kaplan, G.B., Harman, R.P., (2002) Brain Circuitry and Signaling in Psychiatry: Basic Science and Clinical Implications. Washington D.C: American Psychiatric Pub. pp. 31-66.

Katz, L.S., (2005). *Holographic Reprocessing: A Cognitive–Experimental Psychotherapy for the Treatment of Trauma.* New York and Hove: Routledge.

Kaufer, D.I., (2007) The Dorsolateral and Cingulate Cortex. in Miller, B.L, Cummings, J.L., (eds.) (2007) The Human Frontal Lobes 2nd edn: Functions and Disorders. London: Guilford Press. pp. 44-58.

Keane, T.M., Wilson, J.P., (eds.)(2004) *Assessing Psychological Trauma and PTSD 2nd ed*. London: Guilford Press.

Kernberg, O.F., (2005) Object Relation Theories and Techniques. Chapt. 4. in Person, E.S., Cooper, A.M., Gabbard, G.O., (2005) *Textbook of Psychoanalysis*. Washington D.C: American Psychiatric Pub. pp. 57-76.

Keverne, E.B., (2005) Understanding well-being in the evolutionary context of brain development. Chapt. 2, in Huppert, F.A., Baylis, N., and Keverne, B., (2005) *The Science of Well-being*. Oxford: Oxford University Press. pp. 35-58.

Khan, M., (1974) The concept of cumulative trauma In The Privacy of the Self London: Hogarth Press.

Kilberg, R., (2000) *Executive Coaching*. New York: APA Press.

Kilmer, R.P., (2006) Resilience and Posttraumatic Growth in Children. In Lawrence G. Calhoun and Richard G. Tedeschi, *Handbook of Posttraumatic Growth: Research and Practice.* New York: Lawrence Erlbaum Associates. Ch. 14. pp. 264-288.

Kilpatrick, D.G., (2007) Confounding the Critics: The Dohrenwend and Colleagues Reexamination of the National Vietnam Veteran Readjustment Study. Journal of Traumatic Stress, Vol.20 (4), August; pp. 487- 494.

Kim, HJ (2008) Common Factor Analysis Versus Principal Component Analysis: Choice for Symptom Cluster Research, *Asian Nursing Research*, March 200, Vol. 2, No 1.

Kim, U., and Yang, K., (eds.)(2006) *Indigenous and Cultural Psychology: Understanding People in Context*. New York: Springer Press.

Klein, D.N., Schwartz, J.E., Santiago, N.J., Vivian D., Vocisano, C., Castonguay, L.C., Arnow, B.A., Blalock, J.A., Manber, R., Markowitz, J.C., Riso, L.P., Rothbaum, B., McCullough, J.P., Thase, M.E., Borian, F., Miller, I., & Keller, M.B., (2003) The therapeutic alliance in chronic depression: Prediction of treatment response after controlling for prior change and patient characteristics. *Journal of Clinical & Consulting Psychology*, 71(6). pp. 997-1006.

Koenen, K.C., Amstadter, A.B., and Nugent, N.R., (2009) Gene- Environment Interaction in Posttraumatic Stress Disorder: An Update. *Journal of Traumatic Stress*. October; Vol. 22, No. 5, pp. 416- 426.

Koening, K.L., Schultz, C.H., (eds.) (2010) Koenig and Schultz's Disaster Medicine: Comprehensive Principles (2010) Cambridge Pub

Kothari, C.R., (2004) *Research methodology: methods and techniques (second revised edition).* India: New age international publishers.

Koziol, L.F., and Budding, D,E., (2009) *Sub cortical Structures and Cognition: Implications for Neuropsychological Assessment.* New York: Springer Pub.

Krinsley, K., and Weathers, F., (1995) The assessment of trauma in adults. *PTSD Research Quarterly*, Vol. **6**(3); pp. 1-6.

Kronn, Y., (2003) Energy—The Missing Link to Health: New Effective Energy Medicine Tools. in Roy, R., (ed.)(2003) *Science of Whole Person Healing: Proceedings of the first interdisciplinary international conference. Vol. 1*. New York: iUniverse Inc. e-book. pp. 157-171.

Laing, R.D., (1960) *The Divided Self: An Existential Study in Sanity and Madness*. Harmondsworth: Penguin.

Lane, R.D., Garfield, D.A.S., (2005) Becoming Aware of Feelings: Integration of Cognitive-Developmental. Neuroscientific, and Psychoanalytic Perspectives. *Neuro-Psychoanalysis*, 7(1), pp. 5-30.

Lanius, R., Vermitten, E., Pain, C., (eds.)(2010) The Impact of Early Trauma on Health and Disease: The Hidden Epidemic. Cambridge: Cambridge University Press.

Lazarus, R.S., and Folkman S., (1984) *Stress, appraisal, and copying*. New York: Springer.

Leblond, J., Ladouceur, R., and Blaszcezynki, A., (2003) Which pathological gamblers will complete treatment? *British Journal of Clinical Psychology*. Vol. **42**, pp 205-210.

LeDoux, J., (1997) *The Emotional Brain*. Kent: Macmillan.

LeDoux, J., (2002) *Synaptic Self: How Our Brains Become Who We Are*. Kent: Macmillan.

Leeming, D., and Boyle, M., (2004) Shame as a social phenomenon: A critical analysis of the concept of dispositional shame. *Psychology and Psychotherapy: Theory, Research and Practice*. September; Vol. **77**, pp. 375-396.

Lepore, J.S., and Revenson, T.A., (2006) Resilience and Posttraumatic Growth: Recovery, Resistance, and Reconfiguration. . In Lawrence G. Calhoun and Richard G. Tedeschi, *Handbook of Posttraumatic Growth: Research and Practice.* New York: Lawrence Erlbaum Associates. Ch.2. pp. 24-46.

Levine, P.A., (1997) *Waking the Tiger: Healing Trauma*. Berkeley: North Atlantic Books.

Levine, S.Z., Laufer, A., Stein, E., Humama-Raz, Y., and Solomon, Z., (2009) Examining the Relationship Between Resilience and Posttraumatic Growth. *Journal of Traumatic Stress*. August; Vol. 22, No. 4, pp. 282-286.

Lewis-Fernandez, R., Martinez-Taboas, A., Sar, V., Patel, S., and Boatin, A., (2007) The Cross-Cultural Assessment of Dissociation, (Chapt. 12). in Wilson, J.P., and So-kum Tang, C., (2007) *Cross Cultural Assessment of Psychological Trauma and PTSD.* New York: Springer Press. pp. 279-318.

Lewis, M.D., (2000) Emotion Self-Organisation at Three Time Scales. Chapt. 2. in Lewis., M.D., and Granic, I., (2000) *Emotion, Development, and Self-Organisation: Dynamic Systems Approaches to Emotional Development*. Cambridge: Cambridge University Press. pp. 37-69.

Lezak, M.D., Howieson, D.B., Bigler, E.D., Tranel, D., (2012) *Neuropsychological Assessment (5th edn.)*. Oxford: Oxford University Press.

Lindau, M., Almkvist, O., and Mohammed, A.H., (2010) Learning and Memory the Effects of Stress on Consequences. Chapt IV. in Fink, G., (ed.)(2010) *Stress Consequences: Mental, Neuropsychological and Socioeconomic*. London: Elsevier Press. pp. 365-370

Linley, A., and Joseph, S., (2004) *Positive Psychology Practice*. London: John-Wiley & Sons.

Lisi, A.G., (2007) *An Exceptionally Simple Theory of Everything*. arXiv:0711.0770vl. [hep-th] 6th Nov, 2007.

Lopez, S.J., and Snyder, C.R., (2007) *Positive Psychology: The Scientific and Practical Explorations of Human Strengths*. London: Sage Publications.

Lyons, D.M., and Parker, K.J., (2007) Stress Inoculation – Induced Indications of Resilience in Monkeys. *Journal of Traumatic Stress*, Vol. 20(4), August; pp. 423- 434.

Lyons-Ruth, K., Connell, D., Grunebaum, H., & Botein, S. (1990) "Infants at social risk: Maternal depression and family support services as mediators of infant development and security of attachment". *Child Development*, 61 pp85-98

MacBeth, A., Schwannauer, M., and Gumley, A., (2008) The association between attachment style, social mentalities, and paranoid ideation: An analogue study. *Psychology and Psychotherapy: Theory, Research and Practice*. March; Vol. **81**, pp. 79-93.

Macklin, ML, Metzger, LJ, Litz, BT, McNally, RJ, Lasko, NB, Orr, SP, et al., (1998) Lower pre-combat intelligence is a risk factor for posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*. 66. pp. 323–326.

Maddux, J.E., (2008) Psychology and the Illness Ideology: Towards a Positive Clinical Psychology. *Applied Psychology*. 57. s1. pp. 54-70.

Maddux, J.E., Snyder, C.R., and Lopez, S., (2004) Towards a Positive Clinical Psychology: Deconstructing the Illness Ideology and Constructing an Ideology of Human Strengths and Potential. In P. Alex Linley and S. Joseph. *Positive Psychology in Practice*. New Jersey: John Wiley & Sons, Inc. Ch. 20. pp. 320-334.

Main, M. (1995) Recent Studies in Attachment: Overview, with Selected Implications for Clinical Work. *In Susan Goldberg, Roy Muir and John Kerr Attachment Theory: Social, Developmental, and Clinical Perspectives*. London: The Analytic Press. Part.4, pp.407-474.

Marks, I., Lovell, K., Noshirvani, H., Livanou, M., and Thrasher, S., (1998) Treatment of Posttraumatic Stress Disorder by Exposure and/or Cognitive Restructuring: A Controlled Study. *Arch Gen Psychiatry*. 55(4). pp. 317-325.

Marmarosh, C.L., Gelso, C.J., Markin, R.D., and Majors, R., (2009) The Real Relationship in Psychotherapy: Relationship to Adult Attachments, Working Alliance, Transference, and Therapy Outcome. *Journal of Counseling Psychology.* American Psychological Association, July; Vol. **56**, No.3, pp. 337-350.

Mar Sanchez, M., and Pollack, S.D., (2009) 'Socioemotional Development Following Early Abuse and Neglect: Challenges and Insights from Translational Research' in *Handbook of Developmental Social Neuroscience*, De Haan, M., and Gunnar, M.R., (2009) New York, pp 497-520.

Maslow, A.H., (1999) *Towards a Psychology of Being*, 3rd ed. Chirchester: John Wiley and Sons Inc.

Mason, O., Platts, H., and Tyson, T., (2005) Early maladaptive schemas and adult attachment in a UK clinical population. *Psychology and Psychotherapy: Theory, Research and Practice.* December; Vol. **78**, pp. 549-564.

Masson, J.M., (1984) *The Assault on Truth: Freud's Suppression of the Seduction Theory*. Penguin Books; (new edn.) (1992) New York: Harper Collins.

Mayberg, H.S., (2006) Defining Neurocircuits in Depression: Insights from functional neuroimaging studies of diverse treatments. *Psychiatric Annals*, April, 36(4), pp. 258-267.

Mayberg, H.S., Lozano, A.M., Voon, V., McNeely, H.E., Seminowicz, D., Hamani, C., Schwalb, J.M., and Kennedy, S.H., (2005) Deep Brain Stimulation for Treatment-Resistant Depression. *Neuron*. March, 45, pp. 651-660.

McFarlane, A.C., (1988) The aetiology of posttraumatic stress disorder following a natural disaster. *Brit. Journal of Psychiatry.* Vol. **152**. Pp 116-21.

McFarlane, A.C., and de Girolamo, G., (1996) The Nature of Traumatic Stressors and the Epidemiology of Posttraumatic Reactions, **in** B.A. van der Kolk, A.C. McFarlane, and L. Weisaeth (eds.) *Traumatic stress. The effects of overwhelming experience on mind, body, and society*. NY: Guilford Press. pp.129-154

McFarlane, A.C., and Yehuda, R., (1996) Resilience, vulnerability, and the course of posttraumatic reactions. In. B.A. van der Kolk, A.C. McFarlane, and L. Weisaeth (eds.) *Traumatic stress. The effects of overwhelming experience on mind, body, and society*. NY: Guilford Press. *Ch. 8* pp. 155-181.

McGilchrist, I., (2009) *The Master and his Emissary: The Divided Brain and the Making of the Modern World*. New Haven: Yale University Press.

McKay, DM, Berin, MC, Fondacaro, JD, and Perdue, MH., (1996) Effects of neuropeptide Y and substance P on antigen-induced ion secretion in rat jejunum. Am J Physiol. 1996 Dec; 271(6 Pt 1): G. pp. 987-92.

McNally, R.J., (2007) Revisiting Dohrenwend et al. 's Revisit of the National Vietnam Veterans Readjustment. *Journal of Traumatic Stress*, Vol.20 (4), August; pp. 481- 486.

McQuitty, L.L., (1964) Capabilities and Improvements of Linkage Analysis as a Clustering Method. *Educational and Psychological Measurement: Vol. **24.*** pp. 441-456.

McWilliams, N., (1994) *Psychoanalytic Diagnosis: Understanding Personality Structure in the Clinical Process*. London: The Guilford Press. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Mechanic, D., (1974) Discussion of Research Programs on Relations Between Stressful Life Events and Episodes of Physical Illness. Dohrenwend, B.S., and Dohrenwend, B.P., (Eds.) (1974) *Stressful Life Events: Their Nature and Effects*. London: John Wiley & Sons Pub. Ch. 5. pp. 87-98

Meltzer, J., and Hall, J., (2001) *What is Clinical Psychology*? (3rd edn.). Oxford: Oxford University Press. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Menzies-Lyth, I., (1988) *Containing anxiety in institutions: selected essays*, volume 1. London: Free Association Books.

Meredith, L.S., Sherbourne, D.C., Gaillot, L.J., Hansell, L., Ritschard, H.V., Parker, A.M., Wrenn, G., (2011) (Rand, (2011)) Center for Military Health Policy Research. *Promoting Psychological Resilience in the U.S. Military*. URL: http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND_MG996.pdf

Metzger, L., et al (2004) PTSD and depression symptoms associated with increased right-sided parietal EEG asymmetry. *Journal of Abnormal Psychology*. May; Vol. **113**(2): pp 324—329.

Mickleburough, M.J.S., Daniels, J.K., Coupland, N.J., Kao, R., Williamson, P.C., Lanius, U.F., Hegadoren, K., Schore, A., Densmore, M., Stevens, T., and Lanuis, R.A., (2011) Effects of trauma-related cues on pain processing in posttraumatic stress disorder: an fMRI investigation. *Journal of Psychiatric Neuroscience*. 36(1), pp. 6-14,

Mikolajczak, M., Roy, E., Verstrynge, V., and Luminet, O., (2009) An exploration of the moderating effect of trait emotional intelligence on memory and attention in neutral and stressful conditions. *British Journal of Psychology.* November; Vol. **100**, pp. 699-715.

Milana, M.E., and Berenbaum, H., (2009) The Relationship Between PTSD Symptom Factors and Emotion. *Journal of Trauma Stress*. April; Vol. **22,** No. 2, pp. 139-145.

Miller, B.L, Cummings, J.L., (eds.) (2007) The Human Frontal Lobes 2nd edn: Functions and Disorders. London: Guilford Press.

Miller, M.W., Fogler, M.J., Wolf, E.J., et al (2008) The internalizing and Externalizing Structure of Psychiatric Comorbidity in Combat Veterans. *Journal of Traumatic Stress.* February; Vol. **21**, No. 1, pp. 58-65.

Miller, T.W., (1993) The Assessment of Stressful Life Events. In L. Goldberger & S. Breznitz, ed. *Handbook of Stress: Theoretical and Clinical Aspects (2nd edn.)*. New York: The free press. Ch.10.

Mintzberg, H., (2009) Managing. San Francisco: Barrett-Koehler.

Mirowsky, J., and Ross, C.E., (1989) Psychiatric Diagnosis as Reified Measurement. *Journal of Health and Social Behaviour*. Vol. 30, No. 1 (Mar., 1989), pp. 11-25 URL: http://www.jstor.org/stable/2136907

Mitchell, J.T., and Everly, G.S., (1995) *Critical incident stress debriefing: An operations manual for the prevention of traumatic stress among emergency service and disaster workers*. Ellicott City, MD: Cheveron.

Misselbrook, D., (2004) Meta-Ethics and gender. *Jmhg*, vol. 1. No. 4, pp. 402-406.

Mollon, P., (2005) *EMDR and the Energy Therapies: Psychoanalytic Perspectives*. London: Karnac.

Mollon, P., (2008) *Psychoanalytic Energy Psychotherapy*. London: Karnac.

Mollon, P., (2002) *Shame and Jealousy: The Hidden Turmoil's*. London: Karnac.

Monfils, M-H., Cowansage, K.K., Klann., E., LeDoux, J.E., (2009) Extinction-Reconsolidation Boundaries: Key to Persistent Attenuation of Fear Memories. Science express. *Science10. 1126*. pp.1-6.

Montagne, B., Sierra, M., et al (2007) Emotional memory and perception of emotional faces in patients suffering from depersonalization disorder. *British Journal of Psychology*. August; Vol. **98**, pp. 517-527.

Montgomery, H., Lipshitz, R., Brehmer, B., (eds.)(2005) *How Professionals Make Decisions*. London: LEA Pub.

Moon, J.A., (1999) *Refection in Learning and Professional Development: Theory and Practice*. London: Routledge-Falmer.

Mueser, K. T., Yarnold, P. R., Rosenberg, S. D., Swett, C., Jr., Miles, K. M., & Hill, D. 2000, "Substance use disorder in hospitalized severely mentally ill psychiatric patients: prevalence, correlates, and subgroups", *Schizophrenia. Bull.*, vol. 26, no. 1, pp. 179-192.

Mumford, J. & Roodhouse, S. (2010) *Understanding work-based learning*. Surrey, England: Gower Publishing Limited/MPG Books Group.

NASA (2006) Report of the Dark Energy Task Force.
http://wfirst.gsfc.nasa.gov/science/DETF_Report.pdf

National Academies, (2006) Posttraumatic Stress Disorder: Diagnosis and Assessment (Free Executive Summary) http://www.nap.edu/catalog/11674.html

NATO (2008) *Psychosocial Care for People Affected by Disasters and Major Incidents: A Model for Designing, Delivering and Managing Psychosocial Services for People Involved in Major Incidents, Conflict, Disasters, and Terrorism*. September 2008. Geneva: NATO.

Naylor, D., (2008) An investigation into how public sector and community-based practitioners authorize constructively awkward interventions. *Middlesex Doctoral Archive*, Health and Social Science Section.

Newman, E., and Kaloupek, D., (2009) Overview of Research Addressing Ethical Dimensions of Participation in Traumatic Stress Studies: Autonomy and Beneficence. *Journal of Traumatic Stress.* December; Vol. **22**, No 6, pp. 595- 602.

NICE (2005) Post-traumatic stress disorder (PTSD): The management of PTSD in adults and children in primary care and secondary care. *NICE Clinical Guideline.* 26, March 2005.

NICE (2005) www.nice.org.uk/nicemedia/live/10966/29769/29769.pdf.

Norcross, J.C., and Goldfried, M.R., (2005) Handbook of Psychotherapy Integration (2nd ed.) (Oxford Series in Clinical Psychology). Oxford: Oxford University Press.

Northoff, G., (2008) Is Appraisal 'Embodied' and 'Embedded'? A Neurophilosphical Investigation of Emotions. *Journal of Consciousness Studies*. 15, pp.1-32.

Northoff, G., and Bermpohl, F., (2004) Cortical midline structures and the self. *Trends in Cognitive Science*. March, 8(3), pp. 102-107.

Northoff, G., Bermpohl, F., Schoeneich, F., and Boeker, H., (2007) How Does Our Brain Constitute Defense Mechanism? First-Person Neuroscience and Psychoanalysis. *Psychotherapy and Psychosomatics*. 76, pp. 141-153.

Northoff, G., Heinzel, A., Bermpohl, F., Neise, R., Pfennig, A., Pascual-Leone, A., and Schlaug, G., (2004) Reciprocal Modulation and Attenuation in the Prefrontal Cortex: an fMRI Study on the Emotional-Cognitive Interaction. *Human Brain Mapping*. 21, pp. 202-212.

Northoff, G., (2011) Psychoanalysis *in Practice: brain, self, and object*. Oxford: Oxford University.

Northoff, G., Richter, A., Gessner, M., Schlagenhauff, F., Fell, J., Baumgart, F., Ksulisch, T., Hinrichs, H., Bogerts, B., Scheich, H., and Heinze, H-J., (2000) Functional dissociation between medial and lateral prefrontal cortical spatiotemporal activation in negative and positive emotions: A combined fMRI/MEG study. Cerebral Cortex, 10, pp 93-107.

O'Brien, B. (2011) Extraordinary learning in the workplace. in J.P. Hafler (ed)(2011) *Envisioning the future.* London: Springer Press. pp. 165-194.

O'Brien, L.S., (1998) *Traumatic Events and Mental Health*. Cambridge: Cambridge University Press. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Office of the Deputy Prime Minister, (December 2004) *205/06 Fire and Rescue Service National Framework*.

Office of the Deputy Prime Minister, (2004) *Medical and Occupational Evidence for Recruitment and Retention in the Fire and Rescue Service*

Ogden, P., Minton, K., and Pain, C., (2006) *Trauma and the Body: A Sensorimotor Approach to Psychotherapy* London: W.W. Norton.

Ohan, Jeneva L; Myers, Kathleen M; Collett, Brent R (2002) Ten-year review of rating scales, IV: scales assessing trauma and its effects. *Journal of the American Academy of Child and Adolescent Psychiatry*, vol. 41, no. 12, December pp. 1401-1422.

Oppenheimer, S.M., Gelb, A, Girvin, J.P., Hachinski, V.C., (1992) Cardiovascular effects of human insular cortex stimulation. *Neurology*, 1992; 42: pp. 1727–32.

Orlans, V., & Scoyoc, S.V., (2009) *A short introduction to counseling psychology*. London: Sage.

Ozer. E.J., Best, S.R., Lipsey, T.L., and Weiss, D.S., (2003) Predictors of Posttraumatic Stress Disorder and Symptoms in Adults: A Meta-Analysis. *Psychological Bulletin*, Vol. 129, No. 1, pp. 52-7.

Pallant, J., (2005) *SPSS Survival Guide (2nd edn.)*. Milton Keynes: Open University Press.

Palmer, I.P., 2009. Mental Health: Part A- Practical Psychological Aspects of Humanitarian Aid. In Hopperus-Buma, A.P.C.C., ed. *Conflict and Catastrophe Medicine: A practical Guide (2nd edn.). London: Springer.Ch.22.*

Panksepp, J., (1998*) Affective Neuroscience: The Foundations of Human and Animal Emotions.* New York & Oxford: Oxford University Press.

Panksepp, J., (ed.) (2004*) Biological Psychiatry.* New York & Oxford: Oxford University Press.

Panksepp, J., and Biven, L., (ed.) (2012) *The Archaeology of the Mind: Neuroevolutionary Origins of Human Emotions.* Norton & Co: London. Kindle version.

Park, C.L., & Lechner S.C., (2006) Measurements Issues in Assessing Growth Following Stressful Life Experiences. In Lawrence G. Calhoun and Richard G. Tedeschi, *Handbook of Posttraumatic Growth: Research and Practice.* New York: Lawrence Erlbaum Associates. Ch. 3. pp. 47-67.

Pearn, M., (ed.) (2002) *Individual Differences and Developments in Organisations*. Chirchester: John Wiley.

Pedersen, P.B., (2006) Knowledge Gaps About Stress and Coping In A Multicultural Context, (Chapt, 25). in Wong, P.T.P., and Wong, L.C.J., (eds.)(2006) *Handbook of Multicultural Perspectives on Stress and Coping*. New York: Springer Press. pp. 579-596.

Petersen, A., and Wilkinson, I., (eds.) (2008) *Health Risk and Vulnerability*. London: Routledge.

Peterson, C., Park, N., Pole, N., Andrea, D.W., and Seligman. M.E.P., (2008) Strengths of Character and Posttraumatic Growth. *Journal of Traumatic Stress.* April; Vol. **21**, No. 2, pp. 214- 217.

Petrides, K.V, Furnham, A., and Frederickson, N., (2004) Emotional intelligence. *The Psychologist Journal*. October; Vol. 17, No 10, pp. 574- 577.

Petrides, K.V., Pita, R., and Kokkinaki, F., (2007) The location of trait emotional intelligence in personality factor space. British Journal of Clinical Psychology. May; Vol. 98, pp. 273-289.

Picardi, A., Caroppo, E., et al, (2005) Stability of attachment-related anxiety and avoidance and their relationships with the five-factor model and the psychobiological model of personality. *Psychology and Psychotherapy: Theory, Research and Practice*. Vol. **78**, pp. 327-345.

Pitman, R., and Delahanty, D., (2005) Conceptually driven pharmacologic approaches to acute trauma. *Central Nervous System Spectroscopy*. February; Vol. **10**(2): pp. 99-106.

Porges, S.W., (2011) The Polyvagal Theory: Neuropsychological Foundations of Emotions Attachment Communication Self-regulation. London: Norton Pub.

Portwood, D., (2000) An Intellectual Case for Work Based Learning as a Subject. Chapt. In Portwood, D., and Costley. C., (eds.)(2000) *Work Based Learning and the University: New Perspectives and Practices.* 1., SEDA Paper, July, 2000. pp.17-22.

Prinstein, M., and Patterson, M., (2003) *The Portable Mentor: Expert Guide to a Successful Career in Psychology*. New York: Kluwer Academic/Plenum Press. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Prochaska, J.O., and DiClemente, C.C., (1982) Transtheroetical therapy: towards a more integrative model of change. *Psychotherapy: Theory Res. Practice*. 19. Pp.276-88.

Pynoos, R.S., Steinberg, A.M., and Goenjian, A., (1996) Traumatic Stress in Childhood and Adolescence: Resent Developments and Current Controversies. In Van der Kolk, et al., (eds.) *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society. New York: The Guilford Press. Ch.14.*

Rae, A., (2004) Quantum Physics: Illusion or Reality? (2nd edn.). Cambridge: Cambridge University Press.

Rahe, R.H., (1974) The Pathway Between Subjects' Recent Life Changes and Their Near-Future Illness Reports: Representative Results and Methodological Issues. Dohrenwend, B.S., and Dohrenwend, B.P., (Eds.) (1974) *Stressful Life Events: Their Nature and Effects*. London: John Wiley & Sons Pub. pp. 73-86.

Reid, A., Dahlgren, M.A., Dahlgren, L.O., Petocz, P. (2011) From expert student to novice professional, *Professional learning and development in schools and higher education: Springer edition.* London: Springer Press.

Reiss, G., (1995) *Project Management Demystified: Today's tools and techniques (2nd edn.)*. London: E&FN Spon. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Resick, P.A., (2001) *Clinical Psychology: A Modular Course: Stress and Trauma*. New York: Psychology Press.

Resick, P.A., and Miller, M.W., (2009) Posttraumatic Stress Disorder: Anxiety or Traumatic Stress Disorder?. *Journal of Traumatic Stress.* October; Vol. **22**, No. 5, pp. 384- 390.

Riggs, S. A., Paulson, A., Tunnell, E., Sahl, G., Atkison, H., and Ross, C.A., (2007) Attachment, personality, and psychopathology among adult inpatients: Self- reported romantic attachment style versus Adult Attachment Interview states of mind. *Development and Psychopathology*, Cambridge University Press, Vol. **19**, pp. 263-291.

Robson, C., (2002) *Real World Research: A Resource for Social Scientists and Practitioner—Researchers (2nd edn.)*. Oxford: Blackwell Publishing. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Ronan, C.A., (1983) Roman and Medieval Science. *The Cambridge illustrated history of the world's science.* London: Book Club Associates. Ch.6. pp. 245-268.

Rosenberg, M.J. (2006) *Beyond E-learning.* San Francisco, USA: Pfeiffer.

Rothbaum, B.O., & Foa, E.B., (1996) Cognitive-Behavioural Therapy for Posttraumatic Stress Disorder. in van der Kolk, ed. *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society. New York: The Guilford Press. Ch.22.* pp. 491-509.

Rothschild, B., (2000) *The Body Remembers: The Psychophysiology of Trauma and Trauma Treatment*. London: Norton Pub.

Roy, R., (ed.)(2003) *Science of Whole Person Healing: Proceedings of the first interdisciplinary international conference. Vol. 1*. New York: iUniverse Inc. e-book.

Rugg, G., & Petre, M. (2004) *The unwritten rules of PhD research*. Maidenhead, England: Open University Press.

Rutter, M., (2000) Negative life events and family negativity, Chapt. 8. Harris, T., (ed.) (2000) *Where the Inner and Outer Worlds Meet: Psychosocial research in the tradition of George W. Brown*. London: Routledge. pp. 123-149.

Salmon, K., Sinclair, E., and Bryant, R.A., (2007) The role of maladaptive appraisals in child acute stress reactions. *British Journal of Clinical Psychology*. June; Vol. **46**, pp. 203-210.

Salovey, P., Caruso, D., and Mayer, J.D., (2004) Emotional Intelligence in Practice. In P. Alex Linley and S. Joseph. *Positive Psychology in Practice*. New Jersey: John Wiley & Sons, Inc. Ch. 28. pp. 447-463.

Sandler, J., Holder, A., Dare, C., and Dreher, U., (1998) *Freud's Models of the Mind*. Madison Conn: International Universities Press.

Sarantakos, S., (2005) *Social Research (3rd edn.)*. Hampshire: Palgrave Macmillian. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Savva, S., (2003) Hypothesis of the Biofield. In Roy, R., (ed.)(2003) *Science of Whole Person Healing: Proceedings of the first interdisciplinary international conference. Vol. 1*. New York: iUniverse Inc. e-book. pp. 145-156.

Sarwer, D.B., (2013) Cosmetic Surgery (chapt 12), in Block, A.R., and Sarwer, D.B., (eds.) (2013) *Presurgical Psychological Screening: Understanding Patients, Improving Outcomes*. Washington, D.C: APA Press. pp. 253-271.

Scaer, R., (2005) *The Trauma Spectrum: Hidden Wounds and Human Resiliency*. New York: W.W. Norton & Company.

Schachtman, T.R., and Reilly, S., (eds.)(2011) *Associative Learning and Conditioning Theory: Human and Non-Human Applications*. Oxford: Oxford University Press.

Schafer, J. L. (1997). *Analysis of incomplete multivariate data.* London: Chapman.

Schafer, J. L., & Olsen, M. K. (1998) Multiple imputation for multivariate missing-data problems: A data analyst's perspective. *Multivariate Behavioural Research, 33*(4), pp. 545- 571.

Scharmer, C.O., (2006) "Addressing the Blind spot of our time" An executive summary of the new book by Otto Scharmer-Theory U: Leading from the future as It Emerges. www.ottoscharmer.com.

Scharmer, C.O., (2004) Scharmer, O., (2004) THEORY U: Leading Profound Innovation and Change By Presencing Emerging Futures (DRAFT, MAY 2004).www.ottoscharmer.com

Scharmer, C.O., (2007a) Theory U: Leading from the Future as it Emerges Cambridge MA: Society for Organisational Learning.

Scharmer, C.O., (2007c) "*Tool: Stakeholder Dialogue Interviews*." www.ottoscharmer.com.

Schlomer, G.L., Bauman, S., and Card, N.A., (2010) Best Practices for Missing Data Management in Counseling Psychology. *Journal of Counseling Psychology.* American Psychological Association, January; Vol. **57**, No. 1, pp. 1-10.

Schore, A.N., (2003a) *Affect Regulation and the Repair of the Self.* New Jersey: LEA Pub.

Schore, A.N., (1994) *Affect Regulation and the Origin of the Self.* New Jersey: LEA Pub.

Schore, A.N., (2003b) *Affect DysRegulation and the Disorder of the Self.* New Jersey: LEA Pub.

Schore, A.N., (2012) *The Science and Art of Psychotherapy.* New York: Norton Pub. Kindle Edition.

Schutte, N.S., Malouff, J.M., Bobik, C., Coston, T.D., Greeson, C., Jedlicka, C., et al. (2001). Emotional intelligence and interpersonal relations. *Journal of Social Psychology, 141*, pp. 523-536.

Schutte, N.S., Malouff, J.M., Hall, L.E., Haggerty, D.J., Cooper, J.T., Golden, C.J., et al. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*, pp. 167–177.

Schwerdtfeger, K. L., and Goff Nelson, B.S., (2007) Intergenerational Transmission of Trauma: Exploring Mother – Infant Prenatal Attachment. *Journal of Traumatic Stress. February*; Vol. **20**, No. 1, pp. 39-51.

Scott-Brown, L., and Wright. J., (2003) The relationship between attachment strategies and psychopathology in adolescence. *Psychology and Psychotherapy: Theory, Research and Practice*. Vol. **76**, pp. 351-367.

Scott, G., Coates, H., & Anderson, M. (2008) *Learning leaders in times of change*. Sydney, Australia: ACER.

Scott, I. & Mazhindu, D. (2005) *Statistics for health care professionals.* London, England: SAGE publications ltd.

Scott, M., and Stradley, S., (2001) Translating the psychobiology of post-traumatic stress disorder into clinically useful analogy. *British Journal of Medical Psychology*. June; Vol. **74** Part 2: pp. 249-254.

Sedgmore, L., (2001) Emotional intelligence: the hidden advantage. *Academic Leadership*, Spring/Summer, 8.II.

Seedat, S., Pienaar, W., Williams, D., (2004) Ethics of research on survivors of trauma. *Current Psychiatry Reports*. July; Vol. **6**, No 4, pp. 262-267.

Seedhouse, D., (1998) *Ethics: The Heart of Health Care*. New York: John Wiley Press.

Seidler, G.H., Wagner, F.E., (2006) Comparing the Efficacy of EMDR and trauma-focused cognitive-behavioural therapy in the treatment of PTSD: a meta-analytic study. *Psychological Medicine*, 36. pp. 1515-1522.

Seigel, D., (2010a) *Mindsight: Transform your mind through the new science of kindness*. London: Oneworld Pub.

Seigel, D., (2010b) *The Mindful Therapist: A Clinician's Guide to Mindsight and Neural Integration*. London: Norton Pub.

Seigel, D., (2012) *Pocket Guide to Interpersonal Neurobiology: An Integrative Handbook of the Mind (Pocket Guides)*. London: Norton Pub.

Seligman, M.E.P., (ed.) (2008) *Applied Psychology*. 57. s1 (special edition issue on positive psychology).

Seligman, M.E.P., Parks, A.C., & Steen, T., (2005) A balanced psychology and a full life. In F.A. Huppert, et al., (2nd edn.). *The science of well-being*. Oxford University Press. Ch. 10.

Selman, C., et al., (2008) FASEB J. **22**, p. 807.

Selman et al., (2006) *Physiol. Genomics*. **27**, p.187.

Selye, H. *(1976) The stress of life*. New York: McGraw-Hill.

Semmer, K.N., & Meier, L.L., (2009) Individual Differences, Work Stress and Health. In Cooper,

Senge, P.M., (2006) *The fifth discipline: the art & practice of the learning organisation*. London: Random House Business Books.

Senge, P., Scharmer, O.C., Jaworski, J., and Flowers, B.S., (2005) *Presence: An exploration of Profound Change in People, Organisations, and Society*. New York: Currency/Doubleday.

Senior, C., and Butler, M.J.R., (eds.) (2007) The Social Cognitive Neuroscience of Organisations. *Annals of the New York Academy of Sciences*. vol. 1118.

Shah, P.E., Fonagy, P., and Strathearn, L., (2010) Is attachment transmitted across generations? The plot thickens. *Clinical Child Psychology and Psychiatry*, 15(3) pp. 329-345.

Shalev, A.Y., Freedman, S., Peri, T., Brandes, D., Sahar, T., Orr, S.P., and Pitman, R.K. (1998). Prospective Study of Posttraumatic Stress Disorder and Depression Following Trauma. *The American Journal of Psychiatry*: May, 155, pp. 630- 637.

Shalev, AY., Freedman, S., Peri T., Brandes, D., Sahar, T., (1997) Predicting PTSD in civilian trauma survivors: prospective evaluation of self report and clinician administered instruments. *Brit J Psychiatry.*170. pp. 558-564.

Shalev AY, Peri T, Canetti L, Schreiber S. (1996) Predictors of PTSD in injured trauma survivors: a prospective study. *Am J Psychiatry.* 153. pp. 219-225.

Shaperia, S.C., Hammond, J.S., and Cole, L.A., (eds.) (2009) Essentials of Terror Medicine. New York: Springer Pub.

Shapiro, F., (2001) *Eye Movement Desensitization and Reprocessing: Basic Principles, Protocols, and Procedures*. Guildford Press. ISBN 1-57230-672-6

Sharp, C., Pane, H., Ha, C., Venta, A., Patel, A.B., Stuerek, J., and Fonagy, P., (2011) Theory of Mind and Emotion Regulation Difficulties in Adolescents with Borderline Traits, *Journal of the Academy of Child and Adolescent Psychiatry*. Vol. 50 No. 6 June. Pp. 563-573.

Shaw, P., (2002) *Changing Conversations in Organisations: A Complexity Approach to Change*. London: Routledge.

Sherry, R., (2013) Psychological Aesthetic Medicine Assessment (PAMA), invited lecture Aesthetic Body Sculpting and Cosmetic Medicine Group, December, 7, 2013—Invited Speaker, London, U.K.

Sherry, R., (2012) *Disaster Ethics*. Society of Apothecaries Archives.

Sherry, R., (2009) *Leadership Portfolio*. Unpublished.

Sherry, R., (2008) *Critical Gaps Within Clinical Psychology Research*. MSc Clinical Psychology Dissertation. Newman College Library Archives.

Shillito-Clarke, C., (2010) Ethical Issues in Counseling Psychology. in Woolfe, R., Strawbridge, S., Douglas, B., and Dryden, W., (eds.) (2010) *Handbook of Counseling Psychology (3rd ed.)*. London: Sage. pp. 507-528.

Shin, L., et al (2005) A functional magnetic resonance imaging study of amygdale and medial prefrontal cortex responses to overtly presented fearful faces in posttraumatic stress disorder. *Architecture in General Psychiatry*. March; Vol. **62**(3): pp273-281.

Shin, L.M., Bush, G., et al (2007) Dorsal Anterior Cingulate Function in Posttraumatic Stress Disorder. *Journal of Traumatic Stress*. October; Vol. **20**, No. 5, pp. 701- 712.

Shlenger, W.E., Kulka, R.A., et al (2007) The Psychological Risks of Vietnam: The NVVRS Perspective. Journal of Traumatic Stress, Vol.20 (4), August; pp. 467- 480.

Shunk, D.H., (2012) *Learning Theories: An Educational Perspective, 6th ed*. London: Pearson.

Sidovrov, L., and Chen, K., (2006) Biophysical Mechanisms of Genetic Regulation: Is there a Link to Mind Body Healing? in Roy, R., (ed.)(2003) *Science of Whole Person Healing: Proceedings of the first interdisciplinary international conference. Vol. 1*. New York: iUniverse Inc. e-book format. pp. 202-208.

Simon, G.E., VonKorff, M., Piccinelli, M., Fullerton, C., and Ormel, J., (1999) An International Study of the Relation Between Somatic Symptoms and Depression. *The New England Journal of Medicine*. Vol. 341, No. 18. pp. 1329-1335.

Sinason, V., (ed.) (2011) *Attachment, Trauma, and Working with Dissociative Disorder and Multiplicity (2nd ed.)*. London: Routledge Press.

Slade, A. (1999). Attachment Theory and Research. In Jude Cassidy and Phillip R. Shaver Handbook of Attachment: Theory, Research, and Clinical Applications. London: Guildford Press. Part 5, pp. 575 – 594. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Smith, D.B., (ed.) (2008) The People Make the Place: Dynamic Linkages Between Individuals and Organisations. London: LEA Press.

Smith, R.P., Katz, C.L., Charney, D.S., and Southwick, S.M., (2007) Neurobiology of disaster exposure: fear, anxiety, trauma, and resilience. Chapt. 5. in Ursano, R.J., Fullerton, C.S., Weisaeth, L., and Raphael, B., (2007) *Textbook of Disaster Psychiatry*. Cambridge: Cambridge University Press. pp. 97-117.

Snyder, C.R., & Lopez, S.J. (2007) *Positive psychology: The scientific and practical explorations of human strengths*. Thousand Oaks, CA: Sage Pub.

Solms, M., and Turnbull, O., (2002) *The Brain and the Inner World: An introduction to the neuroscience of subjective experience*. London: Karnac.

Solomon, Z., Zur-Noah, S., Horesh, D., Zerach, G., and Keinan, G., (2008) The Contribution of Stressful Life Events Throughout the Life Cycle to Combat- Induced Psychopathology. *Journal of Traumatic Stress*. June; Vol. **21**, No. 3, pp. 318-325.

Sosa, E., and Kim, Jaegwon, (2000) *Epistemology: An Anthology*. Oxford: Blackwell Publishing.

Spandorfer, J., Pohl, C.A., Rattner, S.L., Nasca, T.J. (2010*) Professionalism in Medicine: A case-based guide for medical students*. Cambridge, England: Cambridge University Press.

Spitzer, R.L., Lilienfeld, S.O., Miller, M.B., (2005) Rosenhan revisited: the scientific credibility of Lauren Slater's pseudo patient diagnosis study. *Journal of Nervous Mental Disease.* 2005 Nov;193(11): pp. 734-9.

Stamm, E., (ed.), (1996) *Measurement of stress, trauma, and adaption*. Lutherville, M.D: Sidran.

Steinberg, M., (1994) *Interviewer's Guide for the Structured Clinical Interview (SCID-D): To the Structured Clinical Interview DSM-IV for Dissociative-Disorders Revised*. Washington D.C: American Psychiatric Pub.

Stein, D.J., (2003) *Cognitive-Affective Neuroscience of Depression and Anxiety Disorders*. London: Martin Dunitz Press.

Stein, H., Koontz, Dawn A., et al (2002) Adult attachment: What are the underlying dimensions? *Psychology and Psychotherapy: Theory, Research and Practice*. Vol. **75**, pp. 77-91.

Steptoe, A., O'Donnell, K., Marmot, M., and Wardle, J., (2008) Positive affect and psychological processes related to health. *British Journal of Psychology*. May; Vol. **99**, pp. 211-227.

Stern, D., (2005) Intersubjectivity. Chapt 5. in Person, E.S., Cooper, A.M., Gabbard, G.O., (2005) *Textbook of Psychoanalysis*. Washington D.C: American Psychiatric Pub. pp. 77-92.

Sugarman, L., (2010) The life course: A framework for the practice of Counseling Psychology. In Ray Woolfe, ed. *Handbook of Counseling Psychology (3rd Ed)*. London: Sage. Ch. 14. pp. 279-297.

Surtees, P. G., (1989) Adversity and Psychiatric Disorder: A Decay Model. In G.W. Brown and T.O. Harris. *Life Events and Illness*. New York and London: The Guilford Press.

Susskind, L., (2001) *The Black Hole War: My Battle with Stephen Hawking to Make the World Safe for Quantum Mechanics*. e-book format.

Susskind, L., and Lindesay, J., (2005) *An Introduction to Black Holes, Information and the String Theory Revolution: The Holographic Universe.* e-book format.

Sweeny, S., (2009) 101 Ways to Promote your Website (7th edn.). Gulf Breeze Florida: Maximum Press. e-book.

Taku, K., Cann, A., Colhoun, L.G., and Tedeschi, R.G., (2008) The Factor Structure of the Posttraumatic Growth Inventory: A Comparison of Five Models Using Confirmatory Factor Analysis. *Journal of Traumatic Stress*. April; Vol. **21**, No.2, pp. 158- 164.

Target, M., (2005) Attachment Theory and Research. Chapt 10. in Person, E.S., Cooper, A.M., Gabbard, G.O., (2005) *Textbook of Psychoanalysis*. Washington D.C: American Psychiatric Pub. pp. 159-172.

Taylor, S.E., (2011) Pathways Linking Early Stress to Adult Health. Chapt 51. in Decety, J., and Cacioppo, J.T., (eds.)(2011) *The Oxford Handbook of Social Neuroscience*. Oxford: Oxford University Press. pp. 776-786.

Taylor, S.E., and Sherman, D.K., (2004) Positive Psychology and Health Psychology: A Fruitful Liaison. In P. Alex Linley and S. Joseph. *Positive Psychology in Practice*. New Jersey: John Wiley & Sons, Inc. Ch. 19. pp. 305-319.

Thompson, B. (2004) *Exploratory and Confirmatory Factor Analysis: Understanding Concepts and Applications,* Washington, DC: American Psychological Association.

Tiller, W.A., Dibble, W., Kohane, M., (2001) *Conscious Acts of Creation: The Morphogenic (or embionic) Field*. California: Quality Books.

"Timeline". Retrieved 2010-04-22.

Tracey, J., (2004) *Telemedicine Technical Assistance Documents: A guide for getting started in telemedicine*. Office for the Advancement of Telemedicine: e-book.

True, W.R., Rice, J., Eisen, S.A., Heath, A.C., Goldberg, J., Lyons, M.J., and Nowak, J., (1993) A twin study of genetic and environmental contributions to liability for posttraumatic stress symptoms. *Archives of General Psychiatry*, 50, 4: pp. 257-64.

Tull, M., (2007): *"Posttraumatic Stress (PTSD): Overcoming Trauma"*
http://ptsd.about.com/od/causesanddevelopment/a/resiliency.htm

Ursano, R.J., Fullerton, C.S., Weisaeth, L., and Raphael, B., (2007) *Textbook of Disaster Psychiatry*. Cambridge: Cambridge University Press.

Ursano, R.J., Grieger, T.A., & McCarroll, J.E., (1996) Prevention of Posttraumatic Stress: Consultation, Training, and Early Treatment. . In Van der Kolk, et al., (eds.). *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society. New York: The Guilford Press. Ch.19.* pp. 441-462.

van der Kolk, B.A., (1996) The Body Keeps the Score: Approaches to the Psychobiology of Posttraumatic Stress Disorder. In Van der Kolk, et al., (eds.). *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society. New York: The Guilford Press. Ch.10.* pp. 214-241.

van der Kolk, B.A., and d'Andrea, W., (2010) Towards a developmental trauma disorder diagnosis for childhood interpersonal trauma. Chapt. 6 in Lanius, R., Vermitten, E., Pain, C., (eds.)(2010) *The Impact of Early Trauma on Health and Disease: The Hidden Epidemic*. Cambridge: Cambridge University Press. pp. 57-68.

van der Kolk, B.A., (2012) Developmental trauma disorder: Towards a rational diagnosis for children with complex trauma histories. (Sept, 25, 2012).
http://www.traumacenter.org/products/pdf_files/preprint_dev_trauma_disorder.pdf

Van Staden, C.W.W., (2006) The negative as potential prognostic marker of outcome in psychotherapy. *Psychology and Psychotherapy: Theory, Research and Practice*. September; Vol. **79**. pp. 461-465.

Varma, D.R., (2011) The Art and Science of Healing Since Antiquity. New York: Xlibris Corporation. e-book.

Vasterling, J.J., and Brewin, C.R., (2005) *Neuropsychology of PTSD: Biological, Cognitive, and Clinical Perspectives.* New York: The Guilford Press.

Vogt, B.A., (ed.)(2009) *Cingulate Neurobiology and Disease*. Oxford: Oxford University Press.

Vos, A. S., Strydom, H., Fouché, C. B., & Delport, C. S. L. (2002). *Research at grass roots: For the social sciences and human services professions* (2nd ed.). Pretoria: Van Schaik Publishers.

Vygotsky, L.S., (1986) *Thought and Language* (Newly Revised Kzulin, A., ed.). Cambridge: MIT Press.

Wade, D.T., (2010) Neuropsychological deficits within the World Health Organisation's model of illness (ICIDH-2). Gurd, J.M., Kischka, U., and Marshall, J.C., (eds.)(2010) *The Handbook of Clinical Neuropsychology 2nd ed*. Oxford: Oxford University Press. pp. 856-871.

Walker, J.R., & Furer, P., (2006) Health anxiety: Hypochondrias and somatization. In A. Carr, (ed.). *The Handbook of Adult Clinical Psychology: An Evidence – Based Practice Approach.* London and New York: Routledge. Ch.16.

Walker, S., (1984) *Learning Theory and Behaviour Modification*. London: Meuthuen & Co. Ltd.

Wang, S., (2005) A conceptual framework for integrating research related to the physiology of compassion and the wisdom of Buddhist teachings. Chapt. 3. in Gilbert, P., (ed.) (2005) *Compassion: Conceptualizationa, Research, and Use in Psychotherapy*. London: Routledge. pp. 75-120.

Weathers, F. W., Keane, T.M., & Davidson, J. R. (2001). Clinician- Administered PTSD Scale: A review of the first ten years of research. *Depression and Anxiety*, 13, 132- 156.

Weathers, F. W., Keane, T. M. (1999). Psychometric properties of nine scoring rules for the Clinician-Administered Posttraumatic Stress Disorder Scale. *Psychological Assessment*, 11, 124- 133.

Weller, G, Garelick, H, Naylor, D., and Sherry, R., (2010) Organisational involvement in supporting the learned professional, *Work Based Learning e-Journal, vol. 1, No. 1, 2010*, http://wblearning-ejournal.com/archive/10-10-10/1011%20rtb.pdf.

Westphal, M., and Bonanno, G.A., (2007) Posttraumatic Growth and Resilience to Trauma: Different Sides of the Same Coin or Different Coins? *Applied Psychology: An International Review*. July; Vol. 56 (3), 417- 427.

Wheway, J., C. R. Mackay, and R. A. Newton. 2005. A fundamental bimodal role for neuropeptide Y1 receptor in the immune system. *J. Exp. Med.* 202: pp. 1527–1538.

Which Uni Info (2013) http://www.whichuni.info/compare/?institutions%5B%5D=middlesex-university&institutions%5B%5D=newman-university-college&submit=Compare+Selected.

Wichers, J.M., Lothmann, C., Simons, C.J.P., Nicholson, N.A., and Peters, F., (2012) The dynamic interplay between negative and positive emotions in daily life predicts response to treatment in depression: A momentary assessment study. *British Journal of Clinical Psychology*. Vol. 51: Part 2, June 2012. pp. 206-222.

Williams, B., (1998) Ethics (Chapter 10) in Grayling, A.C. (ed.), *Philosophy 1: A guide through the subject*. Somerset: Oxford Press.

Williams, R., Alexander, D., (2009) Part B-Psychosocial Resilience and Distress in the Face of Adversity, Conflict, Terrorism, or Catastrophe. in Hopperus-Burma, A.P.C.C., Burris, D.G., Hawley, A., Ryan, J.M., and Mahoney, P.F., (2009) *Conflict and Catastrophe Medicine: A Practical Guide (2nd ed.)* London: Springer. pp. 360-374.

Wilson, J.P., and Keane, T.M., (eds.) (2004) *Assessing Psychological Trauma and PTSD. (2nd ed.)*. London: Guilford Press.

Wilson J.P., (1994) The Need for an Integrative Theory of Post-Traumatic Stress Disorder. In Williams, M. B., Jr. Sommer, J.F. (eds.), *Handbook of Post-Traumatic Therapy.* Part 1: pp3-18 London: Greenwood Press

Wilson, J.P., and So-kum Tang, C., (eds.)(2007) *Cross Cultural Assessment of Psychological Trauma and PTSD.* New York: Springer Press.

Wilson, K.G., Sandoz, E.K., and Roberts, M.E., (in press) The Valued Living Questionnaire: Defining and measuring action within a behavioural framework. *The Psychological Record*.

www.contextualpsychology.org/vlq_valued_living_questionnaire. [*Note: Used as a core reference informing the research, but not directly cited within the body of the dissertation*]

Wingfield, K., et al (2009) Relationship between coping with negative life-events and psychopathology: Major depression and borderline personality disorder. *Psychology and Psychotherapy: Theory, Research and Practice.* December; Vol. **82**, pp. 421-425.

Winnicott, D.W., (1965) "Ego distortion in terms of true and false self", in *The Maturational Process and the Facilitating Environment: Studies in the Theory of Emotional Development*. New York: International UP Inc., pp. 140-152.

Winter, R., and Munn-Giddongs, C., (2001) *A Handbook for Action Research in Health and Social Care*. London: Routledge.

WIPO (2003) World Intellectual Property. *Secrets of Intellectual Property: A Guide for Small and Medium Size Exporters*. Geneva: WIPO Press.

Wisker, G, (2001) *The Postgraduate Research Handbook*. New York: Palgrave.

Wisner, B., Blaikie, P., Cannon, T., and Davis, I., (2003) At Risk: Natural hazards, people's vulnerability and disasters (2nd-edn.). London: Routledge. e-book format.

Witt, et al., (2005) in Gilbert, P., (ed.) (2005b) *Compassion: Conceptualization, Research, and Use in Psychotherapy*. London: Routledge.

Wong, P.T.P., and Wong, L.C.J., (eds.)(2006) *Handbook of Multicultural Perspectives on Stress and Coping*. New York: Springer Press.

Wood, A., Linley, P.A., Maltby, J., Baliousis, M., and Joseph, S., (2008) The Authentic Personality: A theoretical and Empirical Conceptualization and the Development of the Authenticity Scale. *Journal of Counseling Psychology, July, 55, 3, pp. 385-400.*

Woods, R.T., (1978) Problems in the elderly: Investigation. In S.J.E. Lindsay & G.E. Powell, *The Handbook of Clinical Adult Psychology (2nd edn.)*. London and New York: Routledge.

Woolfe, R., Strawbridge, S., Douglas, B., and Dryden, W., (eds.) (2010) *Handbook of Counseling Psychology (3rd ed.)*. London: Sage.

Yehuda, R., & Flory, J.D., (2007). Differentiating Biological Correlates of Risk, PTSD, and Resilience Following Trauma Exposure. *Journal of Traumatic Stress*, Vol. 20(4), August; pp.435- 448.

Yehuda, R., (1999). *Risk Factors for Posttraumatic Stress Disorder*. Washington, DC & London: American Psychiatric Press.

Yerkes, R.M., & Dodson, J. D. (1908) The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology*, 1908, 18, 459-482.

Zak, P.J., Kurtzban, R., Matzner, W.T., (2005) Oxytocin is associated with human trustworthiness. *Hormones and Behaviour*. Vol. 48, pp. 522-527.

Zatzick, D.F., & Galea, S., (2007). An Epidemiologic Approach to the Development of Early Trauma Focused Intervention. *Journal Of Traumatic Stress,* Vol.20 (4), August; pp. 401-412.

Zhou, X. H., Obuchowski, N. A., & Obushcowski, D. M. (2002). *Statistical Methods in Diagnostic Medicine*, New York: Wiley & Sons.

Zielinski, K., Duplaga, M., and Ingram, D., (eds.)(2006) *Information Technology Solutions for Healthcare*. London: Springer Pub.

Zulkefly, N.S., & Baharudin, R. (2010) Using the 12-item General Health Questionnaire (GHQ-12) to assess the psychological health of Malaysian college students. *Global Journal of health science*, 2(1), 73-80.

List of Appendices:

Appendix I:

Terms and Definitions

Glossary of Terms

Trauma (T) Trauma can be described as exposure to an event that overwhelms the organism's capacity to cope and typically causes damage to the self-regulatory system necessary to restore the organism to its previous state and that which helps distinguish relevant from irrelevant stimuli. Traumatization usually produces symptoms such as intrusive reliving, numbing, hyper-arousal, increased aggression against self and/or other drug and alcohol abuse, depression, and chronic physical illness (from van der Kolk in Panksepp's 2004, p 321).

Anxiety (A) Anxiety, as I am using it in this context, relates most closely with *generalized anxiety*, which includes a variety of psychological disturbances: uncontrollable apprehension expectations, jumpiness, and a tendency for excessive vigilance and fidgetiness. Autonomic symptoms include: gastro-intestinal irritability, diarrhoea, frequent urination, as well as other visceral symptoms such as tachycardia, chronic dryness of the mouth, increased shallow respiration. Most of these symptoms are related to activation of the fear system (van der Kolk in Panksepp's 2004, p 499). It is helpful to view anxiety as a reaction of expecting something bad or dangerous to be imminent.

Impulsivity (Im), as I am using it, the term relates to a consistent behavioural pattern where the person is unable to control or curtail undermining actions. Examples could include: expressions of uncontrolled rage, fighting, acting out behaviour like excessive use of drugs or alcohol, promiscuity, gambling, or spending. Increased rates for morbidity and risk are significantly tied to this behavioural feature. Typical impulsive behaviour can also seen from a personality perspective where the person is not able to prevent behaviour from interfering with a concentrated task permitting them to finish one aspect before going on to the next. Neurologically, it appears that the cortico-striato-thalmo-cortical (CSTC) circuits loop between cortical and sub-cortical brain regions. These link neuro-chemical projections to the sensorimotor cortex, orbito-frontal cortex (OFC), limbic and associated anterior cingulate cortices, or associated cortices. Therefore the orbitofrontal region plays an important part in inhibitory control—especially as this relates to impulse control and impulsivity (Peterson and Panksepp in Panksepp's 2004, p 499).

Self Awareness (SA) This concept is one of the most significant evolutions in current thinking regarding mental health. Mindfulness and having a capacity to develop a "positive" perspective related to thinking can account for understanding another's state of mind. This capacity is crucial for relating to others and to attempt to understand one's own emotional states.

Self Critical Thoughts (SCT) This is one of the two core aspects of Blatt's concept of depression that connects most to issues of self-definition and self-worth. Blatt has called this aspect Introjective depression. I have chosen to look at these concepts in relation to probable neurological substrata of the brain. It is likely that this is a pre-frontal cortex hyper activation. These factors look at depression being separated (in this case) into negative concepts about self and the world where one assumes blame for what has happened. A good deal of anger tends to be internally directed and reflect feelings of guilt, emptiness, hopelessness, dissatisfaction, and insecurity.

Anxiety and Fear (A/F) This is the other factor of Blatt's concept of depression that he labels as Anaclitic Depression. It appears likely that this neural operating system incorporates the limbic structures that activate fear (and anger) circuitry where behavioural substrates motivate the person to try and manage these anxieties.

Defensiveness (Df) The defense is linked to a developmental continuum from immature to mature. These are observable behaviours that serve to keep objectionable ideas out of awareness. In the STAT psychometric, I am more concerned with measuring lower defensive mechanisms to work towards having a clearer understanding of the likelihood and strength of opposition from earlier defensive processes the clinician is likely to encounter—or what needs to be considered in assessing the person related to their clinical treatment.

Conscientiousness Scale (half scale) (Cscale/) This half scale is working to address the problem in psychometric evaluation of social desirability or on a more extreme end of the scale of deceitfulness. By looking for ways to measure social conformity this is one means to try to take account of this psychometrically.

Intelligence (half scale) (/Int) This relates to the concept of intelligence and the measures are attempting to find accessible features of this domain related to a likely stable attribute of primarily linking to verbal control and fluency. [Note—this concept most likely is not limited only to this aspect of positive capacity and is likely to be linked as well to social-emotional, and perhaps other aspects—see Gardener's 7 types of intelligences.]

Appendix II:

Gaps within Clinical Psychology and Positive Psychology and the Inter-Relationship with the concept of Psychological Trauma:

The detail and complexity of the gap in the research with clinical psychology and positive psychology with the inter-related issues of how research into psychological trauma necessitates these dense issues be unpacked and further explained:

Maddux (2008) cites one of the difficulties of traditional clinical psychologies approach to adjustment or maladjustment is locating it within the person rather than seeing the person in interaction with their environment. Maddux et al., (2004) citing Reznek, described there are consequences to concepts and the clinical psychology framework casts the person receiving therapy as weak and defective and thereby places the person in a passive recipient of the expert's (clinical psychologists) care (Maddux, 2008). As previously outlined (ibid, p. 164), this professional disenfranchisement may stop genuine innovation from occurring with helping encourage patients as well it may entrench the clinicians into quite rigidified ways of trying to help patients/clients that can be incredibly shaming for the person receiving treatment, thus undermining authentic compassionate care and actually harming patients (Mollon, 2002) as shame is such a toxic experience and emotion. The relationship between PTSD and post-traumatic growth (Joseph, 2004) highlights the importance of the therapists empathetic listening and working to facilitate positive action on behalf of the patient (Bretherton and Orner, 2004).

Duckett's (2010) point, especially as it relates to the example with the split with clinical and positive psychology, where the philosophical implications of dualism limits much of the complexity or dimension of materialism; Therefore, there are professional power dynamics that serve to reinforce stuck or backward processes to understand clinical innovation and leadership within the field. This unhelpful rigidification in a similar way to intergenerational trauma this can get passed down because of one's own blind spots to one's own difficulties often reinforces certain processes pushing them to develop into maladaptive or even ill structures.

The unhelpful or even abusive power dynamics that Foucault's work (2001) highlighted goes further in identifying critical gaps in the integration of held and understood information. This project has found quantitative and qualitative support for the value of bringing together multiple perspectives to fundamentally reappraise the needs of change and in factors that could influence outcome—especially in including am integrated spectrum of illness and health, having clear cut off scores that is shared with the person to help them look at where they are within their functioning as a contextualised process and what can be done to improve their well being to help them learn about themselves as well as their emotional environment.

In not including a holistic perspective this limited vantage point serves to undermine the values fundamental to good psychobiological practice (and therefore psychological practice) as well as ethical and humane treatment of patients/clients (Shillito-Clarke, 2010). For example, from the findings from the data the critical importance of the

subjective weight of the clinical sample's perspective appeared to outweigh that of the more objective measures. And this discrepancy might be one of the hallmarks of a deeper exploration of what may be at work within psychopathology. However, if this is not understood on the social-systems level considerable possibility for change could be critically missed. If these delicate issues are not gently handled it is possible these aspects might further undermine treatment rather than help the patient/client move forward as well as help the clinician innovate more compassionate and effective clinical treatments.

Maddux, Snyder, and Lopez (2004) argue it should not just be the way clinical psychology conceives of illness or well-being, but in what is actually the difference between them. They are critically looking at this question from a social constructionist perspective, where the behaviours that lead to clinical diagnosis are very culturally and historically conceived of.[viii] In moving well beyond the historically problematic impact of incorrect diagnosis, it does open up a perspective of what happens when extremely accurate, consistent, and meaningful diagnosis can be employed within clinical treatment.

The wider scope of emotions (Fredrickson, 2005; Panksepp, 1998) contains not only a clearer conceptualization of vulnerabilities and resiliency, but it includes the spectrum of functioning that this research data evidence also supports. There is a difference in the clinical and non-clinical groups, but there is also a spectrum and an overlap between the conceptualization of psychopathology (measurement of 'illness') and that of positive measures (that of 'health') (Parks and Lechner, 2006). To discount this spectrum is to do both groups a disservice to hold in mind a greater goal of learning and assimilating beyond adverse experiences (Linely and Joseph, 2008b&c) towards that of integrated health and well-being.

Models like Scott and Stradley (2001) similarly to Hart (2006) lend themselves to an integrated spectrum of psychological clinical work that can accommodate the health related issues (Walker and Furer, 2006; Taylor and Sherman, 2004) that contribute to maintaining problematic functioning and eventually even preventative approaches (Ursano et al., 1996) or building resiliency (Wesphal and Bonanno, 1999). Wilson (1994) Joseph and Linely (2008a) describe the necessity for an integrated conceptualization for PTSD, Maddux et al (2004) describe the necessity for this type of integrated thinking to be brought to bear upon the discipline of clinical psychology to have a fuller notion of a spectrum approach to include well-being (Joseph et al., 2004). This is exactly what the author's STAT test attempted to do, which the data clearly demonstrates its clinical utility, validity, and reliability. In developing new psychometric strategies to include development and these more dynamic articulation of social-neuropsychological processes it provides a pathway to significantly better account for flat uni-dimensional types of tests.

This broader inclusive perspective would require that the primary issues and the secondary consequences to be more explicitly drawn out. This is very much taken up with the redevelopments with in the new STAT test. The following figure 4 illustrates that the contributing factors then become organised around certain type of pathological expressions

when systems and functions break down and how underlying mechanisms can lead to possible disease processes and symptom expression.

Proximal development

Proximal stress-related psychopathology

Selective attention/cognition/ learning

Generation of intense negative emotions

Self-attributions

Autonomous strivings

Perception of self-efficacy

Specific psychodynamic/ psychosocial/narcissistic concerns

Impulse control

Moral development

Awareness/sense of historical continuity

Representation of self and others

Biological maturation

Interpersonal and intrafamilial transitions

Ontogenesis of competencies

↔

PTSD

Depression

Phobia

New-onset attention-deficit/ hyperactivity disorder

Other anxiety disorders

Sleep disorder

Somatization disorder

Disorders of attachment

Conduct disorder

Dissociative reactions

Eating disturbances

Substance abuse

Figure 14.1. The interaction of proximal stress-related psychopathology with proximal development.

Figure 7.1 [Pynos et al., 1996, p 343](Permission given to use diagram.)

Following from the data found within the research and building on the previous authors perspectives of the necessity of a wider framework (also see Calhoun and Tedeschi, 2006), one of the central points of the paper is the necessity of widening the scope of examining both the issues of psychopathology as well as wellness. This expanded perspective requires a much more integrated view of psychological areas of specialty. Diagram 6.4 (on page 174) by the author, illustrates this more integrated vision of how many of the research themes examined in this research project could be more clearly organised to reflect a larger progressive trend away from traumatic vulnerability and towards resilient and supported well-being. Much of the deeper strata of the meta-level integration of these critical gaps within not only the literature, but in thinking in general is a redeveloped robust clinical framework to handle any level of change management probably from any level of system breakdown (Kilberg, 2000).

Appendix III:

Further Details of Modules of the Brain

The author felt because of the complexity and detail of these brain regions it is important to provide further specifics to better contextualize the unique neuro-anatomic features and more integrated dynamic interactions of these neural-behavioural processes.

Brain Regions

Functionally, both memory of time and place are neurologically organised within an area of the brain called the hippocampus (Carlson, 2001), which it is interesting that the fear center, the amygdala is connected next to each of the right and left hippocampi (ibid). It is helpful to think that this area of localized brain functioning, both organises the persons structuring of time and space as well as being sensitive to the effects of stress hormones. In bridging together points of convergence that could produce a clearer explanation for the phenomenon for stress and vulnerability as well as resilience, the neuro-scientific and immunological models (covered above) along with the collated data from functional imaging (Bremner, 2005b) show the hippocampus becomes a marker for PTSD, abuse, or stress related disorders by mediating the effects of stress hormone, stress and trauma.

However, early stress and damage to the memory centers (the hippocampus) of the brain via cortisol has been shown to occur in animal studies (Panksepp, 1998) and with humans (Gilbertson et al., 2002; Bremner, 2005b). Memory has an impact on not only procedural behaviour (Baddeley, 2001) but emotional processing is equally maturationally developed (Schore, 2003 a&b) and is integral in linking time and space.

However, in taking into account other twin research, a history of physical or sexual abuse was not relevant for the overall results of Gilbertson et al.'s research on one of a pair of identical twin's exposure to traumatic environments (2002). It appeared that heredity was the strongest explanation for having a smaller hippocampus (Bonn et al., 2001), which is a central brain area for memory processing. Gilbertson et al. (2002) found a smaller hippocampus as a vulnerability factor to developing PTSD. This pre-trauma vulnerability for the risk of developing PTSD has been researched using neuro-imaging (Bremner, 2005a; Pitman and Delahanty, 2005) and the importance of utilizing a comparative twin studies have been used for comparative analysis yielding evidence for genetic factors in traumatic reactions (Selman et al, 2007) because it provides a model for trying to compare and match for differences in experience. One central factor was a linear relationship, where the more abuse reported, the smaller hippocampal brain areas (key aspect of memory) were found (about 18% reduction in hippocampal volume) (Bremner, 2005b). Also, the scale does not separate out to a finer gradation of age specific experience, which may be clinically diagnostically important.

Bonne et al, (2001) did not see any change in hippocampal mass, however, Gilbertson et al, (2002) following from animal models of the neuro-toxic effects of stress, found both trauma exposed and unexposed monozygotic twin pairs had smaller hippocampi and a significant negative correlation between total hippocampal volume and PTSD

symptoms was seen—where the smaller the hippocampus the higher the PTSD scores were (as measured by CAPS). Moreover, Gilbertson et al.'s research (2002) did not take into consideration that the non-combat exposed twin could have chosen a similarly emotionally stressful occupation to the combat exposed twin. With this scenario they would have a similar amount of exposure to neuro-toxic stress hormones. Therefore, combat exposure was accounted for, but as far as could be understood from the paper other forms of occupational risk or exposure could link did not appear to be controlled for.

Insula

Working from the core of the brain up to the higher levels of the cortex provides the beginning point for this integrating perspective of how self and the effects of trauma can be understood. To provide a clearer narrative mapping of these structures, I shall outline essential points as to the precision of some of these localized parts of the neural anatomy. To begin, the insula, working in conjunction with the thalamus and reticular formation could be argued, as Damasio describes, as some of the core components of consciousness (2000). The subjective internal and external modulator of integrating the person's interoceptive experience of the viscera (the physical sensations of the body) is involved with the body's experience of feelings (Craig, 2009) and therefore helps create a sense of consciousness (Heart, 2005). Craig (2010) highlights that in rats and humans the left and right insula are involved with positive and negative feelings respectfully as well as organised in an opponent process where the left insula produces a pressor response and the right a depressor response (Oppenheimer et al, 1992). Damage to the right insula can undermine one's capacity to have an awareness of one's own bodily experience as well as damage to the same area can undermine the capacity to understand other person's emotional states (Heart, 2005).

Anterior Insula Cortex (AIC)

The anterior insula assists in not only waking consciousness but, activates the deeper subjective sense of a "feeling of knowing." The specificity, especially within the right anterior insula, proceeded all other brain regions (even the cingulate) and was essential in initiating 'task-switching'. The left anterior insula responds to fearful stimuli and possibly to the conscious experience of emotion (Atchley et. Al., 2003). With co-occurring increasing activation with the anterior cingulate (together known as the "core network") the awareness of the interoceptive sense of one's own body is linked with the awareness of the outside world. Craig (2009, 2010) outlines the impressive catalogue of primary substrata this module generates including neural activity that guides behaviour, homeostasis, and may help to provide an explanation of why the insula encompasses so many central functions of subjective integration (or self-awareness). More specifically this includes: a felt sense of negative emotions (right insula) (Critchley et al., 2004), awareness of body movement, self-recognition, emotional awareness within the viscera, vocalization and music, time perception, attention, perceptual decision making, risk—uncertainty—and anticipation, performance monitoring, and an overall embodied sense of interoproception.

The neuro-circuitry of the anterior insula, links olfactory, gustatory, viscero-autonomic, and limbic function. The larger anterior part of the insula modulates a persons sense of disgust to smells [39] and to the sight of contamination and mutilation [40], even when thinking about or imagining one's own or another's unpleasant experiences. The degree of sensation of bodily intensity is believed to originate within these structures. The insula both controls homeostatic regulation of sympathetic and parasympathetic systems (Daniels, 2010b), regulates the immune system (Craig, 2010), and organises the self perception of warmth and coldness, skin sensation, pain, the sensation of viscera like the bladder, as well as more complex social emotions including empathy and compassion. If we look at the essential list of modular functions and how critical this is both for an embodied sense of self as well as for emotional experience of self, it is clearer why overlooking this aspect of human modular functioning creates a significant void in linking together an accurate model of functioning and how dysregulation or trauma may undermine these very fine processes.

Posterior Insula

The smaller posterior insula is related more to auditory-someothetic-skeletomotor function including an appreciation of music. The posterior insula regulates the auditory processing, pain, and the experience of basic emotions such as anger, fear, disgust, happiness, and sadness (Craig, 2009). Furthermore, Craig (2009) collates the essential purpose of the insula as helping to integrate the networking of these different maps of these bodily states combining them with a template of time (a felt sense of past, present, and future) to synthesize them into what he describes as a "global emotional moment." The importance of this is that multi-layered bodily and experiential maps moves the processing from the posterior insula (the primary interoceptive representation) to the anterior insula (the collated mapping of the motivational, social, and cognitive conditions linking the ACC and higher brain control functions like the DLPFC) (Craig, 2009, 2010). The insula helps assemble these different maps to give more of a subjective felt sense of coherence.

Cingulate Cortex

Similarly, the cingulate cortex is also divided into anterior and posterior sections.

The interface between the insula and the cingulate cortex is dynamic and essential to much of the subjective experience of a felt sense of self and the regulation of sympathetic activity—which speeds up the autonomic bodily processes (Luu and Posner, 2003). This part of the neuroanatomy is dense with opiod (morphine) receptors that serve to link attachment structures related to neurobiological outputs that affect safety, relatedness, and play behaviour (Panksepp, 1998) and appears to modulate cognition, mood, affect, and provides a model for how mental processes could be integrated with bodily systems (Luu and Posner, 2003). These systems are important as Heart (2008) points out, "The cingulate gyrus perceives emotions, just as the visual cortex perceives visual impressions, and the area is a prerequisite for our ability to engage in human relations and to feel sympathy and empathy. The cingulate gyrus is a structure that not only directs one's attention towards outside stimuli, it also registers painful and other somato-

sensory signals arising inside the body. The area is activated both when we feel pain ourselves (including in the form of social rejection), and when we feel someone else's pain, regardless if the pain is physical or mental" (2008, p. 142).

Anterior Cingulate Cortex (ACC)

To more precisely define the subsections of this neuroanatomic area besides just describing it as part of the midline structures; the anterior cingulate can be divided anatomically into dorsal—specifically, anterior dorsal (adACC) (which appears to be focused on cognitive processing) and ventral—specifically, subgenual Anterior Cingulate Cortex (sg ACC), pregenual ACC, (which appears to be more "affective" or emotional processing and regulation (Etkin et al., 2011; Bush et al., 2000, in Etkin et al., 2006). However, there is some debate if this division is oversimplified where it appears that both subdivisions make contributions to emotional processing (Etkin, 2011).

Payne and Bachevalier (2009) further describe, "It [the anterior cingulate] has been divided into distinct functional subcomponents: the 'cognitive' subdivision (area 32 and caudal area 24) and the 'affective' subdivision (area 25 and 33, and the rostral area 24). The former is strongly interconnected with the dorsolateral prefrontal cortex, parietal cortex, and premotor and supplementary motor areas; it appears to mediate attention and executive functions, such as the detections of errors and response conflict.

Dorsal ACC

The dorsal ACC responds in anticipation of aversive event and along with the dorsal medial prefrontal cortex is centrally involved with the experience of negative emotions (Etkin and Wagner, 2007). The dorsal and ventral sections of the ACC are interconnected (van Hoesen et al., 1993, in Etkin et al., 2006). PTSD may be related to decrease in the experience or impact of negative emotion (ibid.) by helping to decrease processing sensory information and increase emotional dysregulation (Schore, 2003b). In other words, a less coherent contextualised account of external processes is fragmented along with a confused internal understanding where negative emotional experiences also lose a contextualised basis for self-reflection. There is also a core level of sense of self in how interior actions are related to thinking and feeling including how any kind of pain or distress is processed.

The anterior cingulate cortex (herein ACC) plays an essential role in attentional focus, the emotional meaning that is attributed and behavioural motivation to engage with the environment is synchronized with neuroendocrine [hypothalamic-pituitary-adrenal (HPA) responses. It could be seen with some of the attentional and perceptual inputs of facial emotional perception that this next layer higher in the brain, that links together so many key systems such as amygdala (fear and rage circuitry), the hippocampus (memory), thalamus (neural routing circuitry), and hypothalamus (bodily regulation). It is possible to see the cingulate as an external perceptual layer of awareness that just like other cortical layers on top of it builds and further blends emotions, bodily states, and cognitions.

The anterior cingulate (ACC) holds a crucial function in both attentional control and mediating spatial-temporal aspects of auditory and visual input (Crottaz-Herbette and Menton, 2006). It works as an activity monitor with other different parts of the brain processing (Baars and Gage, 2007).

The different sections of the ACC together form some of the crucial areas linking reflexive emotional regulation and self-reflection processing. In other words, this is a core cognitive and emotional region linking essential areas and is activated by affective arousal and emotional conflict. The rostral aspect of the ACC area appears to be a central component in the resolution of emotional conflict and helps decrease the activation of the amygdala (Etkin et al., 2006).

Etkin et al., (2006) has developed an experimental paradigm that is capable of showing how a breakdown for monitoring and resolving conflict experimentally take longer to neuronally process. What is seen, is the higher the level of conflict takes more time to process. The areas of the brain most implicated in the conflict processing include the amygdale and prefrontal cortex. However, these areas are known for threat detection. How conflict can be resolved is linked to the rostral anterior cingulate is able to over-ride the amygdale in its regulation in a negative (inhibitive) top-down process for autonomic responsivity.

The anterior cingulate (ACC) is further crucial in being one of the essential brain areas responsible not only for integrating individual self-regulation from genes and neural network development (Posner et al., 2007), but this includes complex social processing, which directly affects behaviour as well (Behrendt, 2011).

This social attachment system is connected to the hippocampus, which relates to several aspects of memory, to the amygdala, which organises intense emotional reactions—especially intense anger and fear, and the basal ganglia, which works as a filter and relay station to many of the other crucial areas of the brain. This neuro-anatomic area is an essential point of integration for much of the essential aspects of human cognition, attention, and emotional processing.

Posterior Cingulate Cortex (PCC)

Conversely, the posterior dorsal (pdACC) 'affective' subdivision is interconnected with the limbic and paralimbic areas, such as the amygdala, nucleus acumbens, orbital frontal cortex, periaquaductal gray, anterior insula, and autonomic brainstem nuclei; it appears to be crucial in the assessment of the salience of emotional and motivational information, and may regulate emotional responses to during the monitoring of response conflict or errors" (Dickman and Allen, 2000) in Handbook for social neuroscience, 2009, p. 48).

There is a bi-directional feedback loop for the cingulate (area Cg25) connecting the brainstem, hypothalamus, and insula with lower level brain structures with the orbito-frontal, medial prefrontal, and with the rest of the anterior and

posterior cingulate (Mayberg et al., 2005). The importance of the neuroanatomic positioning as these layers is that these structures bridge much of the information processing, types of relational/emotional sense of self, and layer into the person a developmental gating system that focuses attention providing a problem-detecting and solving framework that is in the individual's and species survival interests.

The posterior cingulate cortex and the mPFC are also critical for organising this defocusing system and these areas are understood to relate to introspective mental imagery, self-reflection, self awareness, and this state is found to be greater in patients with childhood trauma. There is a distinct possibility that this combination of emotional self-organising systems may also be the switching system between conflict/problem solving (distinction making) and the more inward capacity to deepen one's intense capacity for imagination and connecting with others (distinction erasing).

The Interaction of the Insular Cortex and the Cingulate Cortex

Craig (2009) in a detailed review on the anterior insula articulates the important dynamic relationship between the Anterior Insular Cortex (AIC) and the Anterior Cingulate Cortex (ACC). He points out "A recent study performed several sophisticated connectivity and correlational analyses of attentional transitions and confirmed that the AIC and ACC act as a cognitive control network and, further, that the right AIC "plays a critical and causal role in switching between the central executive network and the default-mode" or "self-reflective network" (p. 64). There is some debate as exactly what this default network is or what it does. However, the "default mode network", may have to do with a state of readiness to respond to environmental changes [p.870 in Lanius (2010, p. 170)].

The Prefrontal Cortex

The prefrontal cortex PFC plays a crucial part in working memory, but more than this ,this area is the working space that allows humans to emotionally connect different layers of the brain previously discussed to be able to make much finer grained thoughts about what is happening. What I am proposing is a progressive gating system that serves as a relational scaffolding helping to switch from subjective to more objective, from negative to more neutral or positive emotions. It is very possible that the overly schematic way that both experimentally within research paradigms as well as even within clinical perspectives the subtlety and meaning that appears to be working at all of these levels of inside the individual, with others and within organisations could have been missed as to some of these crucial mechanisms and layers as I have outlined them here.

 The prefrontal cortex can be divided into three segments. From the top, the dorsomedial prefrontal cortex (dmPFC), medial prefrontal cortex (mPFC), and the ventromedial prefrontal cortex (vmPFC)—are structures essential in the attributional processes of ourselves and others (Baars and Cage, 2010).

Medial Prefrontal Cortex

The medial Prefrontal cortex functions in self-referential reflective awareness, monitors and modulates higher levels of emotional processes as well as inhibiting responses by the emotional limbic system (Lanius, 2010). The mPFC is activated when either one's own body is experiencing pain as well as when seeing someone else in pain, especially if the individual cares about this person. Mitchell's et al., (2006) work asked participants to make inferences about people who are either similar (activating the ventromesial prefrontal cortex, vmPFC) or different to them (activating the dorsomedial prefrontal cortex (dmPFC). The appears to be a connection with the medial prefrontal cortex (mPFC), self referential processing, and activating the "default mode network".

Lower cortisol was found to be related to exaggerated cortisol response to stressors. The mPFC along with the hippocampus, and amygdala are brain regions especially vulnerable to cortisol and stress hormones—usually connected with early traumatic experiences (Bremner et al., in Lanius, 2010).

Perez-Cruz et al., (2009) wrote, [T]he reaction of the mPFC [medial prefrontal cortex] to stress is lateralized, in that responses to minor challenges stimulate the left hemisphere whereas severe stress activates the right mPFC. Our recent investigations indicated that hemispheric structural lateralization might exist at the cellular levels in the mPFC. . . These findings highlight the importance of analyzing the two hemispheres separately and suggest pooling data from the two hemispheres may confound reliable effects of a treatment" p. 728—in Schore, 2012, p. 146). In other words, the subtle differences between each of the structures and morphology between each of these divisions privledgies the right amygdale, which has a stronger activation for the negative emotions and reinforces anxious stress-related thinking and behaviour.

The Ventromedial Prefrontal Cortex (vmPFC)

The vmPFC level of cortical processing plays an important part in decision making in uncertainty, especially in regulating emotions through the amygdala. It plays a key role in the construction of one's self, reactivating one's past emotional experiences and events. Most importantly, the right vmPFC regulates the cognitive and affective production of empathetic responses that are essential in both relating to others and in constructing the sense of one's self.

Lateral Prefrontal Cortex

Dorsal (regulating) system: Working Memory; Meta-Memory; Memory Strategies; Prospective memory (Moscovitch in Baars and Cage, 2007, p. 290) are all linked with the areas in the brain for the Ventral (activating) system: Semantic Memory; Extinction Learning; Conceptual Priming; and Autobiographical Retrieval (Moscovitch in Baars and Cage, 2010, p. 290). The ventrolateral prefrontal cortex (vlPFC) mediates some of the cognitive responses to negative emotions, it facilitates the capacity of individuals to control attention focusing on sequences, facilitating working memory space and it attempts to limit distracters. This area underpins the control of higher level attentional processes

and its output increases as the demand for working memory increases as well. This neuropsychological area mediates vigilance (Craig, 2010), and inhibits emotional experience (or attention) on social exclusion. Issues essential to the clinical treatment of patients such as rumination about social rejection or mistakes or criticism is a critical issue that is neurologically relevant in emotional processing are very much tied to the lateral prefrontal cortex (Forgas et al., 2011).

Appendix IV:

Integrating Perspectives on Attachment, Life Event Measures, Negative and Positive Poles

The author felt because of the complexity, overlap, and detail of these areas of attachment, theory of mind (ToM), mentalization, to name just some of these concepts, it is important to provide further specifics to better contextualize the unique models to develop a more integrated dynamic understanding of these neural-behavioural processes.

Self

The strongest finding related to self was 'self-alienation' (p<0.001 level of significance). This fits with Lanius et al.'s, work (2010) on traumatized/abused children who tend to attack and blame themselves (Eagle, 1995). The real negative relationship with one's parent or caretaker is then refocused upon oneself. One of the complexities in researching or working clinically with the area of attachment is in developing a maturational construct that accurately evolves throughout human lifespan (Sugarman, 2010). However, with psychopathology one recurrent problem is the negatively fixed experience of symptoms and pervasive negative views of self, others, and the world (Tarrier, 2006). If we begin by examining the idea that experience is modified through the lens and of the person's own perspective. Critically separating out areas of possible confusion in the person's lenses of how they view reality, Stein et al, (2002) highlight attachment measures can rate; the behaviour, the state of mind, expectations, or enduring traits. This leads to questions regarding a categorical classification (this includes a 4-category classification of Secure; Dismissing (Avoidant); Preoccupied (Anxious); and Fearful (Disorganised/Dissociated) attachment pattern.

Each of these attachment classifications connects with different emotional neuropsychological systems (Stein, 2003). This model of attachment is opposed to a dimensional approach where the underlying 2 construct spectrum of avoidance and anxiety (Brennan et al, 1998). However, Stein et al, (2002) clarify the weak relationship found between attachment measures is believed not to be related to differences between secure/insecure attachments, but between preoccupied and dismissing styles. This aspect of conflict, which is supported by the data, could help explain a more integrated and clearer model for attachment and levels or neuropsychological response that goes beyond a simple bidirectional binary model. This spectrum can account for differing strategies from secure to no coherent strategy (which is the equivalent of a disorganised/dissociated attachment) and pinpoints frequently the spectrum of how conflict is mediated as well as attachment appears to have an evolutionary adaptive function to it (Grossmann, 1995). Much of these aspects relate to psychological states of mind and how this awareness can be held in mind, and within the body with the spectrum of dissociation to a level of mindful embodiment in how conflict either overwhelms and blocks the system(s) or can be appropriately integrated.

This research poses an important question as to how do earlier parental attachment experiences become internalized and elaborated into an a person's self to self relating style or even dispositional styles, as Lemming and Boyle (2004) describe with shame as it moves from an interior identity to eventually operating as a stigmatizing social-contextual discourse. The interior negative feeling of these disturbing experience appears to have connection to some of the self

reports of early and some later life events particularly personal injury as well as suffering and violent coercion (CAPS) ultimately appear to influence the person's outside social relationships.   It is likely that this negativity becomes experienced and enacted within the social environment.

In drawing together these key thoughts, mental and bodily experiences of self-care are co-evolving with dynamic interactions with others. These experiences appear to have profound mind-body interrelationships and map onto critical aspects of social interactions (De Haan and Gunnar, 2009).

Other

Confidently outlining what is experience versus what is the psychological response to vulnerability cannot be completely separated. However, Irons et al.'s (2006) research into negative recall of parental interaction or rejection (negative parenting styles) as contributive to psychological vulnerabilities and self-critical voice the opposite condition—e.g. parental warmth, appears to hold a protective function.   There is some correlate to these having basis in experience (Schore, 2003b).

The evolutionary-biological duration of early human attachment and dependency necessitates a reliance on parents or caretakers. This ability to read and learn about fine-grained emotions (Ekman and Rosenberg, 2005) not only has intergenerational implications on learning, it forms the basis of how self-understanding, emotional regulation (Cloitre et al, 2008), and psychic reality (Fonagy et al., 1991).   These self-conceptual processes are inter-generationally transmitted, and should be understood as not completely relating to objective reality, especially when higher levels of psychopathology are present (Mararosh et al. (2009). The historically based inner working model may override the capacity to accurately evaluate the present situation, thus creating a self-attacking inner dialogue (Irons et al., 2007; Blat & Felson, 1993; Blatt 2004). Schwerdtfeger and Goff (2007) have found the presence of parental interpersonal trauma history (or parental attachment-based trauma) and maternal overprotection does appear to have a negative effect on prenatal attachment outcomes. From these descriptions it is easy to see how longstanding casual chains of interactions (Andreasen, 2001) that can couple even down to the genetic layer (see genetics section in literature review) can be present and these actively impact learned relational experiences as well as how one's self identity evolves.

It appears the three factors found in the Rom ATT correlations stem from Hazen and Shaver's (1990) three prototypes, which include 1) Avoidant; 2) Anxious—Ambivalent; and 3) Secure. Out of these factor scores the only significant factor was the second one, Anxious—Ambivalent, which was significant to $p<0.005$ levels.   It appears this approach/avoidant relational structure may support a conflict-based model to account for the most relevant factor underlying what is actually at work within the Rom ATT measure or a distressed experience because of a punitive parent. This could also account for Fonagy et al.'s (2004) model of the reflective self that, "feels, perceives, and reacts," regarding mental experience, conscious and unconscious.   The article goes on to describe, "It [the reflective self] registers psychic life and constructs representations of feelings and thoughts, desires and beliefs. Most important,

it is aware that its representations of its behaviour and actions are shaped by the content of other's mentation. It constructs an image of the self as observed and the other as observe in and in both cases includes a capacity to reflect upon such observations" (p 201). These capacities are severely undermined in the group with psychopathology.

Integration of Self/Other

Perhaps most interestingly, Riggs et al.'s (2007) self-report measures of self and other independently contribute to different forms of psychological developmental difficulty where the lack of resolution of trauma and the strategy the person uses to try and resolve conflict being the most essential ingredient contributing to which attachment structure they are likely to employ. Riggs et al.'s (2007) study supports the notion that the more fearful and traumatized sub-section of patients studied in their in patient sample (90% had suffered childhood sexual abuse), these patients behaved like a subgroup because of the combination of higher trauma, dissociation, somatisation, and the impact of earlier traumatic situations had on forming preoccupied and dismissing personality dimensions. This kind of trauma literally has a multiple fragmenting effect and these clustering vulnerabilities equally (although more rarely) have a sub group of resilient individuals.

In developing a model for life events and their consequences, Cobb (1974) set out to articulate a meta-theoretical model about the relationship between life events and illness. There is an important emphasis on understanding what are possible factors affecting the person's subjective experience of the traumatic situation and how this might link to physical illness and illness behaviour. One possible difficulty is the model only looks at one life event at a time and it is Cobb's perspective that events should only be studied singly. This along with the other aspects of complexity does not appear to be as clearly delineated as with other models of life events or trauma measures (Ohan et al, 2002).

An interactional paradigm for traumatic stress reactions was proposed by Wilson (1994) where the traumatic experience impacts:

> *"(1) psychological changes in brain-behaviour mechanisms; (2) effects on specific stages of life-course epigenetic development; (3) alterations in the intra-psychic organisation of the self-structure; (4) changes to the organisation of culture and society; and (5) potential alterations in the individual's capacities for attachment, bonding, intimacy, love, sexuality, and self-actualization" (1994, p. 3).*

Because of the subjective nature of defining a stressor Wilson has worked to narrow down the abstruse nature of this phenomena related to life events to include clearer parameters regarding the nature of the event as meaningfully stressful to the affected individual, the person's subjective response to the trauma, and their adaptation after the traumatic event. Four types of traumatic stressor events to account for single, multiple, chronic, or also high levels of uncertainty for the affected individual have been outlined. Person variables (such as personality), environmental and situational variables have been included within the life events framework. The multiple layers of factors do work as

an additive or subtractive process to stress and these must be conceptualized as being part of a dynamic system of interaction.

Thurlow, (1971—in Dohendwend et al 1974) pointed to a decrease in the reliability of memory of past events, especially influenced by education level (and probable/inferred intelligence (IQ) (Macklin et al 1998)); the time interval over which administration of questionnaires and various recent life events have elapsed; wording of the format of questions; and time-lag with the reporting of such events (p. 83). These aspects raise the methodological problems that are inherently invoked with emotion and retrospective remembrance and the vagaries and mis-remembrances that occur (Mikolajczak et al., 2009). In other words, the inaccuracies of memory are integrally connected with the problems in concretely taking life events without appreciating ways they maybe similarly distorted. Returning to a core tenant of Clarke and Clarke's (2000) research that trauma can and does happen, but what must be remembered is that emotional growth and development can also occur (Joseph and Linely, 2006) given the right support and encouragement (Fischer, 2006).

Appendix V: Further Details for STAT Test

Richard Sherry
17 Wimpole Street   LONDON W1G 8GB
Tel: +44(0)7863 145 386 richardcsherry@yahoo.co.uk

INFORMATION SHEET FOR PARTICIPANTS

Title: Examining the Spectrum of Factors within Stress Vulnerability and Resiliency

(1) You are asked to participate in a research study conducted by myself, Richard Sherry, psychologist and UKCP reg. Psychoanalytic Psychotherapist, as part of a psychological assessment of new incoming patients or other research for other approved research samples. By collating specific data, this could possibly help better treat and understand how to prevent trauma or other psychological problems.

(2) This study will be facilitated by myself, Richard Sherry. If you have any questions or concerns about the research, please feel free to contact, first off myself, and if there are any remaining questions, my specialty area research supervisors: Dr. Tracey Cockerton or Dr. Stuart Ross. My clinical research advisor is Professor Ernesto Spinelli.

(3) **The data collected will be completely anonymous**.

(4) This work is in partnership with Middlesex University and University Leicester.

The Purpose of the Study:
This study is looking at contributing factors for stress and anxiety and how mental health professionals improve their understanding and care of how best to clinically treat these issues.

(5) If you agree what you are being asked to do:

There are several questionnaires—One packet of several gold-standard psychometrics, a personality questionnaire, and a new psychometric, which is under development. In total, the questionnaires should take about 2 hours to complete.

(6) Confidentiality
The information collected will be **confidential and completely anonymized**. Information will not be released to any one besides those directly in charge of its study and all identifiable factors will be removed.

(7) Your Right To Withdraw
You can choose at any point in the study to withdraw from it and this will in no way effect the treatment you receive. You may also refuse to answer any questions in the questionnaires. In addition, in your own interest, the investigator may withdraw you from the research if they perceive any unexpected undesirable effects or if you express any concerns. This is a standard precaution to ensure participant protection.

(8) Potential Risks and Discomforts
There is a possibility that some of the questions, because they are asking about potentially difficult events or uncomfortable feelings may upset you. There is also a potential for boredom due to the large number of questions.

(9) Potential Benefits
I am very grateful for your willingness to participate. These psychological questionnaires help to provide an insight in to understanding how positive psychology has increasingly proved critical in improving treatment outcomes for stress and anxiety. Also, I hope that this will provide an important psychological educational component to increase your self-awareness. Like reading a good book, my hope is this will begin for you to be able to be more reflective about your own thoughts, experience, and your inner world with the purpose of having this encourage you to develop and deepen as a whole human being. Thank you for participating in my research.

Rights of the Research Participants
The Ethics sub-committee of Middlesex University and Newman College has reviewed this. If you have any questions regarding your rights as a research participant, please contact:

Dr. Tracey Cockerton

Associate Dean: Academic Development, Senior Manager
Middlesex University
The Burroughs
Hendon
London NW4 4BT

Dr. Stuart Ross
Psychology
Newman University College
Birmingham B32 3NT

Professor Ernesto Spinelli
Theobald's Heath Centre
96 Theobald's Road
London WC1

Date: 16—04—2009

Consent form
Title: Examining the Spectrum of Factors within Stress Vulnerability and Resiliency

To ensure proper consent has been given, please print and sign your name. This part of the consent form will remain with the researcher as written proof of consent.
Name of Researcher:

Please initial box

1. I confirm that I have read and understand the information sheet dated ....…………………….for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. ☐

3. I agree to take part in the above study. ☐

4. I agree that this form that bears my name and signature may be seen by a designated auditor. ☐

_____   _____   _____
Name of participant   Date   Signature

_____   _____   _____
Name of person taking consent   Date   Signature
(if different from researcher)

_____   _____   _____
Researcher   Date   Signature

Signature of Research Participant
I have read the information provided for the study "Examining the Spectrum of Factors within Stress Vulnerability and Resiliency" as, described herein. My questions have been answered to my satisfaction, and I agree to participate in the study. I have been given a copy of the details of the consent form if I wanted a copy.

_____ [SIGN]   _____
                                                    Date

I _____[PRINT] attest to signing along with the participant if there is a question of competency to give consent. If the participant is seen as competent this is not necessary, but may also be done in support of ensuring proper procedure has been followed. (Please print & sign your name on the lines above).
Thank you for all of your help in gathering this data.

Researcher: Richard Sherry in affiliation with Middlesex University and Leicester University
Dr. Tracey Cockerton
Dr. Stuart Ross
Prof. Ernesto Spinelli
(Contact details above)

Richard Sherry   17 Wimpole Street   LONDON W1G 8GB
Tel: +44(0)7863 145 386 richardcsherry@yahoo.co.uk

Debriefing Form

Thank you for participating in this study. Your time and effort are much appreciated. This experiment investigated:

The Relationship between Self-Reported Measures & Stress/Vulnerability & Resilience
Introduction:
This study is concerned with developing better methods for trauma detection and treatment.

What are you testing?
This study works to compare the best measures of attachment, trauma, emotional intelligence, positive psychology measures, as well as standard clinical psychology psychometric questionnaires. It attempts to link these with a newer developmentally-linked questionnaire. This last test is being examined against these newer multiple spectrum of cutting-edge questionnaires and aims to find new ways of improving clinical patient treatment.

How was this tested?
These questions were explored through the questionnaires. The data will be collated and analyzed using standard quantitative analysis and the results will help to plan updated care pathways for evidence-based practice.

Aims/Purpose of the study*:*
There are two main aims: The first is to develop the new questionnaire alongside gathering data by using established questionnaires.. The second aim is to explore ways in which trauma can be significantly reduced or removed to provide more efficient, targeted care to patients.

Method:
Participants will be gathered from selected research samples. Participant consent will be sought. Permission will also be sought for participants to allow their data to be anonymously used for the purposes of the research study. During this time and throughout the study, any questions patients might have will be addressed.
Participants will complete a selection of questionnaires, taking approximately two hours to complete them all. After the questionnaires are filled out a debriefing will follow.

Why is this important to study?
The study aims to open up a wider spectrum of clinical treatment to examine a much finer–tuned perspective of trauma vulnerability and resiliency. This will help to determine what can be done to improve treatment, increase prevention of trauma, and explore ways to theoretically link clinical perspectives and move these from concentrating primarily on illness to also include psychological strengths.

Further information:
If you are interested in learning more about the study, please do not hesitate to contact:
1.) Richard Sherry on 07863 145-386 or at 17 Wimpole Street, London W1G 8GB.
2.) If you would like to receive a report of this research when it is completed (or a summary of the findings), please contact Richard Sherry.
3.) If you have feedback, comments, suggestions, these are very welcome;
please contact Richard Sherry as above or by email to   richardcsherry@yahoo.co.uk
Thank you again for your participation.

STAT –Sherry Trauma Assessment Test

Directions:

Fill in the questions as quickly and accurately as possible. It is important you answer the questions as honestly as possible. Put the answer to the question as closely matching the choices available <u>without skipping any questions</u>. On a separate answer sheet, please fill in the boxes that correspond to each question. *For the second box*, if there is a specific age that corresponds to question please fill this out on the section of the of the answer sheet. **Please Do Not Write on the test booklet**—Thank you.

<center>**This STAT test is the intellectual Property of Richard Sherry Copyright @ 2011**</center>

1) I often have difficulty sleeping.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this. B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

2) If I hear a noise, I often will feel overly reactive or jumpy and irritable.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this. B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

3) I often feel emotionally quite up and down in my mood.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this. B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

4) I am usually aware of the consequences that my behavior will bring upon me.

A. Not at all	B. Rarely	C. Frequently	D. A great deal

A. I have always felt this. B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

5) I feel I can be very self-defeating.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this. B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

6) I feel my present relationship is undermined because she/he might leave.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this. B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

7) My close relationships tend to be shallow and superficial.

| A. Not at all | B. Rarely | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

8) I always keep my word.

| A. Not at all | B. On a rare occasion | C. On a frequent occasion | D. On every occasion |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

9) Often I am exposed to repeated images of scary experiences that I have had before.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

10) There are times I am so anxious I find I am drenched in sweat.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

11) I often feel a lack of motivation.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

12) I am able to usually understand things from another perspective.

| A. Not at all | B. Rarely | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

13) I was often teased, belittled or bullied by others.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

14) I feel the same feelings of helplessness and loss of control came up repeatedly in my life.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

15) I blame my family members for all of my difficulties.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

16) I am always careful not to gossip about other people.

| A. Not at all | B. On few occasions | C. On a frequent occasion | D. On every occasion |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

17) When I go to sleep, I have very upsetting dreams or nightmares.

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

18) I will often use drugs or alcohol to avoid thinking about my problems.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

19) I enjoy upsetting others.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

20) I consistently behave in a mature and responsible manner.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

21) I often feel I have difficulty coping with what I am thinking.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

22) I feel I am unable to cry and express emotion when I want or need to.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

23) I am not able to have warm, caring relationships with others.

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

24) I never make mistakes.

| A. It is true I *never* make mistakes | B. Only a few | C. Some | D. I always make mistakes |

A. I feel this has always been the case.   B. I feel this has never been the case.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

25) I often feel that the same types of problems come up in my life instead of me being able to move forward.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

26) I find I am often seized by scary uncontrollable thoughts.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

27) I sometimes feel uncontrollably or explosively angry.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

28) Other people are often shocked or disgusted by the things I do or say.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

29) I will often verbally retaliate if friends or others disagree with me.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

30) I feel blocked emotionally from others in close relationships or friendships.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

31) Others describe me as self-centered.

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

32) I have never been jealous of other people's success.

| A. Not at all true | B. A little true | C. Moderately true | D. Very true |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

33) I feel when I go many places I am reminded of horrible things that happened from years before.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

34) One or both of my parents are (or were) highly anxious or had psychological problems.

| A. Not at all | B. Only a little | C. Moderately | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

35) I have extremely impulsive behaviour—for example: Impulsive gambling_1__; shopping beyond well beyond my means__2_; Sexually promiscuous behaviour__3__; excessively abusing alcohol or food__4_. (On the ANSWER SHEET please tick all that apply)

| A. Not at all true | B. Only a little true | C. Moderately true | D. Very true |

| A. I have always felt this.   B. I have never felt this. |
| C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__ |

36) I am good at planning things in advance.

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

| A. I have always felt this.   B. I have never felt this. |
| C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__ |

37) I feel my parents or carers were controlling, intrusive, overly critical, and punitive.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

| A. I have always felt this.   B. I have never felt this. |
| C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__ |

38) Most of my early childhood up to ten is unclear for me.

| A. Not at all | B. Only a little | C. Some | D. A great deal |

| A. I have always felt this.   B. I have never felt this. |
| C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__ |

39) I find I frequently become upset at things that usually do not seem to bother other people.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

| A. I have always felt this.   B. I have never felt this. |
| C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__ |

40) I am always consistent with what I say to others.

| A. Not at all | B. On few occasions | C. On a frequent occasion | D. On every occasion |

| A. I have always felt this.   B. I have never felt this. |
| C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__ |

41) I was frequently physically hit as a child or adolescent.

| A. Not at all | B. Only a little | C. Moderately | D. A great deal |

| A. I have always felt this.   B. I have never felt this. |
| C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__ |

42) There are times where I feel panicked or have panic attacks.

A. Not at all	B. Only a few	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

43) I often take big risks.

A. Not at all	B. Rarely	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

44) I feel I have a good relationship with my parents or caretakers.

A. Not at all true	B. A little true	C. Moderately true	D. Very true

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

45) I am very sensitive to others' signs of rejection.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

46) I sometimes worry about others untrustworthiness or betrayal.

A. Not at all	B. Rarely	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

47) I often feel physically unwell when I am stressed.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

48) I never hold a grudge against any one.

A. Not at all	B. On few occasions	C. On a frequent occasion	D. I always hold a grudge

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

49) I have experienced one (or more) particular event(s) that drastically altered how safe I felt in the world.

A. Not at all	B. Affected a little	C. Affected moderately	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

50) I often find myself feeling very nervous or unsettled.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

51) I find it difficult to follow through or finish anything to completion.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

52) If I am angry or happy, I am aware of what I am feeling.

A. Not at all	B. Rarely	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

53) I have guilt over not feeling I have lived up to my own or others' expectations.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

54) I often confuse sexual involvement with being loved or cared for by another.

A. Not at all	B. Rarely	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

55) I often tend to respond to others in a mean spirited way.

A. Not at all	B. Rarely	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

56) I always make sure to keep my word.

| A. Not at all | B. On few occasions | C. On a frequent occasion | D. On every occasion |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

57) I have had a bad burn, disfiguring accident, or a birth defect in the past, which makes me feel self-conscious.

A. Have not had the experience   B. Not at all affected by the experience
C. Moderately affected   D. Greatly affected

A. I have always had this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

58) I have particular anxieties about sexual intimacy.

A. Not at all   B. Rarely   C. Frequently   D. A great deal

A. I have always experienced this.   B. I have never experienced this.
C. I have had this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

59) If I think over my life I feel I have not been consistent with the things I have done.

A. Not at all   B. A few times   C. Sometimes   D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

60) I feel others are able to feel emotionally in tune with me.

A. Not at all   B. Only a little   C. Sometimes   D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

61) I often feel I need to be a perfectionist.

A. Not at all   B. Only a little   C. Frequently   D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

62) I often feel chronically lonely.

A. Not at all   B. Only a little   C. Frequently   D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

63) I often find I see many things as all good and others as all bad.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

64) I make sure I always get all my work done.

| A. Not at all | B. On a few occasions | C. On a frequent occasion | D. On every occasion |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

65) I often feel on edge or extra-hyper-aware when I go somewhere.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

66) There are particular things of which I am phobic.

| A. Not at all | B. Only a few | C. Some | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

67) I have either _felt_ extremely suicidal *or* have _carried out_ at least one suicide attempt.

| A. Not at all | B. Once | C. On few occasions | D. On a frequent occasion |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

68) I feel I am good at finding words to describe what I am feeling.

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

69) I feel I hold unrealistic standards for others or myself.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

70) I have lost someone who I cared very much about in the past and this felt emotionally devastating for me.

71) Others act in a bullying way towards me.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

72) I enjoy learning about complex ideas.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

73) If something upsetting has happened I will tend to focus on it for quite a long time.

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

74) I feel I often have anxious or intrusive thoughts.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

75) I have in the past, or still engage in self-harming behaviours—for example: cutting_1__; sexual promiscuity__2_; drug or alcohol consumption that ends up with problematic behaviour__3_: other (please list)_____4_____.
(On the ANSWER SHEET please tick all that apply)

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

76) I have a strong capacity to reflect and think about myself or another person.

| A. Not at all | B. Only a little | C. Moderately | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

77) I feel when I can't change the difficult situation I find myself feeling stuck, trapped, and angry.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.	B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__	

78) I often feel deeply ashamed or humiliated.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.	B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__	

79) I often refuse to acknowledge issues I don't want to deal with.

A. Not at all	B. Occasionally	C. Frequently	D. A great deal

A. I have always felt this.	B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__	

80) Other people who know me describe me as intelligent.

A. Not at all	B. Occasionally	C. Frequently	D. A great deal

A. I have always felt this.	B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__	

81) I have felt I have had experiences where *I* have been ***close to dying***.

A. Not at all	B. Only once	C. A few times	D. A great deal

A. I have always felt this.	B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__	

82) I have had worrying difficulties with my eating.

A. Not at all	B. Only a few	C. Some	D. A great deal

A. I have always had this.	B. I have never had this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__	

83) I have been arrested for problematic or anti-social behaviour.

A. Not at all	B. Once	C. Few times	D. A great deal

A. I have always behaved this way.	B. I have never behaved this way.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__	

84) I feel my thinking is clearly linked to reality.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.	B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__	

85) I often feel it is more important to take on huge amounts of other people's worries than deal with my own emotional difficulties.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

86) I feel emotionally empty.

A. Not at all	B. Rarely	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

87) I find I often have magical thoughts or thinking.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

88) I enjoy using specific, rich, and varied vocabulary in conversations with others.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

89) I have a continuing feeling of being numb or emotionally absent after experiencing or witnessing one or more horrible events.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

90) I often have physical complaints.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

91) I have felt high or manic for more than a week or two in my mood before in my history.

A. Not at all	B. Once	C. A few times	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

92) I am able to deal with stress without becoming unnecessarily upset.

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

93) I feel blocked in thinking about positive outcomes to situations or experiences.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

94) I feel my family was not around for me when I was growing up.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

95) I have had hallucinations—seeing or hearing people or things that are not actually there.

| A. Not at all | B. Once | C. On a rare occasion | D. On a frequent occasion |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

96) I learn new concepts easily.

| A. Not at all | B. Occasionally | C. Frequently | D. Most of the time |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

97) I have been exposed to difficult experiences—(e.g. Active combat; Fatal RTA'a; Murder scenes; etc.).

| A. Not at all | B. Only once | C. A few times | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

98) I feel I am withdrawn or nervous in my behaviors and this negatively affects my mood.

| A. Not at all | B. Only a little | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

99) I have suffered a head injury or have needed to see a neurologist.

| A. Not at all | B. Only once | C. Few times | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

100) Others describe me as kind and/or diplomatic.

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

101) Some external experiences often upset my mood.

| A. Not at all | B. Only a little | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

102) When younger or presently, I did not have close friends.

| A. Not at all | B. On few occasions | C. On a frequent occasion | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

103) I have had recurrent or uncontrollable thoughts or behaviors.

| A. Not at all | B. Rarely | C. Frequently | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

104) I feel confident and clear with the ideas that I use or explain to others

| A. Not at all | B. Rarely | C. Sometimes | D. A great deal |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

105) I have been upset by seeing someone killed or die.

| A. Have not had the experience | B. Not at all affected by the experience |
| C. Moderately affected | D. Greatly affected |

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

106) There are areas I actively try to avoid because they make me upset or anxious.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

107) In the last ten years, I have started a fight that has ended with someone getting physically hurt.

A. Not at all	B. Only once	C. A few times	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

108) It is important for me to prove my worth to others and for them to acknowledge this.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

109) I often feel people do not appreciate me.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

110) I often feel unloved or unwanted.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

111) I feel quite rigid in my thinking.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

112) I feel others often misunderstand me or are dismissive of me.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

113) I feel I am, or some part of my body, is hateful.

A. Not at all	B. Rarely	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

114) Others frequently rely on me to explain ideas that they want to learn.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

115) I feel like a good worthwhile person.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

116) I feel others value and like me.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

117) I put a lot of pressure on myself or blame myself.

A. Not at all	B. Only a little	C. Sometimes	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

118) I have a good deal of positive self worth.

A. Not at all	B. Only a little	C. Some	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

119) I often feel people do not appreciate me.

A. Not at all	B. Only a little	C. Frequently	D. A great deal

A. I have always felt this.   B. I have never felt this.
C. I have felt this only since age 0-5__, 6-10__, 11-15__, 16-20__, 21-25__, 26-30__, 31+__

120) Would others who know me well agree with how I have answered the questions in this   form in a way they could recognise my consistent traits and personality?

1. Yes   2.No

Copyright Richard Sherry and Psychological Systems. Modified 10th July 2013.

2011 STAT--Richard Sherry Copyright ©

Appendix VIII: STAT Paper and Pencil Test Sheet—Original Development Form—prior to creation of Computer-based instrument

NAME_____ TITLE: _____ DATE: _____ /200__ SEX: M____F___ AGE: _____

Appendix IX: Coding and Reliability for STAT Sub Scores – computer version 2013
Richard Sherry

Taken out

Richard Sherry   27-01-2013

BPS Psychometric Test Application for the Sherry Trauma Assessment Test (STAT)

Example Test Development Example Related
Steps Tasks Standards matching APA psychometric Standards (Downing, 2006):

1. Overall plan: The Sherry Trauma Assessment Test (STAT) was originally designed as a paper and pencil clinical psychology and trauma-psychology test. A duplicate version was developed for work with the fire service (2009) as an on line computer version. This computer version was identical to the present used for the fire service data collection, but it was entirely rebuilt as it did not function as it was needed because the scoring became too cumbersome in the way it was originally designed and a new clearer functioning one was developed that could include the age sensitive developmental information. The present version of the STAT (2013) uses an instantaneous, clear, but sophisticated statistical analytical process for calculating what by hand would be complex and laborious processes. It is this present iteration of the STAT (2013) psychometric that is outlined and reviewed within this document.

2. Content definition: This STAT (2013) computer version is 120 question test that looks at essential personality, behavioural, and emotional factors that are likely to significantly affect the persons capacities and functioning. Each question and group of sub scores is based on a neuropsychological, clinical, or behavioural component. These question in turn are linked with a further level of clarification whether it always has been this way (whether it is chronic), if it happened in one of 5 year groups that cover the full human life span (for example, has the difficulty occurred from 0 to 5; 6 to 10; 11 to 15; etc.), or if the test taker felt that this difficulty was something that they have not had a problem with (e.g. whether it was never a problem). This strategy for developmentally underpinning specific issues of functioning both within a neuropsychological as well as within a developmental model is new to the clinical psychology field and these innovations are copyrighted by its sole author Richard Sherry (copyright © Richard Sherry, 2011). The STAT provides a versatile core psychometric test that measures a full spectrum picture including very healthy, ordinary, clinical, and severe. This clear benchmarking system is used for cut off scores, in addition to using a full spectrum basis for positive and negative scores. This significantly more integrated approach is also a unique part of the design features of the test and has been copyrighted as well; its sole author is Richard Sherry (copyright © Richard Sherry, 2011).

Table 5.3: The Results of One-Way ANOVA for the STAT Measures/ Tests by the samples (groups) of the Study (Conceptually Negative Scales)

STAT Measures/ Tests	Group	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
STAT A & B- Trauma	*Fire*	24	27.3042	4.87616	3.564 (.016)	584.517 (3)	25.733 (148)	22.715	.000***
	Clinical	69	32.9449	5.45143					
	Uni	27	23.9600	5.97739					
	Middlesex	32	29.6225	3.17119					
	Total	152	**29.7588**	**6.06912**					
STAT A & B- Anxiety	*Fire*	24	22.3633	4.77808	2.636 (.052)	1213.603 (3)	31.686 (148)	38.301	.000***
	Clinical	69	33.3312	6.18075					
	Uni	27	22.7226	6.38822					
	Middlesex	32	25.7147	4.03890					
	Total	152	**28.1115**	**7.42751**					
STAT A & B-Impulsivity	*Fire*	24	25.6000	2.93109	2.903 (.037)	417.269 (3)	16.284 (148)	25.624	.000***
	Clinical	70	29.4066	4.53394					
	Uni	27	21.8696	4.37918					
	Middlesex	31	28.8668	3.13840					
	Total	152	**27.3566**	**4.92453**					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	*Fire*	24	26.7275	6.07333	1.767 (.156)	2153.052 (3)	35.083 (151)	61.361	.000***
	Clinical	72	42.6861	5.55716					
	Uni	27	29.5767	7.25986					
	Middlesex	32	34.5000	5.34910					
	Total	155	**36.2415**	**8.73770**					
STAT A & B-Limbic Lobe Separation or Fear	*Fire*	24	24.7392	5.25206	2.765 (.044)	1382.397 (3)	39.033 (151)	35.416	.000***
	Clinical	72	35.6493	6.71813					
	Uni	27	23.9170	7.07061					
	Middlesex	32	34.3588	4.93576					
	Total	155	**31.6499**	**8.07478**					
STAT A & B- Defensiveness	*Fire*	24	22.4092	3.34481	3.788 (.012)	651.061 (3)	25.836 (151)	25.200	.000***
	Clinical	72	31.0263	5.53789					
	Uni	27	23.6400	6.41441					
	Middlesex	32	26.4722	3.57742					
	Total	155	**27.4652**	**6.16570**					
STAT A & B- Negativity (Cruelty)	*Fire*	24	82.0000	10.89076	9.581 (.000)	10523.459 (3)	179.993 (151)	58.466	.000***
	Clinical	72	109.3125	15.45836					
	Uni	27	75.1815	16.41209					
	Middlesex	32	106.2813	3.94081					
	Total	155	**98.5123**	**19.53174**					
STAT A & B- Avoidance	*Fire*	24	15.7267	2.86177	5.664 (.001)	418.422 (3)	13.754 (151)	30.422	.000***
	Clinical	72	23.4181	3.85487					
	Uni	27	18.5000	4.92443					
	Middlesex	32	21.0706	2.55853					
	Total	155	**20.8858**	**4.65157**					
STAT A & B- Intrusion	*Fire*	24	16.7825	4.61525	.327 (.806)	679.449 (3)	21.070 (151)	32.248	.000***
	Clinical	72	24.3465	4.61845					
	Uni	27	16.0400	4.64493					
	Middlesex	32	18.6897	4.45843					
	Total	155	**20.5605**	**5.82196**					
STAT A & B- Hyper arousal	*Fire*	24	15.8333	3.87485	3.090 (.029)	365.334 (3)	16.656 (151)	21.935	.000***
	Clinical	72	21.1586	4.61824					
	Uni	27	14.5767	4.26230					
	Middlesex	32	18.2500	2.42966					
	Total	155	**18.5870**	**4.84231**					
STAT A & B- Dissociation	*Fire*	24	11.1250	3.09716	2.844 (.040)	249.311 (3)	7.864 (151)	31.701	.000***
	Clinical	72	15.3678	2.85458					
	Uni	27	9.8400	3.23062					
	Middlesex	32	12.9606	1.94265					
	Total	155	**13.2510**	**3.54513**					
STAT A & B- Attachment Negative Disturbed sense of ...	*Fire*	24	44.0000	6.58060	4.576 (.004)	4716.409 (3)	102.222 (151)	46.139	.000***
	Clinical	72	66.6352	11.12779					
	Uni	27	46.0430	12.29909					
	Middlesex	32	60.6909	7.43741					
	Total	155	**58.3162**	**13.86033**					
STAT A & B- Flight	*Fire*	24	16.5321	2.04018	4.710 (.004)	321.710 (3)	11.320 (151)	28.419	.000***
	Clinical	72	22.6676	3.63731					
	Uni	27	17.4400	4.07695					
	Middlesex	32	20.3175	2.79461					
	Total	155	**20.3218**	**4.16733**					
STAT A & B- Freeze	*Fire*	24	11.2500	3.91485	3.283 (.023)	380.600 (3)	11.829 (151)	32.176	.000***
	Clinical	72	16.7417	3.40446					
	Uni	27	10.0381	4.18312					
	Middlesex	32	14.1225	2.24147					
	Total	155	**14.1829**	**4.36033**					
STAT A & B- Fight	*Fire*	24	9.9129	1.99811	1.345 (.262)	55.424 (3)	5.242 (151)	10.573	.000***
	Clinical	72	12.2915	2.40491					
	Uni	27	10.0385	2.63819					
	Middlesex	32	10.8278	1.86770					
	Total	155	**11.2286**	**2.49393**					
STAT A & B- Forensic or Pathological Subscale	*Fire*	24	31.7125	3.18186	1.741 (.161)	630.500 (3)	22.840 (151)	27.605	.000***
	Clinical	72	35.7572	5.09221					

		Uni	27	26.2915	4.89489					
		Middlesex	32	31.0000	4.92525					
		Total	**155**	**32.4999**	**5.88879**					
STAT A & B- Clinical Psychology Scale (CPS)		Fire	24	26.2125	2.55681	10.398 *(0.000)*	565.930 *(3)*	16.983 *(151)*	33.323	.000***
		Clinical	72	28.1860	5.12310					
		Uni	27	18.9200	4.39335					
		Middlesex	32	26.2500	1.25403					
		Total	**155**	**25.8666**	**5.26086**					

*** *Significant at the 0.001 level* ** *Significant at the 0.01 level* * *Significant at the 0.05 level*

Sampling plan for domain/universe; various methods related to purpose of assessment; essential source of content-related validity evidence; delineation of construct

3. 3. Test specifications Operational definitions of content; framework for validity evidence related to systematic, defensible sampling of content domain; norm or criterion referenced; desired item characteristics:

The Reliability Assessment for STAT Test- Summary

#	STAT Tests	Notion-Conceptual Direction	Study/source	Cronbach's alpha	Valid N	# of Items
1	STAT Test- Trauma	Negative	Richard Sherry	0.72	119	14
2	STAT Test- Anxiety	Negative	Same	0.84	119	13
3	STAT Test- Impulsivity	Negative	Same	0.702	101	14
4	STAT Test- Self-awareness	Positive	Same	0.71	120	14
5	STAT Test- Frontal lobe ...	Negative	Same	0.872	124	14
6	STAT Test- Limbic Lobe	Negative	Same	0.843	114	14
7	STAT Test- Defensiveness	Negative	Same	0.776	123	14
8	STAT Test- Conscientiousness	Positive	Same	0.69	133	7
9	STAT Test- Intelligence	Positive	Same	0.725	128	6
10	STAT Test- Self-esteem	Positive	Same	0.76	135	6
11	STAT Test- Negativity (Cruelty)	Negative	Same	0.93	102	44
12	STAT Test- Positivity (Compassion)	Positive	Same	0.81	110	25
13	STAT Test- Avoidance	Negative	Same	0.70	118	9
14	STAT Test- Intrusion	Negative	Same	0.843	134	9
15	STAT Test- Hyper Arousal	Negative	Same	0.77	122	9
16	STAT Test- Dissociation	Negative	Same	0.66	122	6
17	STAT Test- Attachment Positive	Positive	Same	0.77	127	15
18	STAT Test- Attachment Negative	Negative	Same	0.913	111	26
19	STAT Test- Fight	Negative	Same	0.55	135	7
20	STAT Test- Flight	Negative	Same	0.584	111	10
21	STAT Test- Freeze	Negative	Same	0.82	122	6
22	STAT Test- Forensic/ Pathological Scale (F/PS)	Negative	Same	0.69	119	18
23	STAT Test- Clinical Psychology Scale (CPS)	Negative	Same	0.75	96	13
-	-	-		-	-	-

Method of Reliability Analysis: ***Internal Consistency Coefficient of Cronbach's Alpha (Ranged 0-1)***

The Reliability Assessment: Summary

Measure/Scale	Notion/ Conceptual Direct	Study/source	Cronbach's alpha	N	Current Study	Cronbach's alpha	# in Original Data
GHQ 12-Items Test	Negative (Total)	Montazeri *et al* 2003	0.87	748	Richard Sherry Data	0.90	195
GHQ 6-Items Test	Positive Items	-	-	-	Same	0.874	195
GHQ 6-Items Test	Negative Items	-	-	-	Same	0.848	195

FST- 4 Items Test	Negative	Pedhazur & Schmelkin (1991); Health Development Agency/HDA (2002)	0.77	UK	Same	0.801	108
AS-Total 12 Items	Positive	Wood *et al.* (2008)	0.79	200	Same	0.57	117
AS- Authentic Living	Positive	Wood *et al.* (2008)	0.70-0.82 (Mean = 0.77)	-	Same	0.842	118
AS- Accepting External Influence	-	Wood *et al.* (2008)	0.70—0.84 (Mean = 0.79)	-	Same	0.842	117
AS- Self-Alienation	-	Wood *et al.* (2008)	0.82—0.84, Mean = 0.83	-	Same	0.855	118
AES (Assessing Emotion Scale)-33 Items	Positive	Schutte (1998)	0.90 (Mean is 0.87)	-	Same	0.888	108
CAPS- Avoidance subscales-8items	Negative	-	ranged from .85 to .87	-	Same	0.84	181
CAPS- Total 20 Items	Negative	-	0.94	-	Same	0.88	179
Rom Att-Total	Negative	-	0.95	-	Same	-	-
Rom Att- Anxiety	Negative	-	0.91	-	Same	0.94	185
Rom Att- Avoidance	Negative	-	0.94	-	Same	0.94	184
ETI-SR-PE Subscale- 8 items	Negative	-	0.78 – 0.90	-	Same	0.68	169
ETI-SR- MOE Subscales- 7 items	Negative	-	0.78 – 0.90	-	Same	0.54	168
ETI-SR-MoE Subscales- 7 items	Negative	-	0.78 – 0.90	-	Same	0.60	171
ETI-SR- UE Subscales	Negative	-	0.78 – 0.90	-	Same	0.58	171
HADS- Depression subscale	Negative	MYKLETUN *et al* 2001	-	-	Same	0.74	107
HADS- Anxiety subscale	Negative	MYKLETUN *et al* 2001			Same	0.75	106
HADS- Positive Items	Positive						
HADS- Negative Items	Negative						
Impact of Events Scale-Avoidance	Negative	Sundin et al. 2002	-	-	Same	0.86	166
Impact of Events Scale-Intrusion	Negative	-	0.86 (range 0.72-0.92)	-	Same	0.92	166
Impact of Events Scale-Hyper Arousal	Negative	-	-	-	Same	0.895	166
WASAS	Negative	MUNDT *et al* 2002	0.75	-	Same	0.888	161
VLQ-Valued Living Questionnaire- 10 items	Positive	Vanbuskirk *et al* 2011; Wilson *et al* 2010	0.79 and 0.83; 0.77	-	Same	0.85	77
VLQDPW	Positive	-	-	-	Same	0.84	71
TSC-40- Total scale	Negative	-	0.89-0.91 in average		Same	0.94	97
TSC-40- Dissociation	Negative	-	0.66 to 0.77	-	Same	0.77	98
TSC-40- Anxiety	Negative	-	0.66 to 0.77	-	Same	0.62	98
TSC-40- Depression	Negative	-	0.66 to 0.77	-	Same	0.79	98
TSC-40- SATI	Negative	-	0.66 to 0.77	-	Same	0.75	98
TSC-40- Sleep Disturbance	Negative	-	0.66 to 0.77	-	Same	0.83	98
TSC-40- Sexual problems	Negative	-	0.66 to 0.77		Same	0.80	97

Method of Reliability Analysis: ***Internal Consistency Coefficient of Cronbach's Alpha (Ranged 0-1)***

4. Item Development Standardization: There are 23 sub categories that have been derived from the main areas investigated of
1) Trauma, 2) Anxiety, 3) Psychological-Mindedness, 4) Impulsivity, 5) Defensiveness,
6) Self-critical Thoughts (which is understood to be midline frontal executive processes (Lanius et al., 2010)), 7) Separation/Fear responses (which is understood to based on limbic level brain processes (Panksepp, 1998)), 8) Self-Esteem, 9) Intellection (a self-reported intelligence based measure), 10) Conscientiousness,

What is the Construct to be measured?

The STAT has a particular way that it is structured for the underlying constructs that are based on the research from neurophysiological measures which the questions use behavioural components and reports that have a clear evidence base within dynamic social neuropsychological base (see Decety and Cacioppo, 2011; Panksepp and Biven, 2012; Panksepp, 1998 and Siegel 2012, 2010a&b; Porges, 2011). At this point in the study neurophysiologic testing was not directly available within the resources of the study. However, these psychometric finds correlated with clinical observational findings.

These 23 report categories of consistent behavioural data do access underlying processes that are constructed on neuropsychological modifying factors (again these were not tested through neuro-imaging or physiological means at this point in the study.) Both positive and negative factors were looked at throughout the study:

These modify how the person might experience their subjective understanding of an event (the negative factors are shown as -- and the positive ones are +):

1)--Trauma=
2)--Anxiety=
3)--Impulsivity= These behavioural diagnostic indicators of
4) + Self-Awareness [Psychological mindedness or emotional intelligence]=These factors are linked with Theory of Mind (TOM) capacities and emotional intellectual strengths.

_____

These change the kind of emotion plus the layer of neuropsychological kind of brain processing

5)--Frontal lobe (Higher cortical—Frontal Executive Processes) Self-Critical Thoughts=
6)--Limbic Lobe (Core emotion-based Circuitry) Separation/Fear=

_____

These modify the understanding and the affective coloring the person brings to a situation

7)--Defensiveness=
8) + Conscientiousness=
9) + Intelligence=
10) + Self esteem (Confidence)=

_____

These change the affective state and directionality of emotional process

11) --Negativity (Cruelty):
12) + Positivity (Compassion):

_____

Think of these as key behavioural and emotional responses (links to Porge's (2011) Poly-vagal response):

13)--Avoidance:
14)--Intrusion:
15)--Hyper-arousal:
16)--Dissociation:

_____

These change the kind of emotional negativity/positivity along with the attachment structure:

17) + (Attachment) Positive Secure sense of self and safety:

18)--(Attachment) Negative Disturbed sense of self and safety:
_____

Think of these as autonomic physiological responses (Links to Emotional State and the propensity to a pathological emotional response (Bremner, 2005b):

19)--Fight:
20)--Flight:
21)--Freeze:
_____

These are scales to assess the clinical and forensic risk levels. This information checks if the person is psychologically healthy or unwell:

22)--Forensic/Pathological Scale:

23)--Clinical Psychology Scale:
Measures used to Cross-validate the STAT Psychometric (see bottom of document for additional test information):
1) General Health Questionnaire (Goldberg and Hillier, 1979) (GHQ-12)
2) Work and Social Adjustment Scale (Marks, 1986) (WASAS) (5 questions)
3) FAST Alcohol Screening Tool (HAD, 2002)
4) Romantic Attachment (Brennan, Clarke, and Shaver, 1998) (Rom-At) (36 questions)
5) Early Trauma Inventory (Bremner, 2004) (ETISR-SF) (29 questions) Early Trauma Inventory (Bremner, 2004) (ETISR-SF) (29 questions) examines general traumas, physical punishment, emotional abuse, and sexual events all of which occurred before 18 years of age.
6) Extended CAPS Checklist (20 questions) (Blake et al., 1995 and 1990) and Weathers et al., 2001 and 1999) is a self-rated PTSD life time exposure to stressful experiences.
7) Trauma Symptom Checklist- 40. The Trauma Symptom Checklist-40 (Briere, 1996) (TSC-40) is a 40- item self-report research measure, which assesses symptomatology of adults resulting from childhood or adult traumatic experiences.
8) Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983) (HADS) (12 questions) was designed to screen for mood and anxiety disorders in medically ill patients.
10) The Assessing Emotions Scale (33 questions) (Schutte et al., 1998; 2001) (AES) is a self-report emotional intelligence test that consists of appraisal of emotional understanding in self and others.
11) The Valued Living Questionnaire for own personal sense of importance (10 questions) (Wilson et al., 2010) (VLQ) rated the different dimensions of the past week (10 questions).
12) 15 FQ+ (15FQ+ Technical Manual, 2002) (this information was not included in the validity and reliability data as the amount and complexity of the data already was so demanding of statistical resources this information needs to be compiled separately, but is available.

For each of these 12 scores, there are several sub scores that variously check all of the scores within the STAT psychometric test.

of effective stimuli; formats; validity evidence
related to adherence to evidence-based principles;
training of item writers, reviewers; effective item editing;
CIV owing to flaws

5.Test design and assembly: What score interpretations are desired:
The scores are organised and benchmarked using a carefully examined original data set of 155 participants from a fire service sample, a student sample (control group), and a clinical psychology out patients sample. These scores were examined with the battery of tests (see above for full list given) and these scores were co-normed with the STAT psychometric. The interpretations were based on these findings and from a large literature review gaps within clinical psychology traumatology. From this information a detailed examination of clinical assessment and treatment factors was carried out (see Sherry, 2013). The goal of these score interpretations is to be able to clearly benchmark the

positive as well as the negative treatment factors that are likely to affect an individual's health or the social emotional environment. As well being able to assess the clinical psychology factors that are likely to affect treatment outcome and therefore psychological (and from research these aspects will connect to and affect physical health as well (Lanius et al., 2010)) developmental and learning factors such as Vygotsky's work are essential (Daniels, 2010a); Vygotsky, 1985). These scores and the resultant data derived from then are able to contextualize critical clinical information within a developmental context and this information can then be reintegrated within a linked social-environmental score to ensure there is an environment to judge and understand the quality of the social support (or as Vygotsky would describe, the quality of the zone of proximal development (ibid, 1985).

Designing and creating test forms; selecting items for
specified test forms; operational sampling by planned; blueprint; pretesting considerations.

6. Test production Publishing activities; packaging; and security: What Test formats or combination of formats are most appropriate?

The STAT psychometric was designed to run in conjunction with a battery of supported specialty tests to combine the precision of a benchmarked clinical-developmental psychometric that uses self-reported behavioural reports within findings from social-neuropsychology. The different formats for the STAT include as a standard Clinical Psychology model, one for Educational Psychology and optimized learning, Extreme Environments, Occupational/HR, Aesthetic Medicine, and one optimizing Client interface with particular focus on increasing creative collaborative output (for example with Architectural Project collaboration). Each of these areas uses the STAT psychometric as a base with differently worded report outputs and triangulated with different supplementary questionnaires. Using this innovative testing approach it can take a sophisticated developmental personality test and combine this with further specific questionnaire-based information.

Designing and creating test forms; selecting items for
specified test forms; operational sampling by planned; blueprint; pretesting considerations

7. Test administration Validity issues concerned with standardisation; ADA issues;
proctoring; security issues; timing issues

What Kind of Test Administration will be used (paper or Pencil or computer based)?

The computer test administration uses co-normed and benchmarked process that ensures the STAT scores are consistently and expertly tabulated.

In what sequence must the task be completed?

The sequence requires the test taker to sign in agreeing to the possible risks and signing a full disclaimer before continuing to undertake the test. They have an individual password and ID so only they are able to access their content with their unique identifier. The Disclaimer has been reviewed with a specialist Barrister and as been vetted as a legally secure and ethically humane system as it provides a list of the risks and warnings so the test taker. At this point the person must fill in all relevant details such as name, age, occupation, key issues from their perspective. The person completes the STAT psychometric. In most cases a supplementary aspect of information of more detailed questionnaires are provided for the person to complete. The STAT test is taken and then the specific supplementary questionnaires are completed as well. These scores are automatically processed where specific pre-fabricated set of answers has been written. Dependent on the score the person provides these answers will link to the pre-written answers and these are combined with the questions and responses for the questionnaires. Each set of responses will be rewritten dependent upon the specialty area being examined. Then the cut off scores will link to learning modules specific to each area that was tested for where resources specific to each of the particular problem areas can be corrected for and possibly unlearned of it is a negative issue versus this aspect can be improved or reinforced if it is a positive attribute.

What timeline must be adhered to?

For the computer version, the link is emailed and open for one week before the link is disconnected and the person must buy another package to access the test.

8. Scoring test responses Validity issues:

Who is responsible for carrying out which specific tasks?

As the psychometric is undertaken, completed, and all aspects are online the only requirement is the test taker must complete all of the various aspects. This is a fully automated process. Which tasks depend on the completion of the

others?—Just the test taker. The only need is for integration of further clinical psychology testing which is an additional layer not included as standard to the STAT test—which is a completely automated and standardised process.

The STAT test is completed, until another version is developed, which it is more likely other related tests for moral development and more precise neuropsychological, intellectual, and physiological testing is now being looked at for additional areas of testing development. The only additive aspects would include innovating the questionnaires for the different areas, or adding learning content to the learning modules. This can be undertaken by the test developer or also by the participants undertaking the test where if the person finds a resource they feel is helpful this can be emailed to the test developer to check its quality and relevance to the specific area and this can be then be uploaded. If there are any clinical or other issues raised there is a support structure that can be purchased at an additional cost for further interpretation or if the person wishes to have additional specialist in put available. The test developer is working to mathematically taking the individual scores to dynamically link these to the contextualised group data.

Quality control; key validation; item analysis—All of these aspects are locked-in and computer processed.

9. Passing scores Establishing defensible passing scores; relative vs. absolute;

Validity issues concerning cut scores; comparability of

The STAT psychometric was co-normed for all of the items and underling constructs. These scores were then analyzed using ROC analysis for psychometric sensitivity versus specificity. This helped establish a clear-cut off point of where clinical scores from non-scores could be decided. Then scores for a standard deviation either side of this score was quantitatively found so this could assist in demarcating two standard deviations which is a reliable quantitative method to establish different levels for sample standards to be reliably be included in different sample quartile's (Field, 2009). With this clear benchmarking established this method can allow for inclusion/exclusion to defined categories. These definitions are automatically updatable, as more participants complete the test these anonymously will refine the precision of these scores, thus widening the sample size and improving the reliability of the data.

10. Reporting test results Validity issues: The test results automatically generate a report that is based on the cut off scores. These scores are explained and contextualised within the area relevant to the specific application (for example, clinical psychology, educational, extreme environments, aesthetic medicine). This description is then contextualised with a summary chart of the scores and a comparative bar chart that compares the test-takers score to a clinical level of functioning. The issues of accuracy and quality control are addressed by having the test computer administered and limited so it is developed not to miss any questions out. This assists in ensuring the completeness of the data.

11. Item banking Security issues; usefulness, flexibility; principles for effective item banking

The security features include password protection and secure website features and anti-hacking software. Individualized codes and password protection is standardised. A clear disclaimer and educational overview as to risks and contraindications is given with discouragement of taking of the test or discontinuation if the person feels that any emotional question would psychologically upset them to the degree they would not be able to manage this task. However, reviews looking at the ethics of trauma related research or treatment have strongly sided with it is significantly better to ask about these psychological issues than to ignore them (Griffin et al., 2003). The information is held in a protected database that is automatically updated with the information of each new respondent to ensure the most precise norms and benchmarking is available.

12. Test technical report Systematic, thorough, detailed documentation of validity evidence; 12-step organisation; recommendations:

Systematic guidance for all test development activities:

The STAT test is designed to be a self contained and self-explanatory. The person must decide what package (or specialist area is most relevant to what they need—e.g. clinical psychology or educational learning, etc.) and if the person wants to buy just the test and report, or if he or she would like to purchase a month at a time access to the learning modules. In addition, the individual scores are being developed to dynamically and quantitatively link to the social-environmental scores.

Full Details on Measures Used to Cross Validate with STAT Psychometric
The following psychometric tests were chosen because they are professionally accepted and utilized standard measures with recognised psychological properties available in the field of clinical psychology and traumatology today. With these standardised quantitative data it is easier to accurately compare new measures as was done within this project. From the literature review problematic gaps, most notably Keane et al., (1992), has identified this lack of holistic integration within the psychological and traumatology assessment. These gaps necessitate adjustment/change the following psychological psychometric tests. The tests form a backbone research tool that was felt to adequately address what could the inter-relationship between these area of diagnosing psychiatric 'caseness,' attachment measures, trauma life event measurement, and measures of positive psychological functioning. All data for reliability and validity have been carried out and are presented within the next chapter. The following are details of the specifics of the particular psychometric measures used and further information contextualizing why these tests were selected:

General Health Questionnaire (Goldberg and Hillier, 1979) (GHQ-12) is a short screening tool designed to assess changes in an individual's ability to carry out daily functions and examining a one-dimensional model of psychiatric "caseness" or psychological illness. (scores of 3 and above provided a clinical base-line cut-off point). This questionnaire was chosen because it is widely used as a brief, but clear rating of psychiatric mental health, it is also free access with no copyright restrictions.

Work and Social Adjustment Scale (Marks, 1986) (WASAS) (5 questions) measures key aspects of impairment in life functioning work, home management, social life, private leisure, and family on an 8-point likert scale, higher scores indicate greater disturbance. (scores of 3 and above provided a clinical base-line cut-off point). This is one of the best brief subjectively aimed questionnaires available. Copyright duplication was requested and granted from the authors for clinical and research purposes.

FAST Alcohol Screening Test (HAD, 2002) is a short alcohol screening measure (4 questions) that provides a brief evaluation of problematic alcohol use. A supplementary questionnaire was sought to look at levels of alcohol consumption to ensure physical health aspects and also possible complicating neuropsychological factors related to alcohol (Lezak et al., 2012) could be looked at, as well to make sure co-morbid addictions and psychological trauma (Dass-Brailford and Myrick, 2010) was not missed. This is an open sourced material sanctioned for research.

Romantic Attachment (Brennan, Clarke, and Shaver, 1998) (Rom-At) (36 questions) this is a newer self-report measure for adolescent and adult romantic attachment orientations classifying into three main categories (secure, anxious, and avoidant). In many ways this is one of the most interesting psychometrics as it has been successfully co-normed with very long and complicated attachment assessment interviews (such as the Adult Attachment Interview (AAI) (Main and Goldwyn, 1991) and these were modified by Hazlan and Shaver (1987) to distil some of the essential elements of the underlying dimensions of the test in a shortened form. Permission for using and copying the test for clinical and research purposes was sought and granted directly from the author of the test.

Early Trauma Inventory (Bremner, 2004) (ETISR-SF) (29 questions) examines general traumas, physical punishment, emotional abuse, and sexual events all of which occurred before 18 years of age and ask "Yes" or "No" if the person experienced these experiences. The shortened self-rated test provides one of the best trauma exposure assessment tools. The stipulation for fulfilling the shortened test is if the event happened before the person was 18 years of age. It is helpful to have a clear cut off for earlier trauma exposure, but this is also not precise in indicating any more specific time period. Permission for clinical and research use was sought and given directly from the tests author.

Extended CAPS Checklist (20 questions) (Blake et al., 1995 and 1990) and Weathers et al., 2001 and 1999) is a self-rated PTSD life time exposure to stressful experiences. The person can put their experience from they experienced it firsthand to several gradations, they witnessed it, knew someone who experienced it, or they were not sure. These scores are added up and a sore is given. This is one of the best-known trauma scales; it is a very good for looking at the severity of likely events that could be causative for trauma exposure. None of these are linked to any developmental context. This is an open source psychometric with no copyright restriction related to research or clinical work.

Trauma Symptom Checklist- 40. The Trauma Symptom Checklist-40 (Briere, 1996) (TSC-40) is a 40- item self-report research measure, which assesses symptomatology of adults resulting from childhood or adult traumatic experiences. The instrument consists of six subscales: anxiety, depression, dissociation, sexual abuse trauma index, sexual problems, and sleep disturbance. Sample symptoms from the subscales included: tension, sadness, low sex drive, feeling that things are unreal, and insomnia.

The subjects rated their own experience of how they felt related to each of the questions relating to each of these sub-scales on a 5-point likert scale from *not at all true* to *very often true*.   Responses to the Likert scale indicated the frequency of occurrence ranging from 0 (never) to 4 (often). Reliability of the TSC-40 was adequate, with alphas for the full scale averaging .89 to .91, and subscale alphas ranging from .66 to .77 (Briere, 1996). For the current study, an alpha of .89 resulted for the full scale TSC-40. Elliott and Briere (1992) found the measure had high internal consistency (alpha = .90) and discriminate capability between women who have and who have not been abused. This is a very good scale for subjective, especially physical/somatic responses to distress. This is an open sourced test with no copyright restrictions for clinical or research work.

Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983) (HADS) (12 questions) was designed to screen for mood and anxiety disorders in medically ill patients. (Score from 0-21; 0-7, normal; 8-10, mild mood disturbance; 11-14, moderate mood disturbance, and 12-21, severe mood disturbance). This is one of the best-known clinical psychology measures, which is quick, clear, and easy to administer and rate. It has built-in sub sections that can be used to examine negative and positive dimensions. The older version (1983) was used, as it does not have restrictions on copyright for clinical or research.

The Assessing Emotions Scale (33 questions) (Schutte et al., 1998; 2001) (AES) is a self-report emotional intelligence test that consists of appraisal of emotional understanding in self and others. This is a valuable tool to more precisely look at emotional intelligence and the social and cognitive implications of emotional intelligence. Permission was sought and gained from the authors for use for clinical and research work.

The Valued Living Questionnaire for own personal sense of importance (10 questions) (Wilson et al., 2010) (VLQ) rated the different dimensions of the past week (10 questions). This is a two part test that compares subjectively how important the 10 different dimensions of life and well-being are to them and in the next page it asks them for the same categories where the person feels they are in his/her life. This is helpful to look at disparities in between the scores for each person. This is an open sourced positive psychology measure with no restrictions for research or clinical application.

Authenticity Scale (Wood et al., 2008) (AS) (12 questions) this measure provides direct evidence as to the validity of authenticity to that of subjective and psychological well-being. Well-being is merely devoid of having levels of psychopathology; it is a measure of positive psychological attributes including emotional intelligence and psychological mindedness. The psychometric measures for this scale specifically addressed items such as anxiety, stress, and happiness. The test construction was organised on a spectrum of self-alienation to authentic living. Samples using factor analysis and multi-group confirmatory factor analysis (CFA) found the authenticity scale was psychometrically robust with 2 and 4-week test—retest reliability from .71 to .91 and correlated with subjective well being (SWB) and psychological well-being (PWB). This test was chosen because it is a positive psychology measure that is addresses more of the psychotherapy dimensions of the emotional quality of self (see Winnicott's work on the true and false self (1965). For this reason it is unique as well as it underlying components of internal and external experience of relationships made this test unique. This is an open sourced psychological measure with permission given for clinical and research work.

15 FQ+ (15FQ+ Technical Manual, 2002) An additional note should be made that personality measure were taken for all of the fire sample and many of the clinical and control group, however because of the constraints of time and complexity of processing the data as it was already significantly labor intense and highly complex this material will be evaluated at a later stage for the further development of the research project, but it should be noted that a comprehensive personality measure was collected within this research. Complications in having support from the test developer to integrate the online and paper versions were not sufficiently sorted out in a timely manner sufficient enough to collate the scores. Moreover, the unwieldy nature of the profound quantity of data made it significantly too great of a challenge to complete without greater resources and statistical support. However, this data is something the

author does wish to return to further examine this rich data to provide supplementary support for different areas of the research.

Procedures
There were two sets of directions that only differed because the original fire-fighting sample had computer-based tests. The actual directions were identical and only differed in the medium of the test platform, e.g. computer format or paper and pencil. The directions for the tests were explained to the subjects and clarifications for possible areas of confusion like the Rom At Scale were provided for the participants. If the participant was not currently in a relationship, they were instructed to use their last relationship to answer the questions. The subject would to put one of their most significant friendships or other close relationships instead of leaving the measure blank. They were also instructed to fill in every answer they could to the best of their ability and answer as best they could if they were in doubt about a definitive answer. Furthermore, they were to follow the printed directions on the measures and seek clarification if needed. In case of emergency where the questionnaires may have triggered some distress, a specialist clinician stood by and was available to provide support by phone for the participants. Upon follow up no reports of notable distress were reported requiring supportive intervention, but the diagnostic clarification did facilitate one student seeking psychological support, which the clinician/researcher helped the person make a referral to the person's GP for further specialist mental health help.

Following all laws and copyright restrictions the test assessment packs were photocopied and distributed with the request that the participants fill the packs out on site. There was a caveat, because of time or unrushed thinking space and the possible need for privacy required, this addition was agreed only after discussing it over with the participant, and there was a provision for completing the test packet at home. There was an additional instruction if the person became distressed they were to discontinue the tests and could phone the clinician/researcher if support was needed. In no cases was this issue reported. There were few cases, about 6 that did not return them in each of the academic and the clinical sample. The academic section was skewed, as there was 3 lecturers who wanted to participate whom each took a packet of tests and did not return them.

There was no other equipment and there was no time limit to fill in the psychometrics if the participants wished to complete the form at home instructions and information for return of materials were given. One notable difference should be highlighted in the differences between the samples; the fire-fighter research data was gathered first and was all computer-based testing. This change was instituted in response to the organisational political pressures between the fire union and the fire-fighting headquarters where the research became a visible target of disagreement along with possible inter-departmental rivalry, that exploited the tensions between the fire union and fire headquarters. These points will be explored later in the paper.

References:
Please refer to the Larger Reference List:

The BOX and Whisker Chart/Plot for all of the Standardised Psychology Measures of psychometrics by the sample or groups of the study (Conceptually <mark>Negative Measures</mark>/ Tests). I suggest that each of these charts will need to be discussed and have a box number.
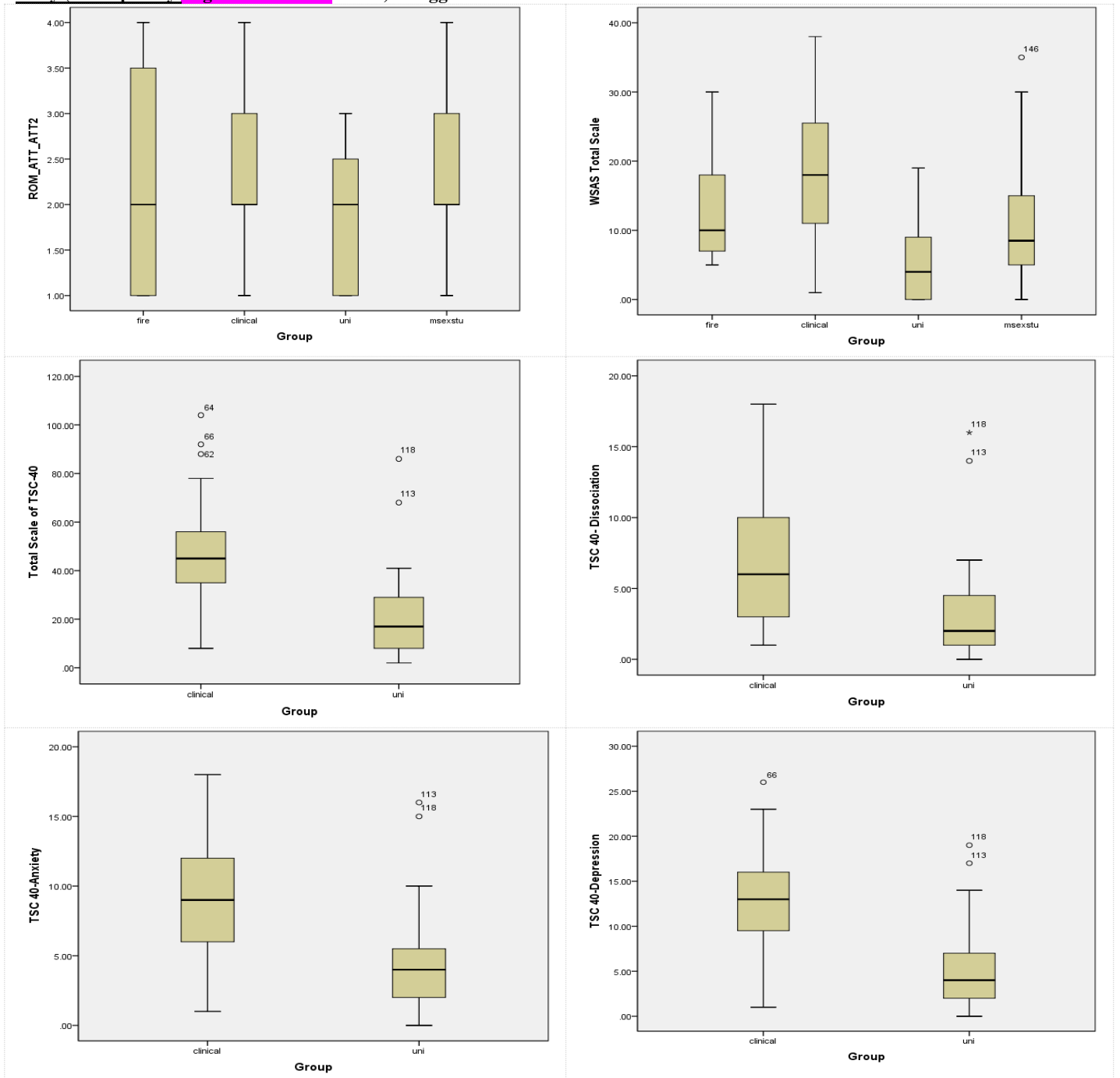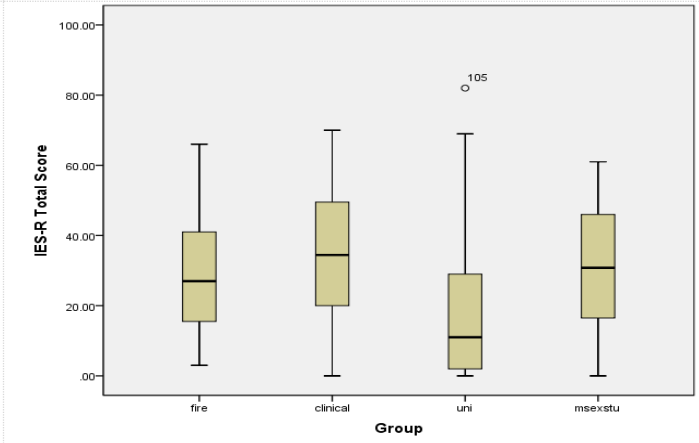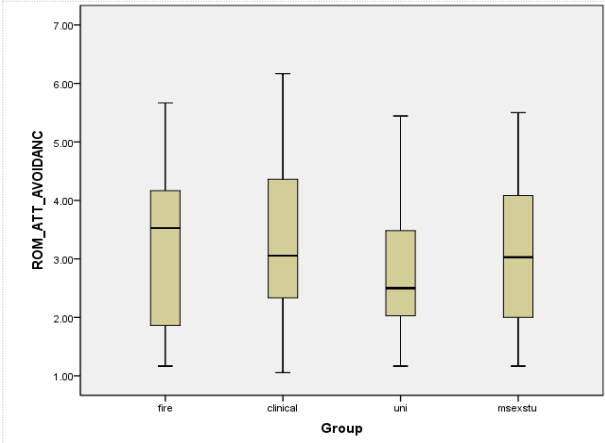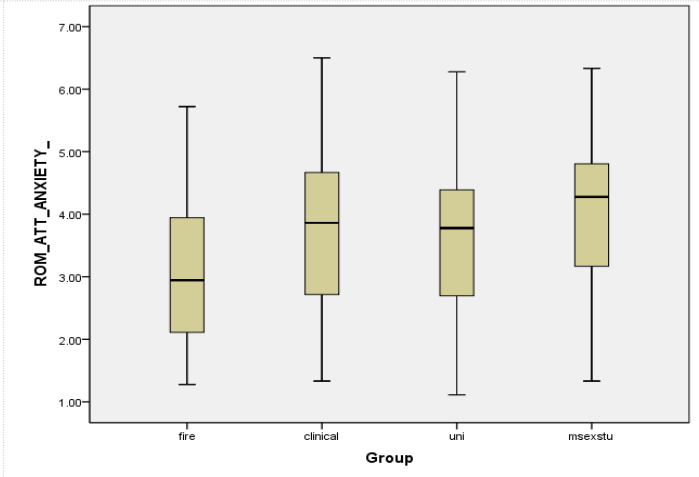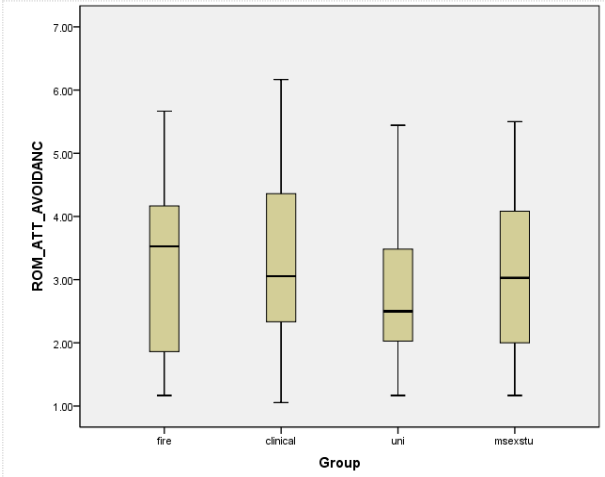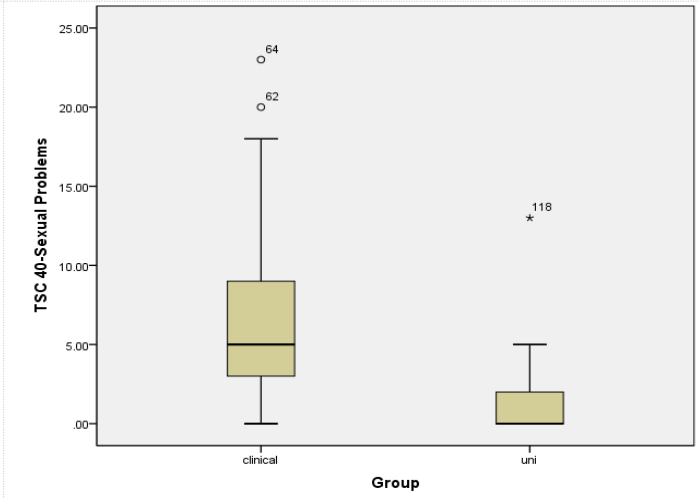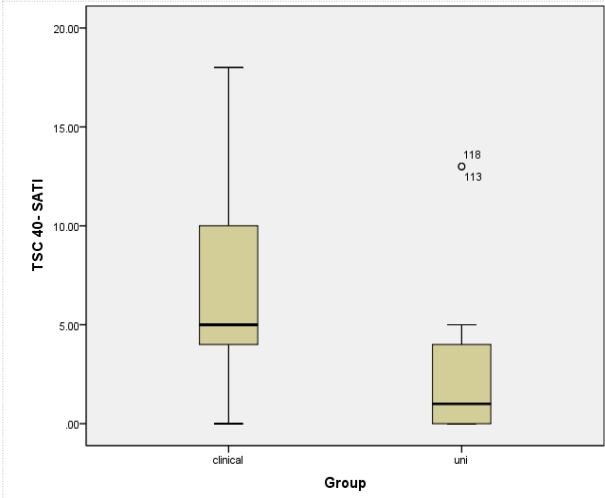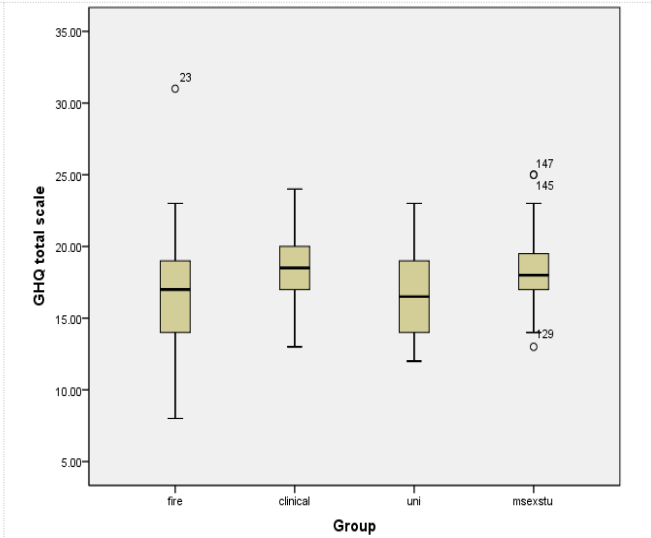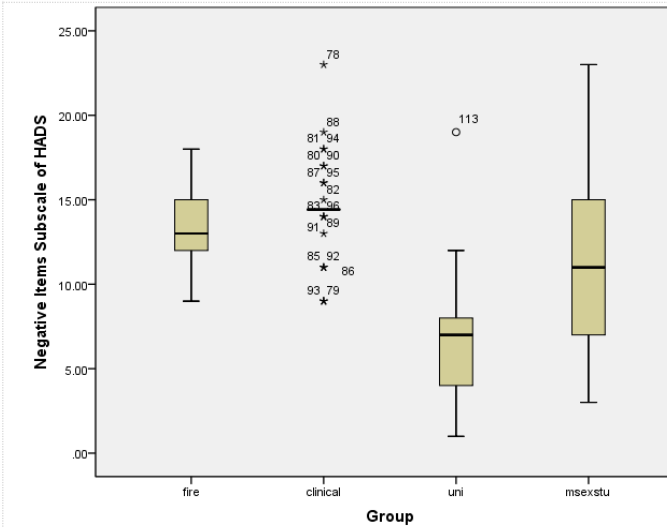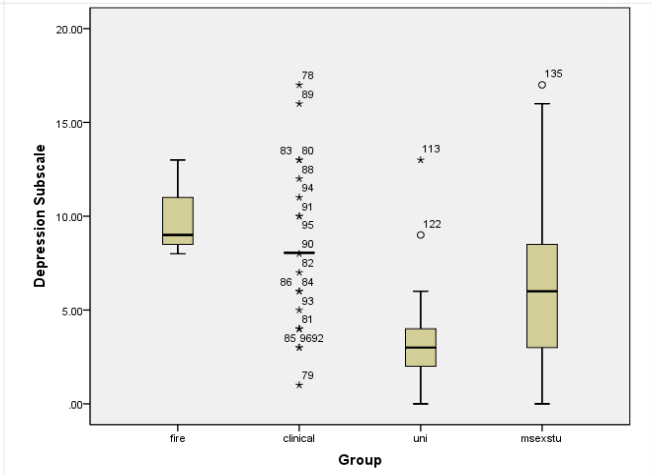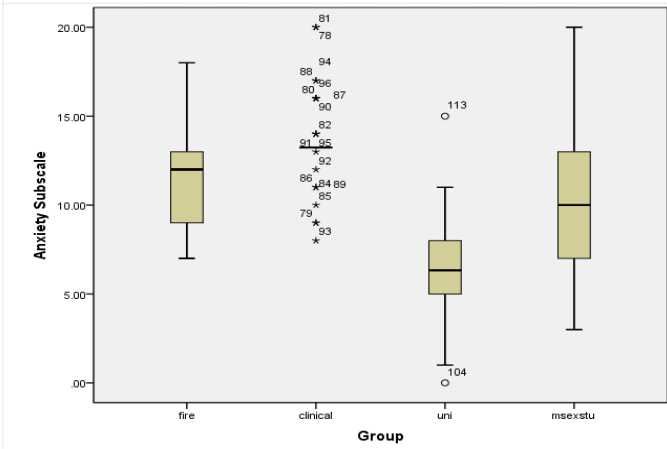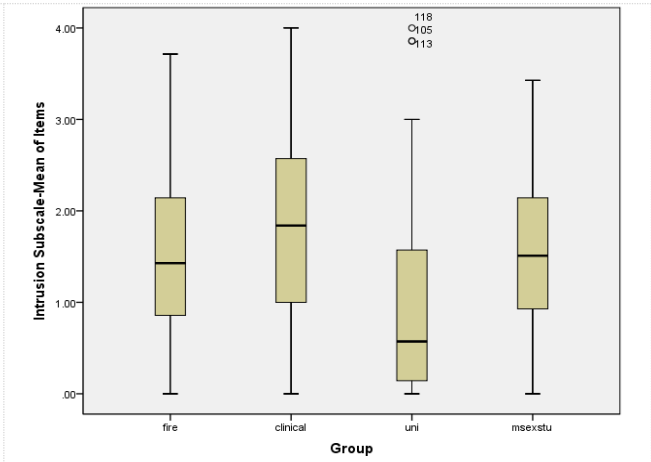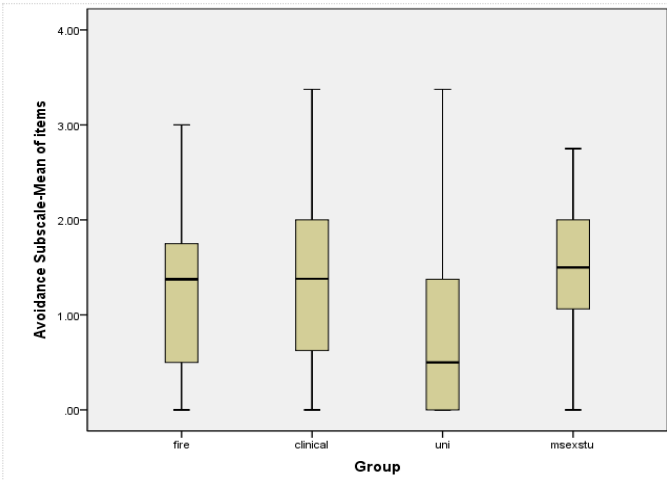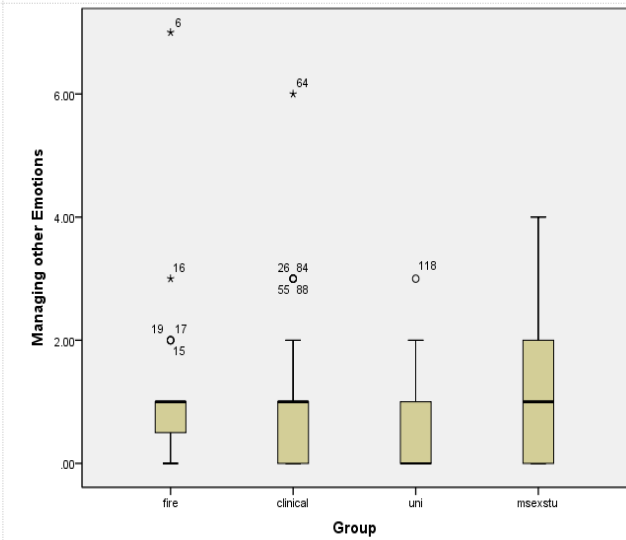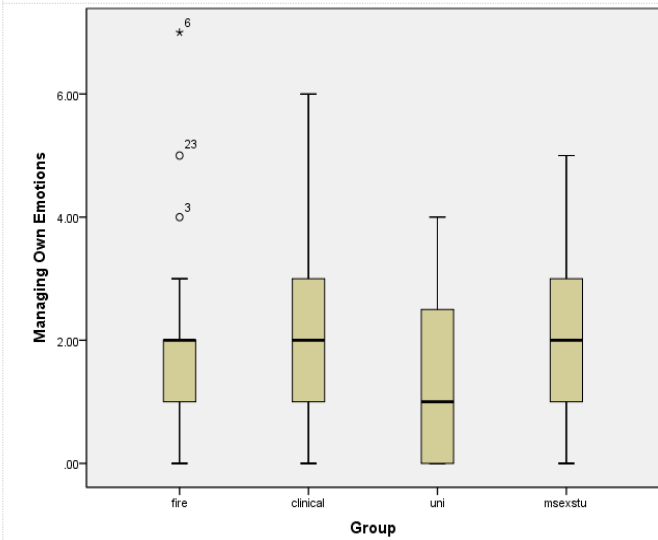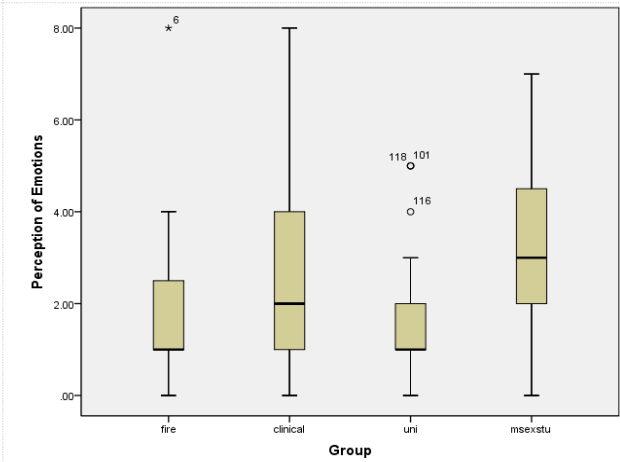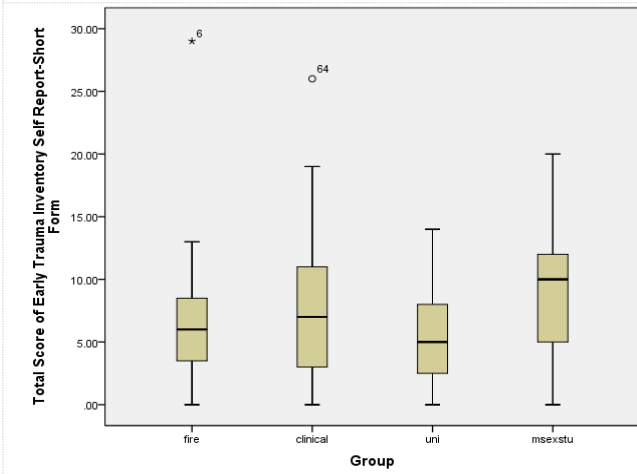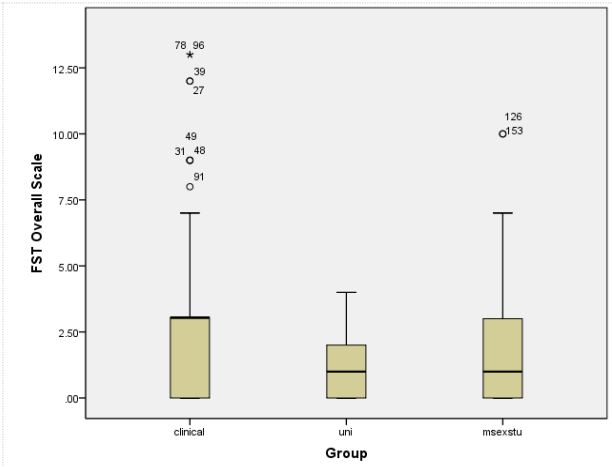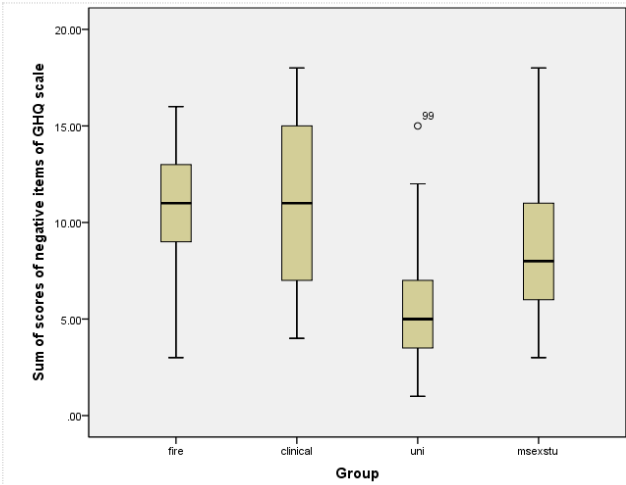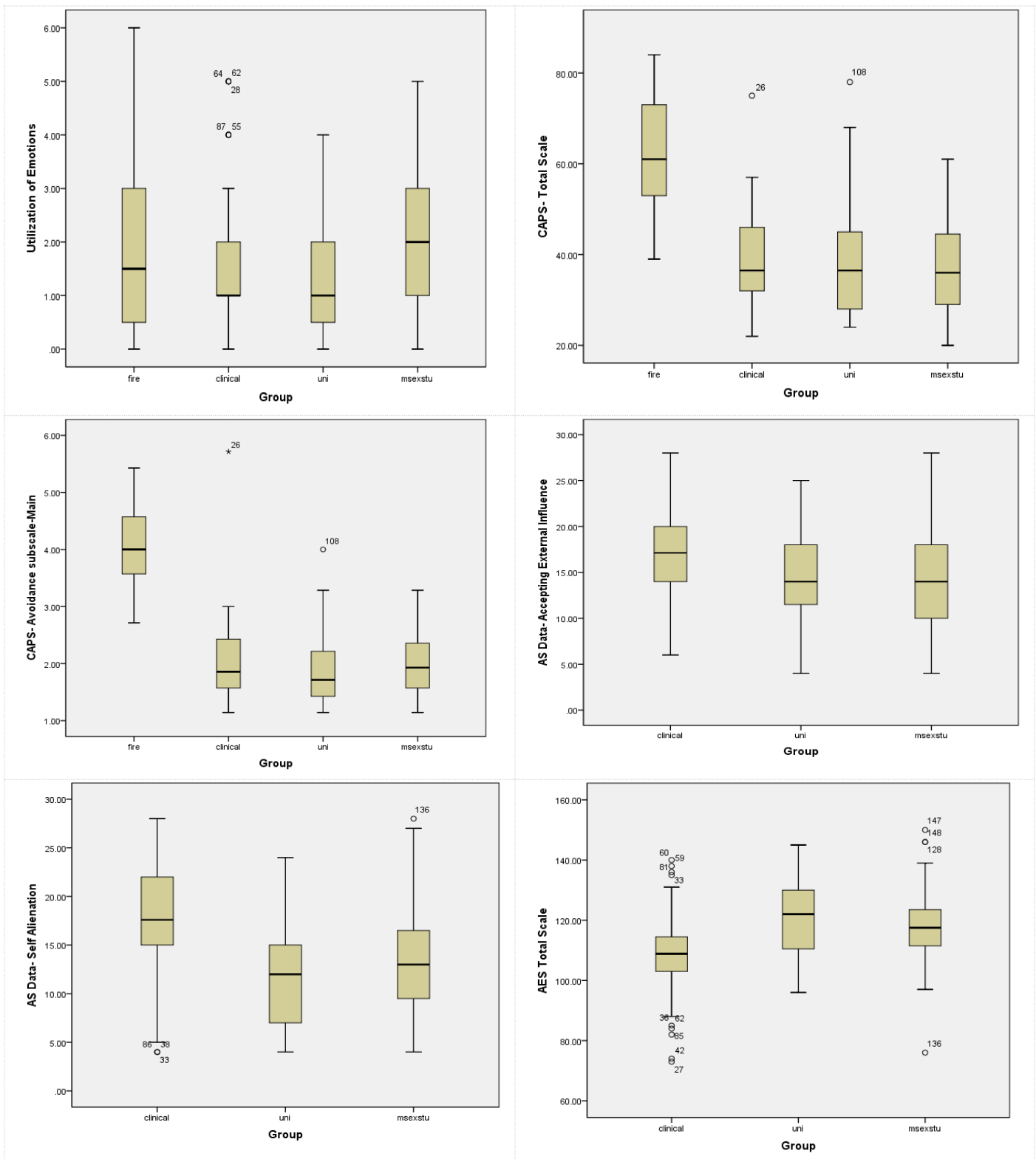
The findings for this section are clear, the negative features for WASAS, TSC-40 total, dissociation, anxiety, depression, SATI. Sleep problems, sexual functioning, GHQ sum of Neg scores, CAPS avoidance, AES total, As self alienation, HADS neg items are all highly significant to the 0.001 level, meaning that the clinical psychology scales for negativity in all of these areas is a fundamental feature in discriminating key differences between clinical and non-clinical groups. IESR, Avoidance, Intrusion, Hyper arousal, IESR average, GHQ total, FST overall (alcohol consumption), Perception of emotion, AS accepting external influence are all moderately significant at the 0.05 level which is meaningful, but nowhere to the level of that negativity is impactful in determining group difference. Finally,

ROM ATT, ROM ATT avoidance, Managing own and others emotions, Utilization of emotions are not significant, meaning these do not play any critical role in accounting for difference between group functioning. Overall, this aspect of the investigation offers a clearer picture that negativity, which is supported with the clear neuropsychological account of social and emotional processing plays a greater role (to a highly significant degree, 0.001 level) than has been put forward to account for the model in others trauma related psychological tools.

Table 5.3: The Results of One-Way ANOVA for the STAT Measures/ Tests by the samples (groups) of the Study (Conceptually Negative Scales)

STAT Measures/ Tests	Group	N	Mean	SD	Levine Statistic (Sig.)	MS$_B$ (df)	MS$_W$ (df)	F	Sig.
STAT A & B- Trauma	Fire	24	27.3042	4.87616	3.564 (.016)	584.517 (3)	25.733 (148)	22.715	.000***
	Clinical	69	32.9449	5.45143					
	Uni	27	23.9600	5.97739					
	Middlesex	32	29.6225	3.17119					
	Total	152	29.7588	6.06912					
STAT A & B- Anxiety	Fire	24	22.3633	4.77808	2.636 (.052)	1213.603 (3)	31.686 (148)	38.301	.000***
	Clinical	69	33.3312	6.18075					
	Uni	27	22.7226	6.38822					
	Middlesex	32	25.7147	4.03890					
	Total	152	28.1115	7.42751					
STAT A & B-Impulsivity	Fire	24	25.6000	2.93109	2.903 (.037)	417.269 (3)	16.284 (148)	25.624	.000***
	Clinical	70	29.4066	4.53394					
	Uni	27	21.8696	4.37918					
	Middlesex	31	28.8668	3.13840					
	Total	152	27.3566	4.92453					
STAT A & B-Frontal Lobe (Lateral) Self-Critical Thoughts	Fire	24	26.7275	6.07333	1.767 (.156)	2153.052 (3)	35.083 (151)	61.361	.000***
	Clinical	72	42.6861	5.55716					
	Uni	27	29.5767	7.25986					
	Middlesex	32	34.5000	5.34910					
	Total	155	36.2415	8.73770					
STAT A & B-Limbic Lobe Separation or Fear	Fire	24	24.7392	5.25206	2.765 (.044)	1382.397 (3)	39.033 (151)	35.416	.000***
	Clinical	72	35.6493	6.71813					
	Uni	27	23.9170	7.07061					
	Middlesex	32	34.3588	4.93576					
	Total	155	31.6499	8.07478					
STAT A & B- Defensiveness	Fire	24	22.4092	3.34481	3.788 (.012)	651.061 (3)	25.836 (151)	25.200	.000***
	Clinical	72	31.0263	5.53789					
	Uni	27	23.6400	6.41441					
	Middlesex	32	26.4722	3.57742					
	Total	155	27.4652	6.16570					
STAT A & B- Negativity (Cruelty)	Fire	24	82.0000	10.89076	9.581 (.000)	10523.459 (3)	179.993 (151)	58.466	.000***
	Clinical	72	109.3125	15.45836					
	Uni	27	75.1815	16.41209					
	Middlesex	32	106.2813	3.94081					
	Total	155	98.5123	19.53174					
STAT A & B- Avoidance	Fire	24	15.7267	2.86177	5.664 (.001)	418.422 (3)	13.754 (151)	30.422	.000***
	Clinical	72	23.4181	3.85487					
	Uni	27	18.5000	4.92443					
	Middlesex	32	21.0706	2.55853					
	Total	155	20.8858	4.65157					
STAT A & B- Intrusion	Fire	24	16.7825	4.61525	.327 (.806)	679.449 (3)	21.070 (151)	32.248	.000***
	Clinical	72	24.3465	4.61845					
	Uni	27	16.0400	4.64493					
	Middlesex	32	18.6897	4.45843					
	Total	155	20.5605	5.82196					
STAT A & B- Hyper arousal	Fire	24	15.8333	3.87485	3.090 (.029)	365.334 (3)	16.656 (151)	21.935	.000***
	Clinical	72	21.1586	4.61824					
	Uni	27	14.5767	4.26230					
	Middlesex	32	18.2500	2.42966					
	Total	155	18.5870	4.84231					
STAT A & B- Dissociation	Fire	24	11.1250	3.09716	2.844 (.040)	249.311 (3)	7.864 (151)	31.701	.000***
	Clinical	72	15.3678	2.85458					
	Uni	27	9.8400	3.23062					
	Middlesex	32	12.9606	1.94265					
	Total	155	13.2510	3.54513					
STAT A & B- Attachment Negative Disturbed sense of ...	Fire	24	44.0000	6.58060	4.576 (.004)	4716.409 (3)	102.222 (151)	46.139	.000***
	Clinical	72	66.6352	11.12779					
	Uni	27	46.0430	12.29909					
	Middlesex	32	60.6909	7.43741					
	Total	155	58.3162	13.86033					
STAT A & B- Flight	Fire	24	16.5321	2.04018	4.710 (.004)	321.710 (3)	11.320 (151)	28.419	.000***
	Clinical	72	22.6676	3.63731					
	Uni	27	17.4400	4.07695					
	Middlesex	32	20.3175	2.79461					
	Total	155	20.3218	4.16733					
STAT A & B- Freeze	Fire	24	11.2500	3.91485	3.283 (.023)	380.600 (3)	11.829 (151)	32.176	.000***
	Clinical	72	16.7417	3.40446					
	Uni	27	10.0381	4.18312					

	Middlesex	32	14.1225	2.24147				
	Total	**155**	**14.1829**	**4.36033**				
STAT A & B- Fight	Fire	24	9.9129	1.99811	1.345 *(.262)*	55.424 *(3)*	5.242 *(151)*	10.573	.000***
	Clinical	72	12.2915	2.40491					
	Uni	27	10.0385	2.63819					
	Middlesex	32	10.8278	1.86770					
	Total	**155**	**11.2286**	**2.49393**					
STAT A & B- Forensic or Pathological Subscale	Fire	24	31.7125	3.18186	1.741 *(.161)*	630.500 *(3)*	22.840 *(151)*	27.605	.000***
	Clinical	72	35.7572	5.09221					
	Uni	27	26.2915	4.89489					
	Middlesex	32	31.0000	4.92525					
	Total	**155**	**32.4999**	**5.88879**					
STAT A & B- Clinical Psychology Scale (CPS)	Fire	24	26.2125	2.55681	10.398 *(0.000)*	565.930 *(3)*	16.983 *(151)*	33.323	.000***
	Clinical	72	28.1860	5.12310					
	Uni	27	18.9200	4.39335					
	Middlesex	32	26.2500	1.25403					
	Total	**155**	**25.8666**	**5.26086**					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

The BOX and Whisker Chart/Plot for all of the STAT Measures/ Tests of psychometrics by the sample or groups of the study (Conceptually <mark>Negative Measures</mark>**/ Tests)**
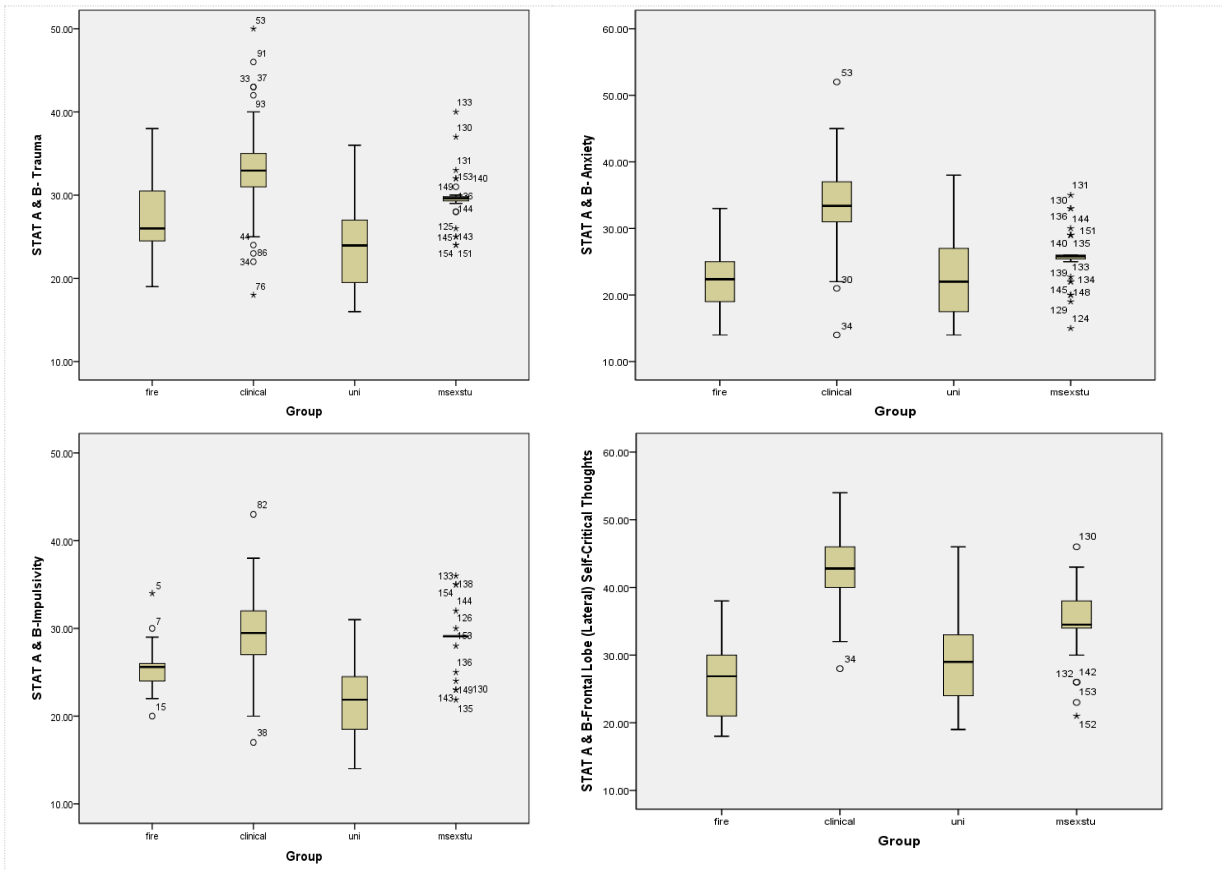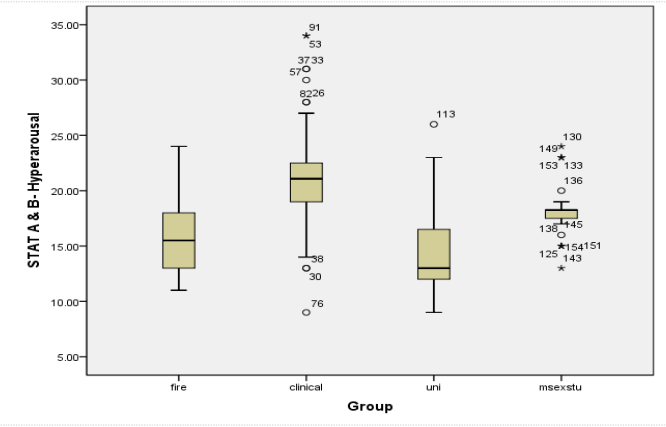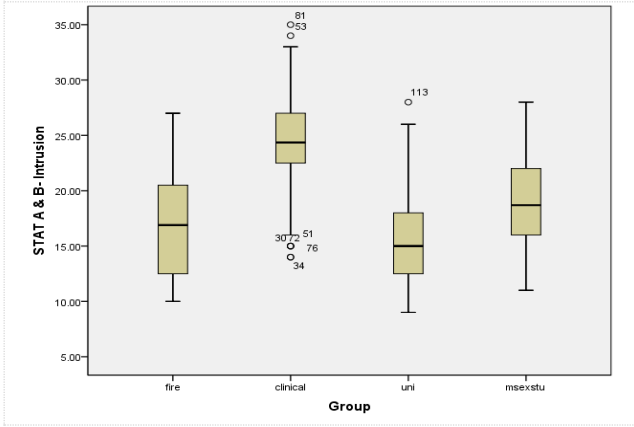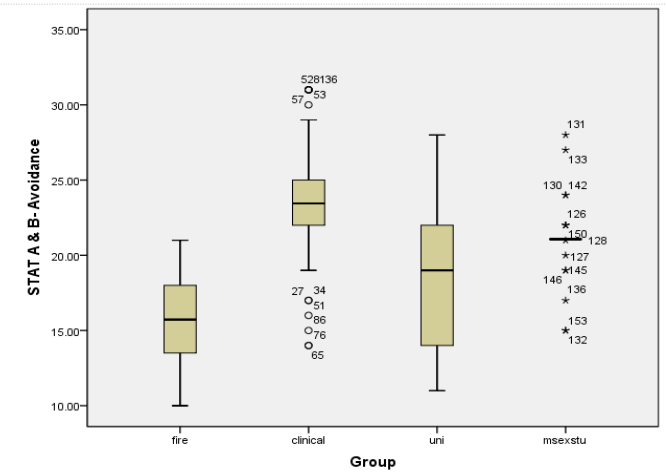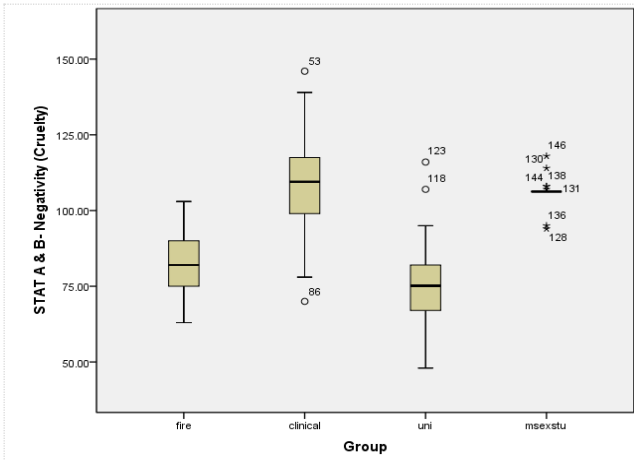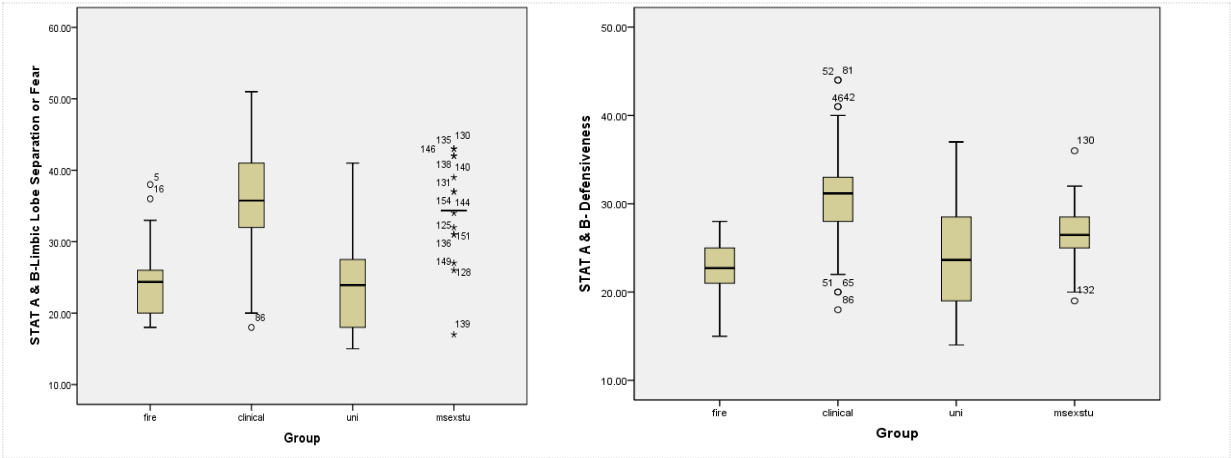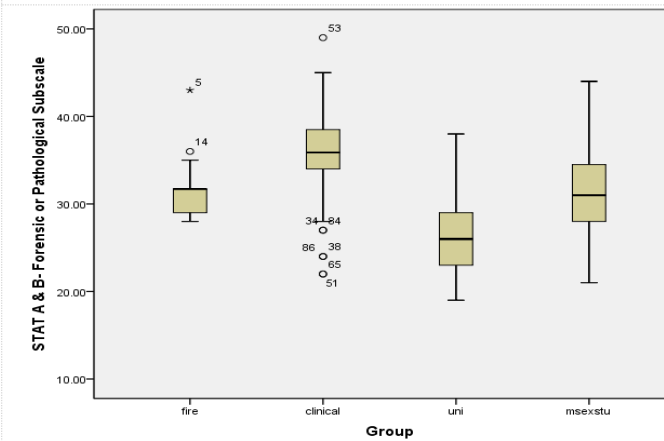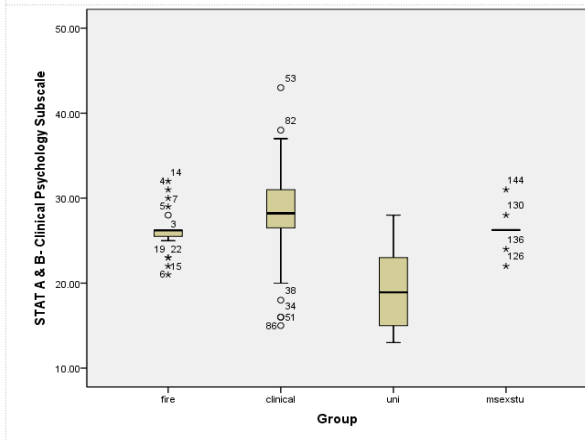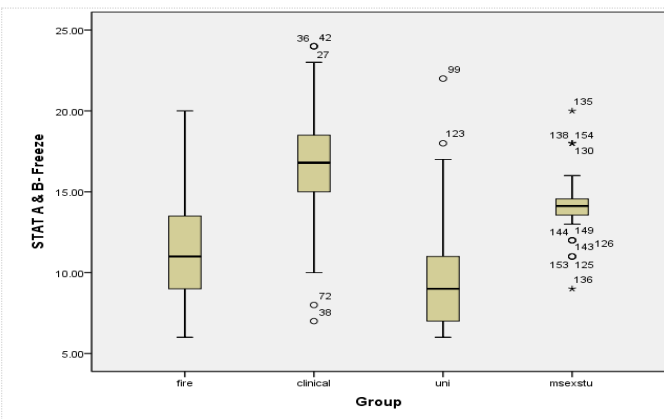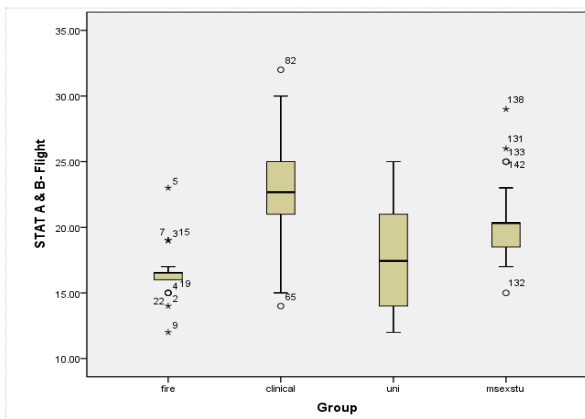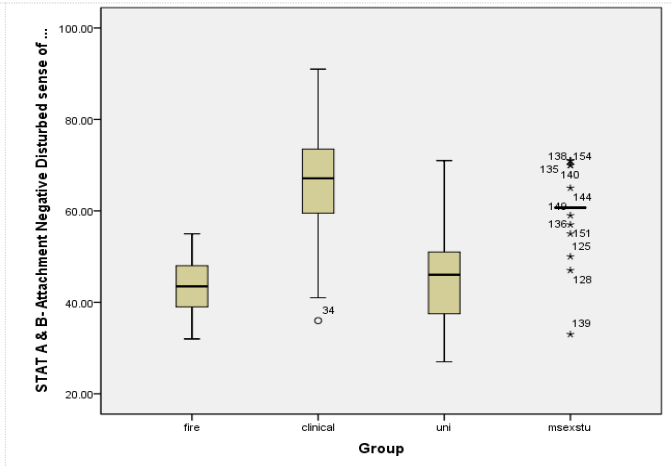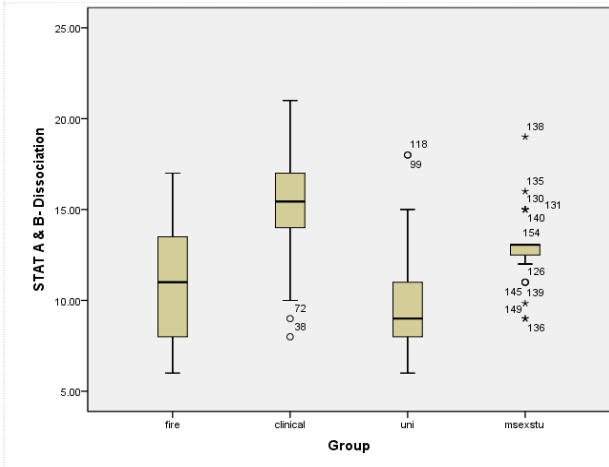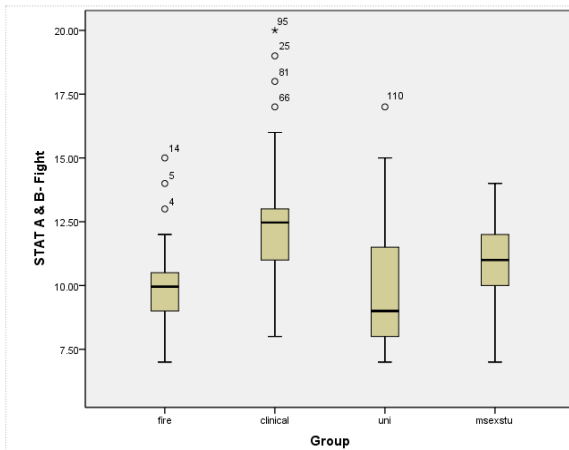
All of the STAT sub scores shown above that examine different clinical dimensions have found the negative aspects of scores to be both highly significant (p<0.001 level) and to have these take a critical account of the differences between clinical and non-clinical groups.

Table 5.4: The Results of One-Way ANOVA for both the Standardised Standard Measures/ Tests and the STAT Measures/ Tests by the samples (groups) of the study (Conceptually Positive Scales)

Variable	Group	N	Mean	SD	Levine Statistic *(Sig.)*	MS$_B$ *(df)*	MS$_W$ *(df)*	F	Sig.
Valued Living Questionnaire (VLQ) during Past Week	*Fire*	0	-	-	3.545 *(.034)*	440.762 *(2)*	310.829 *(68)*	1.418	.249
	Clinical	14	55.2143	24.18893					
	Uni	25	64.5600	15.98718					
	Middlesex	32	63.5625	15.44593					
	Total	71	62.2676	17.73532					
Valued Living Questionnaire (VLQ)	*Fire*	0	-	-	.145 *(.865)*	335.010 *(2)*	169.843 *(73)*	1.972	.146
	Clinical	18	73.6667	13.42955					
	Uni	26	78.1923	13.85646					
	Middlesex	32	81.2813	12.09168					
	Total	76	78.4211	13.20027					
Positive Items Subscale of HADS	*Fire*	24	7.0000	1.91107	8.899 *(.000)*	144.717 *(3)*	5.653 *(151)*	25.601	.000***
	Clinical	72	7.4710	1.94552					
	Uni	27	2.9574	2.15691					
	Middlesex	32	5.4375	3.50058					
	Total	155	6.1920	2.89168					
Subscale 2- Sum of Score of recoded positive items of GHQ	*Fire*	22	6.4091	3.64704	5.993 *(.001)*	143.737 *(3)*	12.416 *(127)*	11.576	.000***
	Clinical	72	7.8056	4.01279					
	Uni	26	11.3846	2.22849					
	Middlesex	32	10.1875	3.06318					
	Total	152	8.7171	3.87626					
AS Data- Authentic Living	*Fire*	0	.	.	3.503 *(.033)*	200.407 *(2)*	17.815 *(127)*	11.249	.000***
	Clinical	72	19.1346	4.92324					
	Uni	26	23.1538	2.96233					
	Middlesex	32	22.1563	3.22400					
	Total	130	20.6822	4.54379					
STAT A & B- Self Awareness	*Fire*	24	36.8175	3.35749	2.871 *(.038)*	256.622 *(3)*	25.196 *(149)*	10.185	.000***
	Clinical	71	42.6606	5.57477					
	Uni	26	43.9615	5.67437					
	Middlesex	32	41.8219	4.07380					
	Total	153	41.7897	5.45558					
STAT A & B-Conscientiousness	*Fire*	24	10.7083	1.70623	1.114 *(.345)*	483.989 *(3)*	6.808 *(151)*	71.092	.000***
	Clinical	72	19.2861	2.84562					
	Uni	27	19.2000	2.70327					
	Middlesex	32	18.8213	2.51516					
	Total	155	17.8470	4.01293					
STAT A & B- Intelligence	*Fire*	24	18.0833	3.95537	2.451 *(.066)*	28.142 *(3)*	9.355 *(151)*	3.008	.032*
	Clinical	72	18.3953	2.92922					
	Uni	27	17.1152	2.79184					
	Middlesex	32	16.6194	2.78795					
	Total	155	17.7574	3.11789					
STAT A & B- Self-esteem	*Fire*	24	16.0417	1.65448	3.190 *(.025)*	199.659 *(3)*	9.004 *(151)*	22.175	.000***
	Clinical	72	12.8619	2.88979					
	Uni	27	17.5767	3.48815					
	Middlesex	32	16.4331	3.53493					
	Total	155	14.9128	3.56622					
STAT A & B-Positivity (Compassion)	*Fire*	24	64.4542	5.33835	5.324 *(.002)*	873.251 *(3)*	57.163 *(151)*	15.277	.000***
	Clinical	72	75.4507	8.31986					

		Uni	27	77.2400	8.85472					
		Middlesex	32	73.1000	5.74428					
		Total	155	73.5744	8.54754					
STAT A & B-Attachment Positive		Fire	24	38.8183	2.97287	3.274 (.023)	451.893 (3)	31.982 (149)	14.130	.000***
		Clinical	71	45.6254	5.78171					
		Uni	26	48.8800	6.10128					
		Middlesex	32	45.8516	6.45432					
		Total	153	45.1580	6.34583					

*** *Significant at the 0.001 level*   ** *Significant at the 0.01 level*   * *Significant at the 0.05 level*

The BOX and Whisker Chart/Plot for all of the Standardised Psychological Measures of Psychometrics and the STAT Measures/Tests of psychometrics by the sample or groups of the study

(Conceptually Positive Measures/ Tests)
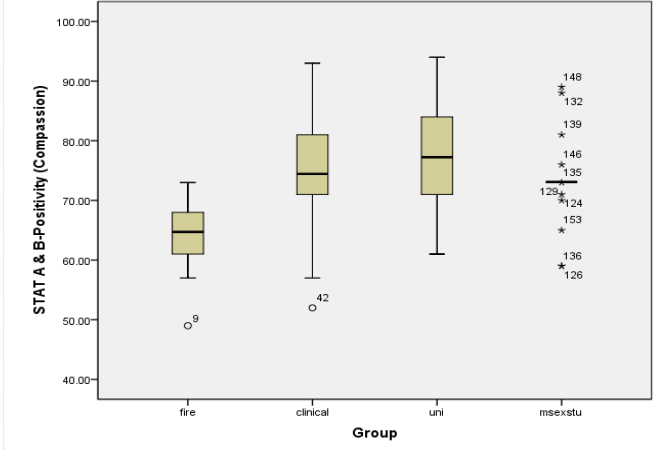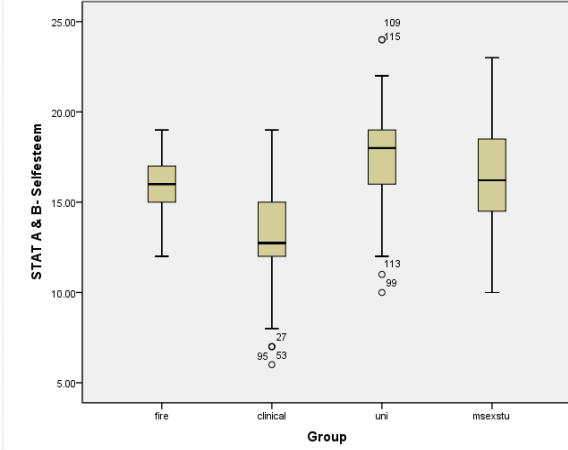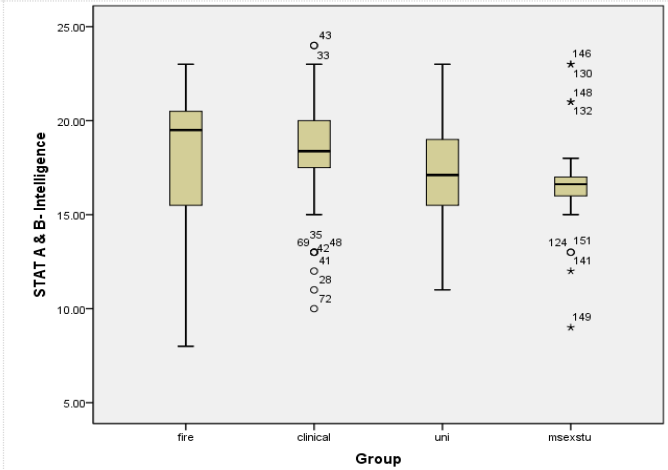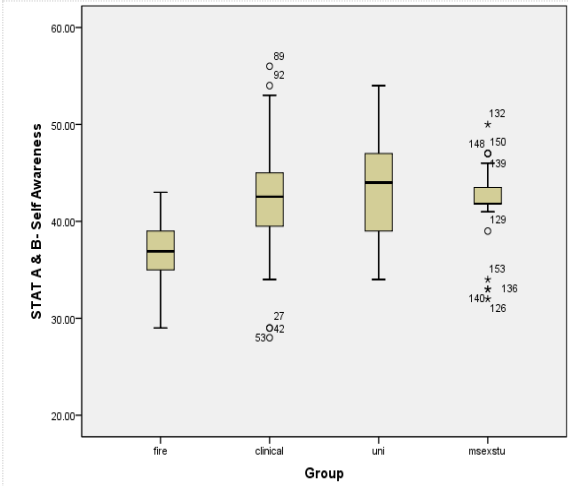
Post-Hoc Tests

Bonferroni Corrections for Hypothesis 2 and 3
Post Hoc Tests for the Table 5-33

Multiple Comparisons

Bonferroni

Dependent Variable	(I) WASAS Scale Grouped	(J) WASAS Scale Grouped	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
STAT A & B- Self Awareness	non clinical	Clinical	1.36035	2.07784	1.000	-3.6704	6.3911
		Severe	2.47017	1.36944	.220	-.8454	5.7858
	Clinical	non clinical	-1.36035	2.07784	1.000	-6.3911	3.6704
		Severe	1.10982	1.70807	1.000	-3.0256	5.2453
	Severe	non clinical	-2.47017	1.36944	.220	-5.7858	.8454
		Clinical	-1.10982	1.70807	1.000	-5.2453	3.0256
Managing Own Emotions- ETI_SR	non clinical	Clinical	-.33838	.58425	1.000	-1.7530	1.0763
		Severe	-.65176	.38526	.278	-1.5846	.2811
	Clinical	non clinical	.33838	.58425	1.000	-1.0763	1.7530
		Severe	-.31338	.48044	1.000	-1.4767	.8499
	Severe	non clinical	.65176	.38526	.278	-.2811	1.5846
		Clinical	.31338	.48044	1.000	-.8499	1.4767

Post Hoc Tests for the Table 5-34

Multiple Comparisons

Bonferroni

Dependent Variable	(I) GHQ Total Scale Categorized- 4 Levels	(J) GHQ Total Scale Categorized- 4 Levels	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
STAT A & B- Self Awareness	Really Healthy Group	Normal Group	-6.15867	3.06628	.279	-14.3600	2.0426
		Clinical (Distressed)Group	-6.17453	2.78710	.170	-13.6291	1.2801
		severely distressed	-6.46933	2.84297	.146	-14.0734	1.1347

314

						95% Confidence Interval	
	Normal Group	Really Healthy Group	6.15867	3.06628	.279	-2.0426	14.3600
		Clinical (Distressed)Group	-.01587	1.52467	1.000	-4.0939	4.0621
		severely distressed	-.31067	1.62455	1.000	-4.6558	4.0345
	Clinical (Distressed)Group	Really Healthy Group	6.17453	2.78710	.170	-1.2801	13.6291
		Normal Group	.01587	1.52467	1.000	-4.0621	4.0939
		severely distressed	-.29480	1.00251	1.000	-2.9762	2.3866
	severely distressed	Really Healthy Group	6.46933	2.84297	.146	-1.1347	14.0734
		Normal Group	.31067	1.62455	1.000	-4.0345	4.6558
		Clinical (Distressed)Group	.29480	1.00251	1.000	-2.3866	2.9762
Managing Own Emotions-ETI_SR	Really Healthy Group	Normal Group	-.43333	.86560	1.000	-2.7488	1.8821
		Clinical (Distressed)Group	-.52353	.78700	1.000	-2.6287	1.5816
		severely distressed	-.30000	.80256	1.000	-2.4468	1.8468
	Normal Group	Really Healthy Group	.43333	.86560	1.000	-1.8821	2.7488
		Clinical (Distressed)Group	-.09020	.43079	1.000	-1.2425	1.0621
		severely distressed	.13333	.45861	1.000	-1.0934	1.3601
	Clinical (Distressed)Group	Really Healthy Group	.52353	.78700	1.000	-1.5816	2.6287
		Normal Group	.09020	.43079	1.000	-1.0621	1.2425
		severely distressed	.22353	.28358	1.000	-.5350	.9821
	severely distressed	Really Healthy Group	.30000	.80256	1.000	-1.8468	2.4468
		Normal Group	-.13333	.45861	1.000	-1.3601	1.0934
		Clinical (Distressed)Group	-.22353	.28358	1.000	-.9821	.5350

Post Hoc Tests for the Table 5-35

Multiple Comparisons

Bonferroni

Dependent	(I)	(J)	Mean Difference (I-	Std. Error	Sig.	95% Confidence Interval	

Variable	HADS_AnXIETY Grouped	HADS_AnXIETY Grouped	J)			Lower Bound	Upper Bound
STAT A & B- Self Awareness	Usual group	Clinical group	2.66932	1.57864	.279	-1.1528	6.4914
		Severe Clinical group	2.01324	1.03391	.160	-.4900	4.5165
	Clinical group	Usual group	-2.66932	1.57864	.279	-6.4914	1.1528
		Severe Clinical group	-.65608	1.42144	1.000	-4.0976	2.7854
	Severe Clinical group	Usual group	-2.01324	1.03391	.160	-4.5165	.4900
		Clinical group	.65608	1.42144	1.000	-2.7854	4.0976
Managing Own Emotions- ETI_SR	Usual group	Clinical group	-.29880	.44216	1.000	-1.3694	.7718
		Severe Clinical group	-.23293	.29731	1.000	-.9528	.4869
	Clinical group	Usual group	.29880	.44216	1.000	-.7718	1.3694
		Severe Clinical group	.06586	.39488	1.000	-.8903	1.0220
	Severe Clinical group	Usual group	.23293	.29731	1.000	-.4869	.9528
		Clinical group	-.06586	.39488	1.000	-1.0220	.8903

Post Hoc Tests for the Table 5-36

Multiple Comparisons

Bonferroni

	(I)	(J)				95% Confidence Interval	
Dependent Variable	HADS_Depression grouped	HADS_Depression grouped	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
STAT A & B- Self Awareness	Usual group	Clinical group	2.46139[*]	.92768	.026	.2154	4.7074
		Severe Clinical group	1.46417	1.39969	.892	-1.9247	4.8530
	Clinical group	Usual group	-2.46139[*]	.92768	.026	-4.7074	-.2154
		Severe Clinical group	-.99722	1.39049	1.000	-4.3638	2.3693
	Severe Clinical group	Usual group	-1.46417	1.39969	.892	-4.8530	1.9247
		Clinical group	.99722	1.39049	1.000	-2.3693	4.3638
Managing	Usual group	Clinical group	-.46800	.26361	.234	-1.1063	.1703

Own Emotions-ETI_SR		Severe Clinical group	-.43419	.40619	.861	-1.4177	.5493
	Clinical group	Usual group	.46800	.26361	.234	-.1703	1.1063
		Severe Clinical group	.03382	.40363	1.000	-.9435	1.0111
	Severe Clinical group	Usual group	.43419	.40619	.861	-.5493	1.4177
		Clinical group	-.03382	.40363	1.000	-1.0111	.9435

*. The mean difference is significant at the 0.05 level.

Post Hoc Tests for the <u>Table 5-37</u>

Multiple Comparisons

Bonferroni

Dependent Variable	(I) WASAS Scale Grouped	(J) WASAS Scale Grouped	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Managing Own Emotions-ETI_SR	Non clinical	Clinical	-.33838	.58425	1.000	-1.7530	1.0763
		Severe	-.65176	.38526	.278	-1.5846	.2811
	Clinical	non clinical	.33838	.58425	1.000	-1.0763	1.7530
		Severe	-.31338	.48044	1.000	-1.4767	.8499
	Severe	non clinical	.65176	.38526	.278	-.2811	1.5846
		Clinical	.31338	.48044	1.000	-.8499	1.4767
AS Data-Accepting External Influence	Non clinical	Clinical	2.58333	2.22712	.745	-2.8193	7.9860
		Severe	-1.98752	1.33708	.419	-5.2311	1.2560
	Clinical	non clinical	-2.58333	2.22712	.745	-7.9860	2.8193
		Severe	-4.57086	1.92237	.057	-9.2342	.0925
	Severe	non clinical	1.98752	1.33708	.419	-1.2560	5.2311
		Clinical	4.57086	1.92237	.057	-.0925	9.2342
AS Data-Self Alienation	Non clinical	Clinical	2.59722	2.42732	.860	-3.2911	8.4855
		Severe	-4.76035*	1.45728	.004	-8.2955	-1.2252
	Clinical	non clinical	-2.59722	2.42732	.860	-8.4855	3.2911
		Severe	-7.35757*	2.09518	.002	-12.4402	-2.2750
	Severe	non clinical	4.76035*	1.45728	.004	1.2252	8.2955
		Clinical	7.35757*	2.09518	.002	2.2750	12.4402

*. The mean difference is significant at the 0.05 level.

Post Hoc Tests for the <u>Table 5-38</u>

Multiple Comparisons

Bonferroni

| Dependent Variable	(I) GHQ Total Scale Categorized- 4 Levels	(J) GHQ Total Scale Categorized- 4 Levels	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Managing Own Emotions- ETI_SR	Really Healthy Group	Normal Group	-.43333	.86560	1.000	-2.7488	1.8821
		Clinical (Distressed)Group	-.52353	.78700	1.000	-2.6287	1.5816
		severely distressed	-.30000	.80256	1.000	-2.4468	1.8468
	Normal Group	Really Healthy Group	.43333	.86560	1.000	-1.8821	2.7488
		Clinical (Distressed)Group	-.09020	.43079	1.000	-1.2425	1.0621
		severely distressed	.13333	.45861	1.000	-1.0934	1.3601
	Clinical (Distressed)Group	Really Healthy Group	.52353	.78700	1.000	-1.5816	2.6287
		Normal Group	.09020	.43079	1.000	-1.0621	1.2425
		severely distressed	.22353	.28358	1.000	-.5350	.9821
	severely distressed	Really Healthy Group	.30000	.80256	1.000	-1.8468	2.4468
		Normal Group	-.13333	.45861	1.000	-1.3601	1.0934
		Clinical (Distressed)Group	-.22353	.28358	1.000	-.9821	.5350

Post Hoc Tests for the <u>Table 5-39</u>

Multiple Comparisons

Bonferroni

Dependent Variable	(I) HADS_AnXIETY Grouped	(J) HADS_AnXIETY Grouped	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Managing Own Emotions- ETI_SR	Usual group	Clinical group	-.29880	.44216	1.000	-1.3694	.7718
		Severe Clinical group	-.23293	.29731	1.000	-.9528	.4869
	Clinical group	Usual group	.29880	.44216	1.000	-.7718	1.3694
		Severe Clinical group	.06586	.39488	1.000	-.8903	1.0220
	Severe Clinical group	Usual group	.23293	.29731	1.000	-.4869	.9528
		Clinical group	-.06586	.39488	1.000	-1.0220	.8903
AS Data- Accepting External Influence	Usual group	Clinical group	-1.62255	1.63400	.968	-5.5864	2.3413
		Severe Clinical group	-5.12576*	.98748	.000	-7.5212	-2.7303
	Clinical group	Usual group	1.62255	1.63400	.968	-2.3413	5.5864
		Severe Clinical group	-3.50322	1.50068	.063	-7.1436	.1372
	Severe Clinical group	Usual group	5.12576*	.98748	.000	2.7303	7.5212
		Clinical group	3.50322	1.50068	.063	-.1372	7.1436
AS Data- Self Alienation	Usual group	Clinical group	-.71078	1.73716	1.000	-4.9249	3.5033
		Severe Clinical group	-7.10200*	1.04982	.000	-9.6487	-4.5553

			Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
	Clinical group	Usual group	.71078	1.73716	1.000	-3.5033	4.9249
		Severe Clinical group	-6.39122*	1.59542	.000	-10.2615	-2.5210
	Severe Clinical group	Usual group	7.10200*	1.04982	.000	4.5553	9.6487
		Clinical group	6.39122*	1.59542	.000	2.5210	10.2615

*. The mean difference is significant at the 0.05 level.

Post Hoc Tests for the Table 5-40

Multiple Comparisons

Bonferroni

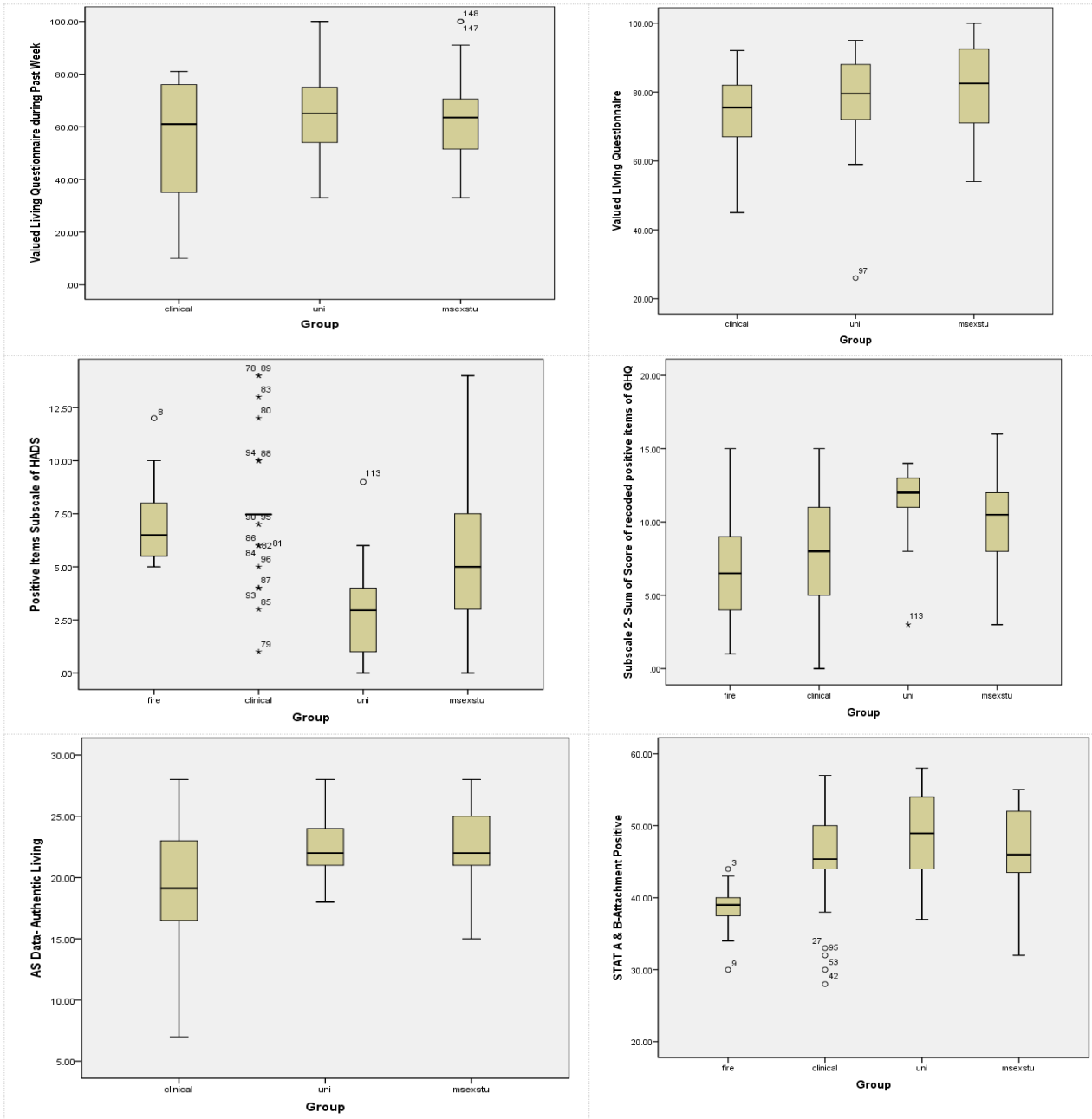| Dependent Variable	(I) HADS_Depression grouped	(J) HADS_Depression grouped	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Managing Own Emotions- ETI_SR	Usual group	Clinical group	-.46800	.26361	.234	-1.1063	.1703
		Severe Clinical group	-.43419	.40619	.861	-1.4177	.5493
	Clinical group	Usual group	.46800	.26361	.234	-.1703	1.1063
		Severe Clinical group	.03382	.40363	1.000	-.9435	1.0111
	Severe Clinical group	Usual group	.43419	.40619	.861	-.5493	1.4177
		Clinical group	-.03382	.40363	1.000	-1.0111	.9435
AS Data- Accepting External Influence	Usual group	Clinical group	-2.52667*	.95899	.028	-4.8530	-.2003
		Severe Clinical group	-2.70000	1.65403	.315	-6.7124	1.3124
	Clinical group	Usual group	2.52667*	.95899	.028	.2003	4.8530
		Severe Clinical group	-.17333	1.65636	1.000	-4.1914	3.8448
	Severe Clinical group	Usual group	2.70000	1.65403	.315	-1.3124	6.7124
		Clinical group	.17333	1.65636	1.000	-3.8448	4.1914
AS Data- Self Alienation	Usual group	Clinical group	-4.53028*	1.01223	.000	-6.9858	-2.0748
		Severe Clinical group	-7.88333*	1.74585	.000	-12.1185	-3.6482
	Clinical group	Usual group	4.53028*	1.01223	.000	2.0748	6.9858
		Severe Clinical group	-3.35305	1.74832	.172	-7.5942	.8881
	Severe Clinical group	Usual group	7.88333*	1.74585	.000	3.6482	12.1185
		Clinical group	3.35305	1.74832	.172	-.8881	7.5942

*. The mean difference is significant at the 0.05 level.

Appendix XII: Executive Summary

This report summarizes the results of a structural equation modeling (SEM) analysis based on the STAT psychometric battery of tests.

This report discusses data validation tests, main results of the SEM analysis, interpretations of those results, and recommendations. SEM is a complex multivariate technique that allows one to analyze multiple relationships among variables at the same time. Two main types of variables are employed in SEM: latent variables, and indicators.

A latent variable is a variable that is measured through multiple variables called indicators; the latter are also known as manifest variables. For example, "satisfaction with a meal" may be a latent variable measured through two indicators that store the answers on a 1 to 7 scale (1=strongly disagree; 7 strongly agree) to the following question-statements: "I am satisfied with this meal", and "After this meal, I feel full".

WarpPLS is a variance-based SEM software tool. As most variance-based SEM tools, WarpPLS is robust under conditions which are normally problematic for covariance-based SEM tools (e.g., LISREL and Amos), such as small samples and deviations from multivariate normality. WarpPLS also takes into account nonlinear relationships among latent variables in the calculation of coefficients of association. It is the first and only (at the time of this writing) variance-based SEM software tool to do this.

While WarpPLS models nearly always converge and yield solutions, sometimes those solutions cannot be trusted. One common problem, which is sometimes difficult to address, is that of multi-colinearity. In this case, different latent variables in a model essentially measure the same "thing" (i.e., the same concept). This may occur due to different latent variables including indicators with very high cross-correlations.

One clear sign that there are problems with a dataset, and that those problems may be due to multi-colinearity is a very "slow" analysis. This is indicated by a slow progression of the bar in Step 5 of WarpPLS. Another indication is the command prompt window (opened in the background of WarpPLS) listing many warnings.

When Step 5 was conducted using the original file sent, the analysis was slow and warnings were listed in the command prompt window. The loadings and cross loadings were checked for signs of multi-colinearity, such as low loadings and high cross loadings. Further validity, reliability and full colinearity tests were then conducted cyclically. Multi-colinearity was progressively reduced by removing errant latent variables identified from their high correlations (over 0.8) and high scores on Full-Colinearity VIF (Variable inflation factor).

A tell-tale sign of multi-colinearity are large variance inflation factors (VIFs) in a full Co linearity test, where "large" is defined as greater than 5.

Table 1: Signs of Multi-co linearity through high correlations

	WASA	VLQD	TSC	ROM_ATT	IES	HADS	GHQ	FST	ETI	OTHER	CAPS	AS	F1	F2	F3
WASA															
VLQD	-0.13														
TSC	0.582	-0.092													
ROM_ATT	0.325	-0.204	0.292												
IES	0.336	-0.062	0.555	0.237											
HADS	0.549	-0.083	0.452	0.306	0.306										
GHQ	0.083	-0.085	0.093	0.13	0.065	0.054									
FST	0.238	-0.3	0.307	0.095	0.108	0.242	0.115								
ETI	0.205	-0.002	0.27	0.284	0.255	0.184	-0.054	0.038							
OTHER	0.205	0.018	0.279	0.216	0.223	0.139	-0.085	0.014	0.936						
CAPS	0.133	-0.022	0.136	-0.053	0.086	0.162	-0.225	0.086	0.184	0.246					
AS	0.112	-0.036	0.171	0.105	0.216	0.162	0.024	0.055	0.09	0.072	0.038				
F1	0.523	-0.111	0.545	0.45	0.461	0.483	0.164	0.212	0.335	0.277	-0.087	0.101			
F2	-0.147	-0.011	-0.18	-0.214	-0.133	-0.226	0.057	-0.054	-0.166	-0.173	-0.407	0.122	-0.091		
F3	0.13	0.027	0.003	-0.046	-0.078	0.158	-0.126	-0.017	0.039	0.087	0.128	0.178	0.101	0.348	
STAT	0.414	-0.068	0.38	0.253	0.312	0.305	0.11	0.177	0.221	0.189	-0.229	0.099	0.813	0.417	0.366

Table 2: Signs of Multi-co linearity through VIF scores

	WASA	VLQD	TSC	ROM_ATT	IES	HADS	GHQ	FST	ETI	OTHER	CAPS	AS	F1	F2	F3
R-squared															
Composite reliab.	0.939	0.755	0.957	0.946	0.980	0.958	0.797	0.906	0.954	0.898	0.977	0.003	0.975	0.936	1.000
Cronbach's alpha	0.923	0.350	0.947	0.926	0.975	0.947	0.610	0.850	0.904	0.849	0.968	-1.064	0.973	0.905	1.000
Avg. var. extrac.	0.691	0.606	0.763	0.725	0.892	0.790	0.554	0.717	0.912	0.689	0.914	0.566	0.698	0.786	1.000
Full collin. VIF	1.915	1.179	2.276	1.495	1.620	1.930	1.196	1.310	9.249	9.152	1.596	1.896	26.216	1.845	1.500
Q-squared															

	GHQ	FST	ETI	OTHER	CAPS	AS	F1	F2	F3	STAT
R-squared										
Composite reliab.	97	0.906	0.954	0.898	0.977	0.003	0.975	0.936	1.000	0.800
Cronbach's alpha	10	0.850	0.904	0.849	0.968	-1.064	0.973	0.905	1.000	0.759
Avg. var. extrac.	54	0.717	0.912	0.689	0.914	0.566	0.698	0.786	1.000	0.433
Full collin. VIF	96	1.310	9.249	9.152	1.596	1.896	26.216	1.845	1.500	25.220
Q-squared										

Validity tests are needed to establish whether a measurement instrument has been understood by the respondents in the way that it was intended by the designer(s) of the instrument. One of the key components of a measurement instrument is typically a questionnaire, which may be used in a survey. Two types of validity are normally tested for: convergent and discriminant.

Reliability tests are needed to establish whether a measurement instrument has been understood in the same way by different respondents. Finally, colinearity tests are needed to rule out the presence of redundant latent variables; i.e., variables that essentially measure the same "thing". If a measurement instrument does not have acceptable validity and reliability, or contains latent variables that are collinear, the results cannot be fully trusted. Major distortions in the results may occur.

Convergent validity test

Two criteria are recommended as the basis for concluding that a measurement instrument has acceptable convergent validity in the context of a specific study: that the P values associated with the loadings be lower than .05; and that the loadings be equal to or greater than .5 (Hair et al., 2009).

Table 3 shows the loadings, cross-loadings, and P values associated with each of the latent variables in the model. Loadings and cross-loadings are from a combined matrix; where loadings come from a structure matrix, and cross-loadings from a pattern matrix. Cells containing loadings are shaded. As it can be seen, the final measurement instrument has acceptable convergent validity.

Table 3: Loadings and Cross-loadings

	WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
WASA_Wo	0.782	0.426	0.104	0.289	0.394	0.234	0.139	0.065	0.261	-0.261	0.42	-0.101	-0.358
WASA_So	0.857	0.513	0.324	0.201	0.376	0.144	0.116	0.06	0.306	-0.181	0.43	-0.053	-0.355
WASA_Ho	0.81	0.474	0.224	0.269	0.349	0.211	0.23	0.095	0.194	-0.095	0.343	-0.118	-0.304
WASA_Pr	0.856	0.492	0.293	0.321	0.5	0.127	0.171	0.085	0.262	-0.124	0.426	-0.113	-0.431
WASA_Fa	0.816	0.486	0.301	0.245	0.443	0.143	0.147	0.105	0.289	-0.157	0.449	-0.083	-0.368
WSAS_sc	0.993	0.576	0.306	0.318	0.497	0.207	0.195	0.098	0.317	-0.197	0.502	-0.108	-0.438
WASASGR	0.672	0.414	0.361	0.303	0.624	0.166	0.208	0.254	0.282	-0.174	0.456	-0.149	-0.399
TSC_40s	0.585	0.989	0.327	0.553	0.464	0.302	0.281	0.127	0.335	-0.15	0.555	-0.186	-0.445
TSC_40D	0.494	0.873	0.21	0.528	0.386	0.252	0.198	0.083	0.27	-0.051	0.403	-0.09	-0.311
TSC_40A	0.495	0.847	0.3	0.417	0.442	0.16	0.196	0.13	0.288	-0.113	0.483	-0.128	-0.411
TSC_40D	0.594	0.907	0.303	0.493	0.473	0.272	0.231	0.124	0.365	-0.243	0.591	-0.191	-0.463
TSC_40S	0.522	0.893	0.265	0.561	0.338	0.211	0.29	0.126	0.25	-0.058	0.456	-0.139	-0.323
TSC_40S	0.448	0.828	0.187	0.435	0.338	0.319	0.191	0.102	0.246	-0.101	0.428	-0.151	-0.346
TSC_40S	0.412	0.762	0.227	0.396	0.32	0.27	0.325	0.139	0.222	-0.13	0.397	-0.156	-0.288
ROM_ATT	0.238	0.184	0.692	0.06	0.265	0.051	0.178	0.053	0.274	-0.123	0.284	-0.235	-0.303
ROM_ATT	0.203	0.161	0.793	0.21	0.152	-0.023	0.208	-0.155	0.252	-0.103	0.334	-0.085	-0.317
ROM_ATT	0.332	0.321	0.987	0.255	0.297	0.092	0.246	-0.099	0.357	-0.144	0.463	-0.193	-0.437
ROM_ATT	0.336	0.315	0.997	0.232	0.311	0.089	0.25	-0.075	0.366	-0.151	0.458	-0.216	-0.439
ROM_ATT	0.32	0.318	0.956	0.267	0.277	0.091	0.238	-0.118	0.342	-0.136	0.454	-0.17	-0.422
ROM_ATT	0.327	0.294	0.965	0.192	0.317	0.083	0.244	-0.039	0.361	-0.152	0.433	-0.237	-0.424
IES_R	0.337	0.555	0.22	0.997	0.308	0.114	0.238	0.093	0.241	-0.007	0.455	-0.138	-0.349
IES_R_A	0.277	0.467	0.209	0.855	0.238	0.166	0.293	0.063	0.201	-0.034	0.39	-0.111	-0.23
IES_R_I	0.288	0.496	0.202	0.93	0.288	0.104	0.171	0.118	0.226	0.009	0.427	-0.13	-0.367
IES_R_H	0.34	0.535	0.23	0.919	0.326	0.076	0.177	0.054	0.274	-0.039	0.455	-0.153	-0.377
IES_R_A	0.337	0.555	0.22	0.997	0.308	0.114	0.238	0.093	0.241	-0.007	0.455	-0.138	-0.349
IES_RGr	0.304	0.537	0.226	0.961	0.271	0.087	0.241	0.067	0.21	0.048	0.419	-0.123	-0.313
HADS_An	0.596	0.49	0.274	0.319	0.903	0.277	0.184	0.089	0.537	-0.313	0.565	-0.14	-0.569
HADS_AN	0.573	0.449	0.269	0.343	0.86	0.259	0.143	0.093	0.525	-0.304	0.548	-0.137	-0.58
HADS_De	0.325	0.288	0.256	0.137	0.833	0.138	0.114	0.164	0.341	-0.159	0.272	-0.17	-0.423
HADS_De	0.381	0.348	0.257	0.249	0.904	0.139	0.123	0.237	0.364	-0.172	0.295	-0.238	-0.42
HADS_po	0.419	0.372	0.268	0.249	0.91	0.171	0.095	0.088	0.41	-0.237	0.382	-0.099	-0.443
HADS_Ne	0.583	0.468	0.277	0.336	0.921	0.246	0.181	0.187	0.505	-0.264	0.514	-0.217	-0.571
FSTScal	0.195	0.267	0.061	0.085	0.194	0.976	0.026	0.052	0.298	-0.341	0.203	-0.109	-0.142
FSTScal	0.208	0.295	0.089	0.163	0.274	0.877	0.033	0.125	0.288	-0.335	0.244	-0.047	-0.17
FSTaver	0.195	0.267	0.061	0.085	0.194	0.976	0.026	0.052	0.298	-0.341	0.203	-0.109	-0.142
PEs	0.232	0.303	0.253	0.272	0.093	0.075	0.862	0.138	0.155	-0.041	0.346	-0.121	-0.266
MOEs	0.131	0.164	0.152	0.073	0.109	-0.045	0.806	0.184	0.018	0.004	0.236	-0.137	-0.194
MotherE	0.192	0.285	0.104	0.155	0.169	0.045	0.797	0.263	0.076	-0.004	0.168	-0.08	-0.152
UOEs	0.114	0.169	0.227	0.234	0.092	-0.004	0.821	0.232	0.126	0.041	0.167	-0.177	-0.164
ETI_SR	0.205	0.277	0.258	0.239	0.142	0.037	0.99	0.214	0.136	-0.004	0.309	-0.145	-0.266
ETI_SR_	0.182	0.237	0.297	0.246	0.21	0.042	0.872	0.138	0.162	-0.019	0.33	-0.157	-0.293
CAPS	0.104	0.132	-0.077	0.087	0.14	0.073	0.229	0.987	0.015	0.003	-0.097	-0.335	0.018
CAPS_Av	0.104	0.132	-0.077	0.087	0.14	0.073	0.229	0.987	0.015	0.003	-0.097	-0.335	0.018
Avoidan	0.119	0.133	-0.076	0.137	0.161	0.031	0.165	0.929	0.016	-0.002	-0.1	-0.392	0.02
CAPS_Gr	0.155	0.121	-0.088	0.016	0.178	0.127	0.236	0.919	0.013	-0.018	-0.053	-0.255	-0.014
AS_AEI	0.14	0.136	0.225	0.119	0.329	0.185	-0.048	-0.041	0.85	-0.515	0.298	-0.149	-0.362
AS_SE	0.418	0.417	0.391	0.299	0.527	0.346	0.272	0.067	0.85	-0.461	0.499	-0.248	-0.523
AS_AL	-0.203	-0.139	-0.15	-0.004	-0.272	-0.359	-0.005	-0.003	-0.574	1	-0.307	0.283	0.316
Impulsi	0.429	0.483	0.285	0.387	0.337	0.324	0.219	-0.04	0.327	-0.306	0.759	-0.19	-0.487
Avoidan	0.397	0.408	0.394	0.447	0.315	0.121	0.23	-0.19	0.345	-0.132	0.839	0.095	-0.557
Intrusi	0.502	0.471	0.385	0.448	0.466	0.129	0.214	-0.015	0.502	-0.229	0.861	-0.025	-0.69
hyperar	0.432	0.536	0.254	0.473	0.38	0.115	0.2	-0.004	0.362	-0.226	0.79	-0.093	-0.552
Flight	0.407	0.441	0.465	0.4	0.374	0.288	0.23	-0.204	0.397	-0.294	0.85	0.008	-0.607
Freeze	0.478	0.421	0.342	0.341	0.423	0.183	0.25	-0.094	0.409	-0.278	0.865	-0.079	-0.668
Fight	0.3	0.31	0.33	0.222	0.281	0.129	0.33	-0.053	0.266	-0.267	0.679	-0.124	-0.483
Dissoci	0.474	0.446	0.342	0.361	0.41	0.301	0.232	-0.044	0.428	-0.325	0.855	-0.112	-0.622
LLS	0.448	0.442	0.502	0.335	0.411	0.134	0.383	-0.118	0.33	-0.186	0.865	-0.082	-0.614
Trauma	0.412	0.546	0.298	0.465	0.429	0.144	0.259	0.048	0.358	-0.239	0.812	-0.095	-0.574
Anxiety	0.458	0.464	0.368	0.382	0.424	0.191	0.135	-0.071	0.452	-0.328	0.843	0.001	-0.624
Negativ	0.434	0.493	0.438	0.352	0.398	0.158	0.349	-0.135	0.332	-0.258	0.907	-0.078	-0.604
Attachm	0.45	0.469	0.476	0.387	0.373	0.138	0.347	-0.166	0.369	-0.194	0.909	-0.021	-0.627
FPSs	0.45	0.454	0.38	0.35	0.538	0.3	0.276	0.059	0.493	-0.328	0.807	-0.234	-0.641
CPS	0.436	0.518	0.254	0.437	0.43	0.29	0.159	0.116	0.364	-0.312	0.764	-0.22	-0.502
FLSCTs	0.439	0.421	0.413	0.404	0.466	0.198	0.254	-0.197	0.444	-0.24	0.888	0.102	-0.713
Defensi	0.408	0.414	0.453	0.33	0.409	0.127	0.249	-0.125	0.461	-0.246	0.875	-0.073	-0.658
Positiv	-0.117	-0.182	-0.195	-0.149	-0.15	-0.117	-0.165	-0.32	-0.23	0.287	-0.109	0.967	0.284
Attachm	-0.202	-0.188	-0.271	-0.139	-0.317	-0.105	-0.193	-0.28	-0.336	0.379	-0.196	0.925	0.426
Selfawa	-0.179	-0.162	-0.221	-0.136	-0.166	-0.089	-0.219	-0.302	-0.207	0.196	-0.152	0.912	0.265
Conscie	-0.01	-0.106	-0.037	-0.045	-0.163	0	-0.031	-0.534	-0.078	0.098	0.153	0.68	-0.009
Intelli	0.132	0.004	-0.058	-0.078	0.157	-0.053	0.069	0.127	-0.003	0.137	0.102	0.487	-0.018
Selfest	-0.455	-0.426	-0.436	-0.352	-0.564	-0.16	-0.261	0.011	-0.52	0.316	-0.723	0.27	1

P values are all <0.001

The factors ExNEmo (External Negative Emotionality), PosEmo (Positive emotions) and Selfest (Self-esteem) were created from a factor analysis as follows:

Table 4: Factor analysis of emotion items

Variable	Factor 1	Factor 2	Factor 3
Trauma	0.809	0.004	0.257
Anxiety	0.838	0.131	0.120
Impulsivit	0.753	-0.137	-0.020
Selfaware	-0.205	0.883	0.005
FLSCTs	0.884	0.236	-0.130
LLS	0.860	0.038	-0.187
Defensive	0.874	0.064	-0.067
Conscienn	0.126	0.716	-0.445
Intelligen	0.087	0.477	0.670
Selfesteer	-0.750	0.187	0.020
Negativity	0.900	0.045	-0.141
Positivity	-0.154	0.948	0.095
Avoidance	0.823	0.243	-0.073
Intrusion	0.860	0.099	0.173
hyperarou	0.781	0.015	0.207
Dissociati	0.853	-0.021	-0.081
Attachme	-0.248	0.900	0.029
Attachme	0.901	0.113	-0.167
Flight	0.839	0.115	-0.048
Freeze	0.865	0.028	-0.083
Fight	0.674	-0.037	-0.112
FPSs	0.811	-0.174	0.172
CPS	0.755	-0.164	0.290

Note that Self-esteem was separated out as a factor due to its negative loading on factor 1 and low loadings on factors 2 and 3. The other factors in the 13 factor model were pre-determined i.e., taken from existing scales.

Discriminant validity test

The following criterion is recommended for discriminant validity assessment: for each latent variable, the square root of the AVE should be higher than any of the correlations involving that latent variable (Fornell & Larcker, 1981). If this criterion is met, a measurement instrument is said to have acceptable discriminant validity in the context of a specific study.

That is, in a table containing AVEs on the diagonal and latent variable correlations elsewhere, the values on the diagonal should be higher than any of the values above or below them, in the same column. Or, the values on the diagonal should be higher than any of the values to their left or right, in the same row; which means the same as the previous statement, given the repeated values of the latent variable correlations table. Table 5 shows the AVE for each latent variable (on the diagonal) and the correlations among latent variables. Cells containing AVEs, on the diagonal, are shaded. As it can be seen, the final measurement instrument (Appendix B) has acceptable convergent validity.

Table 5: Correlations among Latent Variables and AVEs

Latent variable correlations

	WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
WASA	0.831	0.584	0.327	0.333	0.541	0.211	0.205	0.125	0.328	-0.203	0.519	-0.122	-0.455
TSC	0.584	0.874	0.3	0.556	0.454	0.292	0.279	0.135	0.325	-0.139	0.544	-0.171	-0.426
ROM_ATT	0.327	0.3	0.905	0.23	0.3	0.074	0.253	-0.083	0.362	-0.15	0.453	-0.209	-0.436
IES	0.333	0.556	0.23	0.945	0.308	0.115	0.239	0.086	0.246	-0.004	0.459	-0.14	-0.352
HADS	0.541	0.454	0.3	0.308	0.889	0.231	0.158	0.161	0.504	-0.272	0.484	-0.188	-0.564
FST	0.211	0.292	0.074	0.115	0.231	0.944	0.03	0.079	0.312	-0.359	0.228	-0.095	-0.16
OTHER	0.205	0.279	0.253	0.239	0.158	0.03	0.861	0.225	0.132	-0.005	0.304	-0.158	-0.261
CAPS	0.125	0.135	-0.083	0.086	0.161	0.079	0.225	0.956	0.016	-0.003	-0.091	-0.345	0.011
AS	0.328	0.325	0.362	0.246	0.504	0.312	0.132	0.016	0.85	-0.574	0.469	-0.234	-0.52
ASAL	-0.203	-0.139	-0.15	-0.004	-0.272	-0.359	-0.005	-0.003	-0.574	1	-0.307	0.283	0.316
ExNEmo	0.519	0.544	0.453	0.459	0.484	0.228	0.304	-0.091	0.469	-0.307	0.835	-0.082	-0.723
PosEmo	-0.122	-0.171	-0.209	-0.14	-0.188	-0.095	-0.158	-0.345	-0.234	0.283	-0.082	0.815	0.27
SelfEst	-0.455	-0.426	-0.436	-0.352	-0.564	-0.16	-0.261	0.011	-0.52	0.316	-0.723	0.27	1

Note: Square roots of average variances extracted (AVE's) shown on diagonal.

P values for correlations

	WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
WASA	1	<0.001	<0.001	<0.001	<0.001	0.009	0.01	0.12	<0.001	0.011	<0.001	0.129	<0.001
TSC	<0.001	1	<0.001	<0.001	<0.001	<0.001	<0.001	0.093	<0.001	0.085	<0.001	0.034	<0.001
ROM_ATT	<0.001	<0.001	1	0.004	<0.001	0.362	0.001	0.304	<0.001	0.063	<0.001	0.009	<0.001
IES	<0.001	<0.001	0.004	1	<0.001	0.153	0.003	0.286	0.002	0.956	<0.001	0.082	<0.001
HADS	<0.001	<0.001	<0.001	<0.001	1	0.004	0.05	0.045	<0.001	<0.001	<0.001	0.019	<0.001
FST	0.009	<0.001	0.362	0.153	0.004	1	0.709	0.327	<0.001	<0.001	0.004	0.239	0.047
OTHER	0.01	<0.001	0.001	0.003	0.05	0.709	1	0.005	0.101	0.951	<0.001	0.049	0.001
CAPS	0.12	0.093	0.304	0.286	0.045	0.327	0.005	1	0.846	0.967	0.261	<0.001	0.892
AS	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.101	0.846	1	<0.001	<0.001	0.003	<0.001
ASAL	0.011	0.085	0.063	0.956	<0.001	<0.001	0.951	0.967	<0.001	1	<0.001	<0.001	<0.001
ExNEmo	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	0.261	<0.001	<0.001	1	0.312	<0.001
PosEmo	0.129	0.034	0.009	0.082	0.019	0.239	0.049	<0.001	0.003	<0.001	0.312	1	<0.001
SelfEst	<0.001	<0.001	<0.001	<0.001	<0.001	0.047	0.001	0.892	<0.001	<0.001	<0.001	<0.001	1

Reliability test

One criterion is recommended as the basis for concluding that a measurement instrument has acceptable reliability in the context of a specific study: the compositive reliability for each latent variable should be equal to or greater than .7 (Fornell & Larcker, 1981; Nunnally, 1978; Nunnally & Bernstein, 1994). This applies only to "true" latent variables; that is, to latent variables measured through 2 or more indicators.

Table 6 shows the composite reliability coefficients for each latent variable. As it can be seen, the final measurement instrument has acceptable reliability.

Full colinearity test

One criterion is recommended in connection with VIFs in the context of a full colinearity test. The criterion is that VIFs be lower than 5 (Hair et al., 2009; Kline, 1998). High VIFs usually occur for pairs of latent variables, and suggest that the latent variables measure the same construct. This calls for the removal of cross-loading indicators from the latent variables, regrouping of indicators, or removal of one of the latent variables from the model.

Table 6 shows the VIFs for each latent variable. As it can be seen, the final measurement instrument is practically free from multi-co linearity.

The following confirmed statistical reliability of the factors.

Table 6: Reliability and VIF tests

```
* Latent variable coefficients *
********************************
```

R-squared coefficients

WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
0.377	0.405	0.092	0.13					0.357	0.371	0.574	0.174	0.608

Composite reliability coefficients

WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
0.939	0.957	0.964	0.98	0.958	0.961	0.945	0.977	0.839	1	0.975	0.904	1

Cronbach's alpha coefficients

WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
0.923	0.947	0.952	0.975	0.947	0.938	0.929	0.968	0.616	1	0.973	0.857	1

Average variances extracted

WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
0.691	0.763	0.82	0.892	0.79	0.892	0.741	0.914	0.723	1	0.698	0.665	1

Full collinearity VIFs

WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
1.894	2.199	1.448	1.61	1.953	1.265	1.254	1.362	2.119	1.805	3.055	1.434	2.721

Q-squared coefficients

WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
0.382	0.409	0.097	0.127					0.362	0.375	0.579	0.169	0.608

Larger 14 Factor Model
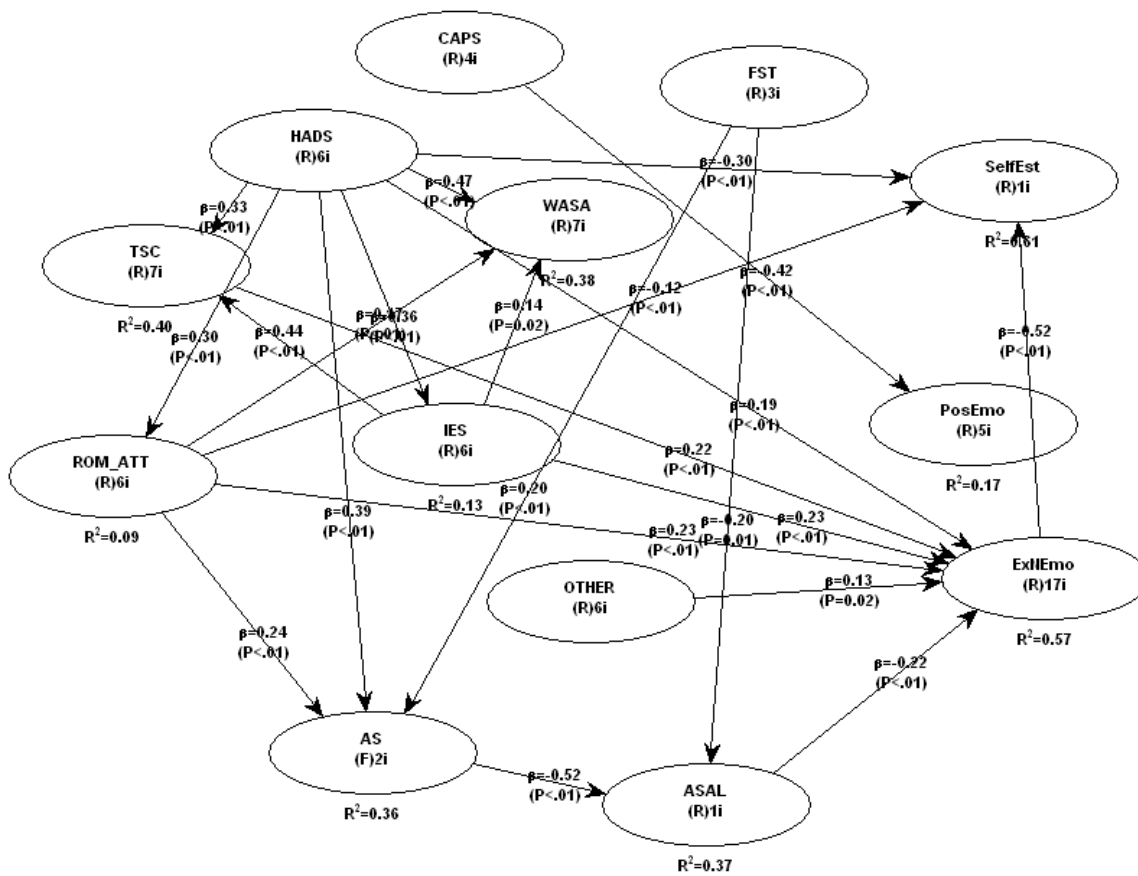
Figure 1: Final (Larger) Model

Model Fit Indices

Model fit indices are shown for the final model. These all conform to the required statistical tests.

Table 6: Reliability and VIF tests

Model fit indices and P values	

APC=0.275, P<0.001	
ARS=0.343, P<0.001	
AVIF=1.307, Good if < 5	

Self-esteem is treated as the endogenous variable. All links conform to strength of correlations in their set up. Simpson's paradox has been tested for i.e., no issues with the correlation being the opposite sign to the path coefficient.

Total Effects

The following represents the combination of direct and indirect effects of the path coefficients:

Table 7: Total Effects

Total effects

	WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
WASA			0.168	0.144	0.572								
TSC				0.439	0.487								
ROM_ATT					0.304								
IES					0.36								
HADS													
FST													
OTHER													
CAPS													
AS			0.243		0.468	0.204							
ASAL			-0.126		-0.242	-0.304			-0.517				
ExNEmo	0.214	0.265	0.318	0.491	0.078	0.128			0.211	-0.176			
PosEmo								-0.417					
SelfEst		-0.111	-0.252	-0.165	-0.588	-0.04	-0.066		-0.11	0.091	-0.518		

P values for total effects

	WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
WASA			0.01	0.02	<0.001								
TSC				<0.001	<0.001								
ROM_ATT					<0.001								
IES					<0.001								
HADS													
FST													
OTHER													
CAPS													
AS			<0.001		<0.001	0.006							
ASAL			0.003		<0.001	<0.001			<0.001				
ExNEmo	0.005	<0.001	<0.001	<0.001	0.016	0.021			0.006	0.032			
PosEmo								<0.001					
SelfEst		0.007	<0.001	<0.001	<0.001	0.022	0.026		0.011	0.038	<0.001		

Effect Sizes

Table 8: Effect Sizes

Effect sizes for total effects

	WASA	TSC	ROM_ATT	IES	HADS	FST	OTHER	CAPS	AS	ASAL	ExNEmo	PosEmo	SelfEst
WASA			0.057	0.05	0.33								
TSC				0.245	0.237								
ROM_ATT					0.092								
IES					0.13								
HADS													
FST													
OTHER													
CAPS													
AS			0.091		0.24	0.064							
ASAL			0.021		0.072	0.109			0.3				
ExNEmo		0.121	0.122	0.159	0.266	0.026	0.046		0.108	0.059			
PosEmo								0.174					
SelfEst		0.049	0.112	0.061	0.356	0.008	0.019		0.061	0.032	0.376		

Brief Implications

- The significant impact of trauma on expressed emotion.
- The impact of hospital anxiety and depression on work and social, trauma, authenticity, emotional control and self-esteem.
- Expressed emotion is critical to self-esteem.
- Positive emotion is not impactful

Standardized plots and non-standardized charts

Discussed below are standardized plots and non-standardized charts of strong relationships; that is, relationships with high and statistically significant path coefficients. They are discussed here for illustration purposes. Figure 2 describes how the relationships between latents are non-linear (i.e., warped)

Figure 2: Non-Linear relationships
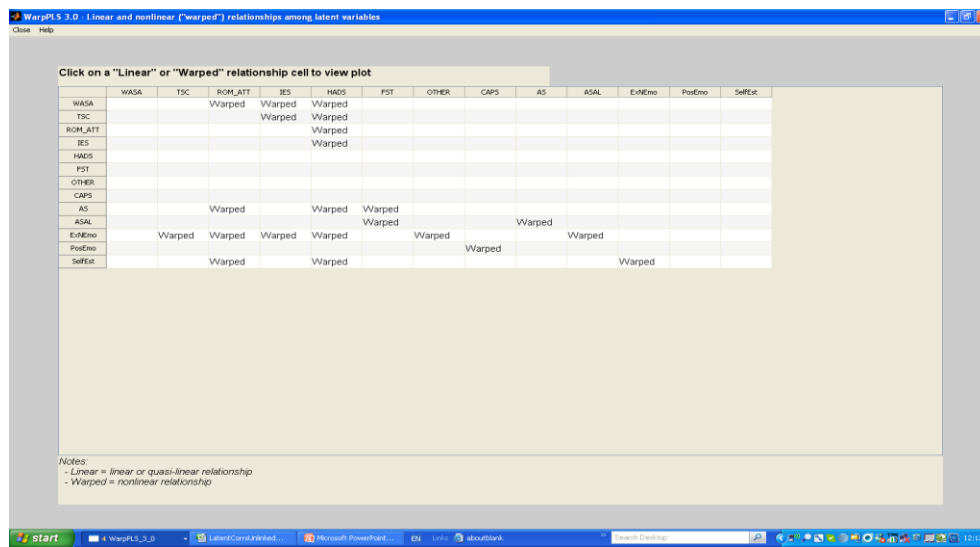
Figure 3: Emotional expression (negative) and Self-esteem
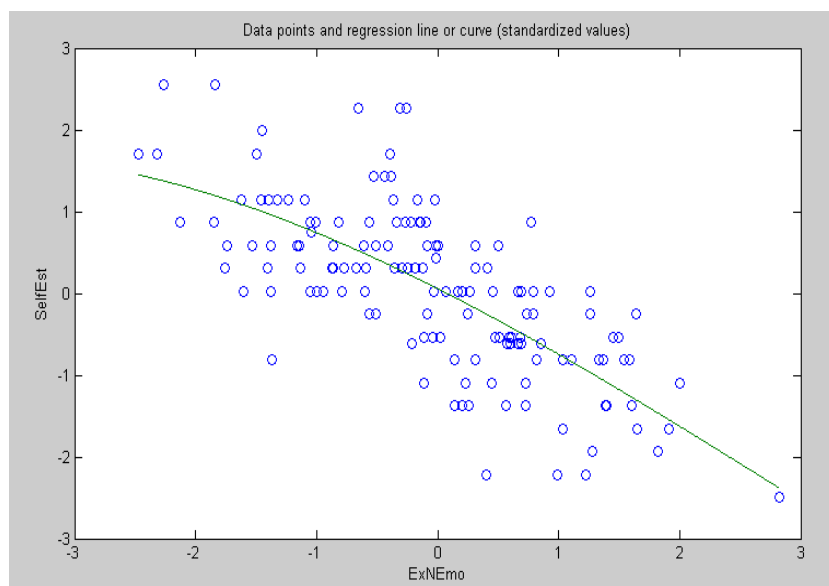
Figure 3 shows the standardized plot for the relationship between "ExNEmo" and "SelfEst". This is a quasi-linear relationship, with a clear pattern. Strong ExNEmo (negative emotional) scores are associated with decreases in "SelfEst" (self-esteem). The 0 (zero) point refers to the average perception of respondents: in discussion (to be confirmed) my understanding is that a decreased ability to control emotional expression around negative emotions leads to a decline in self-esteem

Figure 4: Hospital Anxiety and Depression and Self-Esteem
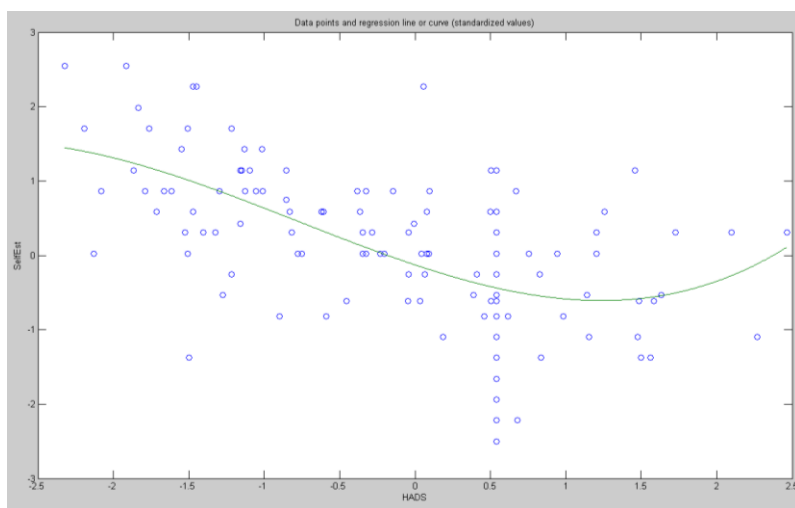
Here an increase in Hospital Anxiety and Depression leads to a decline in self-esteem, but only up to a point. Beyond this self esteem starts to rise. The clinical data supports where at a certain point there no longer is the same exponential rise in proportional impact upon self-esteem.

The following data relates to the ICDSS model. As the analysis conforms to the above descriptions and include key relevant data:
ICDS Model (Integrated, Compassionate, Developmental, Sustainability Model)
The factors of development, integration, sustainability and self-esteem were determined from factor loadings (see below for identified items to remove shaded in orange) and discussion with Richard Sherry.

Table 9: Item Removal

	Dev	Comp	Integ	Sust	SE	P value		Dev	Comp	Integ	Sust	SE	P value
WASA_Wo	0.612	-0.152	0.108	0.06	0.073	<0.001	Impulsi	0.072	-0.137	0.745	-0.106	0.072	<0.001
WASA_So	0.624	0.177	-0.061	0.176	0.069	<0.001	Avoidan	-0.037	0.062	0.822	0.263	0.061	<0.001
WASA_Ho	0.61	0.053	-0.106	0.068	0.089	<0.001	Intrusi	0.128	-0.014	0.848	0.114	0.047	<0.001
WASA_Pr	0.681	0.12	-0.092	0.117	0.061	<0.001	hyperar	0.179	-0.177	0.773	0.031	0.073	<0.001
WASA_Fa	0.636	0.122	-0.013	0.115	0.073	<0.001	Flight	-0.027	0.119	0.836	0.157	0.058	<0.001
WSAS_sc	0.762	0.084	-0.037	0.134	0.072	<0.001	Freeze	-0.048	-0.069	0.855	0.022	0.051	<0.001
WASASGR	0.65	0.152	-0.026	-0.017	0.097	<0.001	Fight	-0.213	0.01	0.69	-0.09	0.069	<0.001
TSC_40s	0.853	0.009	-0.01	0.043	0.093	<0.001	Dissoci	0.006	-0.09	0.841	-0.024	0.053	<0.001
TSC_40D	0.744	-0.025	-0.161	0.135	0.091	<0.001	LLS	-0.118	0.153	0.874	0.038	0.05	<0.001
TSC_40A	0.718	0.051	-0.018	0.077	0.086	<0.001	Trauma	0.164	-0.149	0.803	-0.006	0.071	<0.001
TSC_40D	0.813	-0.037	0.111	0.012	0.083	<0.001	Anxiety	0.085	-0.012	0.816	0.143	0.07	<0.001
TSC_40S	0.756	-0.007	-0.07	0.073	0.1	<0.001	Negativ	-0.121	0.037	0.905	0.036	0.059	<0.001
TSC_40S	0.682	-0.094	-0.006	0.027	0.087	<0.001	Attachm	-0.115	0.109	0.908	0.117	0.05	<0.001
TSC_40S	0.633	-0.028	0.019	-0.03	0.119	<0.001	FPSs	0.079	-0.051	0.805	-0.178	0.061	<0.001
IES_R	0.688	-0.079	0.053	0.049	0.068	<0.001	CPS	0.22	-0.21	0.74	-0.153	0.088	<0.001
IES_R_A	0.582	-0.045	0.071	0.035	0.073	<0.001	FLSCTs	-0.019	0.058	0.88	0.252	0.052	<0.001
IES_R_I	0.628	-0.084	0.051	0.039	0.071	<0.001	Defensi	-0.132	0.095	0.864	0.058	0.061	<0.001
IES_R_H	0.662	-0.052	0.069	0.04	0.061	<0.001	Selfest	-0.094	-0.097	-0.748	0.15	0.062	<0.001
IES_R_A	0.688	-0.079	0.053	0.049	0.068	<0.001	PEs	-0.047	0.035	0.459	-0.179	0.086	<0.001
IES_RGr	0.645	-0.038	0.026	0.065	0.07	<0.001	MOEs	-0.184	-0.03	0.345	-0.268	0.092	<0.001
HADS_An	0.748	-0.005	0.157	0.019	0.085	<0.001	MotherE	0.159	-0.067	0.278	-0.168	0.089	0.001
HADS_AN	0.72	-0.003	0.152	0.02	0.067	<0.001	UOEs	-0.031	0.095	0.282	-0.28	0.081	<0.001
HADS_De	0.595	0.115	-0.219	-0.14	0.093	<0.001	ETI_SR	-0.06	0.044	0.443	-0.25	0.092	<0.001
HADS_De	0.498	0.154	-0.16	-0.086	0.076	<0.001	ETI_SR_	-0.087	0.111	0.448	-0.225	0.085	<0.001
HADS_po	0.612	0.124	-0.096	0.039	0.089	<0.001	Positiv	0.033	0.028	-0.067	0.967	0.06	<0.001
HADS_Ne	0.746	0.01	0.058	-0.074	0.085	<0.001	Attachm	0.01	-0.041	-0.119	0.925	0.059	<0.001
FSTScal	0.328	-0.128	0.045	-0.083	0.108	0.001	Selfawa	0.06	0.004	-0.127	0.912	0.07	<0.001
FSTScal	0.385	-0.113	0.021	-0.02	0.077	<0.001	Conscie	-0.27	0.053	0.402	0.68	0.092	<0.001
FSTaver	0.328	-0.128	0.045	-0.083	0.108	0.001	Intelli	0.181	-0.06	0.035	0.487	0.104	<0.001
CAPS	0.208	-0.268	-0.341	-0.569	0.09	0.011							
Avoidan	0.226	-0.263	-0.377	-0.599	0.086	0.005		Note: P values < 0.05 are desirable for reflective indicators.					
CAPS_Av	0.208	-0.268	-0.341	-0.569	0.09	0.011							
CAPS_Gr	0.209	-0.285	-0.255	-0.483	0.101	0.02							
AS_AL	-0.263	0.059	-0.344	0.305	0.092	0.002							
AS_AEI	0.276	0.104	0.213	-0.102	0.097	0.003							
AS_SE	0.588	0.151	0.229	-0.161	0.073	<0.001							
ROM_ATT	-0.012	0.692	-0.034	-0.148	0.065	<0.001							
ROM_ATT	-0.094	0.793	0.035	0.099	0.06	<0.001							
ROM_ATT	0.026	0.987	0.004	0.028	0.055	<0.001							
ROM_ATT	0.019	0.997	-0.004	-0.007	0.051	<0.001							
ROM_ATT	0.03	0.956	0.01	0.056	0.06	<0.001							
ROM_ATT	0.01	0.965	-0.014	-0.053	0.05	<0.001							

At this stage VIF scores were below 5.

Table 10: Convergent Validity- Loadings and Cross Loadings

	Dev	Comp	Integ	Sust	Self es	SE	P value		Dev	Comp	Integ	Sust	Self es	SE	P value
WASA_W	0.614	-0.185	-0.053	0.063	-0.253	0.075	<0.001	Impulsi	0.098	-0.08	0.759	-0.246	0.456	0.07	<0.001
WASA_So	0.634	0.144	-0.129	0.145	-0.14	0.069	<0.001	Avoidan	0.004	0.077	0.839	0.206	0.087	0.06	<0.001
WASA_Ho	0.618	0.039	-0.152	0.025	-0.033	0.088	<0.001	Intrusi	0.084	-0.035	0.861	0.123	-0.302	0.046	<0.001
WASA_Pr	0.692	0.054	-0.358	0.135	-0.43	0.061	<0.001	hyperar	0.2	-0.163	0.79	-0.038	0.144	0.072	<0.001
WASA_Fa	0.642	0.087	-0.108	0.079	-0.194	0.074	<0.001	Flight	-0.02	0.135	0.85	0.08	0.105	0.055	<0.001
WSAS_sc	0.771	0.041	-0.189	0.113	-0.251	0.071	<0.001	Freeze	-0.074	-0.08	0.865	0.009	-0.206	0.05	<0.001
WASASGr	0.636	0.117	-0.247	0.058	-0.433	0.098	<0.001	Fight	-0.192	0.041	0.679	-0.111	0.023	0.07	<0.001
TSC_40s	0.863	0.048	0.286	-0.105	0.521	0.091	<0.001	Dissoci	-0.028	-0.074	0.855	-0.06	-0.035	0.051	<0.001
TSC_40D	0.759	-0.001	0.129	-0.013	0.508	0.09	<0.001	LLS	-0.094	0.172	0.865	-0.004	0.046	0.05	<0.001
TSC_40A	0.729	0.06	0.118	-0.009	0.225	0.084	<0.001	Trauma	0.169	-0.123	0.812	-0.069	0.145	0.07	<0.001
TSC_40D	0.818	-0.011	0.339	-0.114	0.383	0.082	<0.001	Anxiety	0.041	-0.022	0.843	0.133	-0.183	0.066	<0.001
TSC_40S	0.777	0.054	0.323	-0.099	0.717	0.099	<0.001	Negativ	-0.081	0.07	0.907	-0.043	0.177	0.057	<0.001
TSC_40S	0.685	-0.057	0.279	-0.101	0.486	0.086	<0.001	Attachm	-0.073	0.132	0.909	0.056	0.113	0.049	<0.001
TSC_40S	0.636	0.038	0.315	-0.149	0.559	0.122	<0.001	FPSs	0.003	-0.053	0.807	-0.202	-0.188	0.061	<0.001
IES_R	0.721	-0.028	0.399	-0.085	0.679	0.065	<0.001	CPS	0.19	-0.165	0.764	-0.269	0.331	0.086	<0.001
IES_R_A	0.606	0.03	0.491	-0.118	0.814	0.071	<0.001	FLSCTs	-0.044	0.026	0.888	0.286	-0.408	0.051	<0.001
IES_R_I	0.655	-0.043	0.331	-0.063	0.531	0.069	<0.001	Defensi	-0.152	0.087	0.875	0.043	-0.198	0.061	<0.001
IES_R_H	0.694	-0.029	0.31	-0.074	0.488	0.06	<0.001	Positiv	0.031	0.008	-0.121	0.953	-0.114	0.061	<0.001
IES_R_A	0.721	-0.028	0.399	-0.085	0.679	0.065	<0.001	Attachm	0.059	-0.012	0.088	0.933	0.318	0.058	<0.001
IES_RGr	0.681	0.014	0.39	-0.076	0.718	0.067	<0.001	Selfawa	0.06	-0.014	-0.172	0.924	-0.106	0.068	<0.001
HADS_An	0.724	-0.133	-0.481	0.156	-1.105	0.088	<0.001	Conscie	-0.194	0.024	0.268	0.716	-0.126	0.091	<0.001
HADS_AN	0.698	-0.131	-0.48	0.162	-1.108	0.07	<0.001	Selfest	0	0	0	0	1	0.057	<0.001
HADS_De	0.557	-0.023	-0.846	0.02	-1.147	0.092	<0.001								
HADS_po	0.582	-0.025	-0.743	0.185	-1.169	0.089	<0.001								
HADS_Ne	0.718	-0.118	-0.592	0.085	-1.144	0.087	<0.001								
AS_SE	0.556	0.102	-0.139	-0.074	-0.591	0.076	<0.001								
ROM_ATT	-0.072	0.692	-0.11	-0.133	-0.171	0.065	<0.001								
ROM_ATT	-0.041	0.793	0.027	0.118	0.045	0.06	<0.001								
ROM_ATT	0.034	0.987	0.031	0.019	0.045	0.055	<0.001								
ROM_ATT	0.014	0.997	0.005	-0.012	0.007	0.051	<0.001								
ROM_ATT	0.05	0.956	0.054	0.043	0.082	0.06	<0.001								
ROM_ATT	-0.013	0.965	-0.032	-0.052	-0.05	0.05	<0.001								

Table 11: Discriminant Validity- Correlations among Latent Variables

	Dev	Comp	Integ	Sust	Self es
Dev	0.681	0.381	0.661	-0.206	-0.584
Comp	0.381	0.905	0.46	-0.209	-0.436
Integ	0.661	0.46	0.798	-0.089	-0.724
Sust	-0.206	-0.209	-0.089	0.815	0.27
Self es	-0.584	-0.436	-0.724	0.27	1

Note: Square roots of average variances extracted (AVE's) show

P values for correlations

	Dev	Comp	Integ	Sust	Self es
Dev	1	<0.001	<0.001	0.01	<0.001
Comp	<0.001	1	<0.001	0.009	<0.001
Integ	<0.001	<0.001	1	0.27	<0.001
Sust	0.01	0.009	0.27	1	<0.001
Self es	<0.001	<0.001	<0.001	<0.001	1

Table 12: Reliability and VIF tests
The following confirmed statistical reliability of the factors.

```
* Latent variable coefficients *
*****************************
```

R-squared coefficients

Dev	Comp	Integ	Sust	Self es
		0.51		0.589

Composite reliability coefficients

Dev	Comp	Integ	Sust	Self es
0.959	0.964	0.975	0.936	1

Cronbach's alpha coefficients

Dev	Comp	Integ	Sust	Self es
0.955	0.952	0.973	0.905	1

Average variances extracted

Dev	Comp	Integ	Sust	Self es
0.474	0.82	0.698	0.786	1

Full collinearity VIFs

Dev	Comp	Integ	Sust	Self es
1.893	1.331	2.793	1.17	2.396

Q-squared coefficients

Dev	Comp	Integ	Sust	Self es
		0.512		0.591

The 5 Factor ICDSS Model
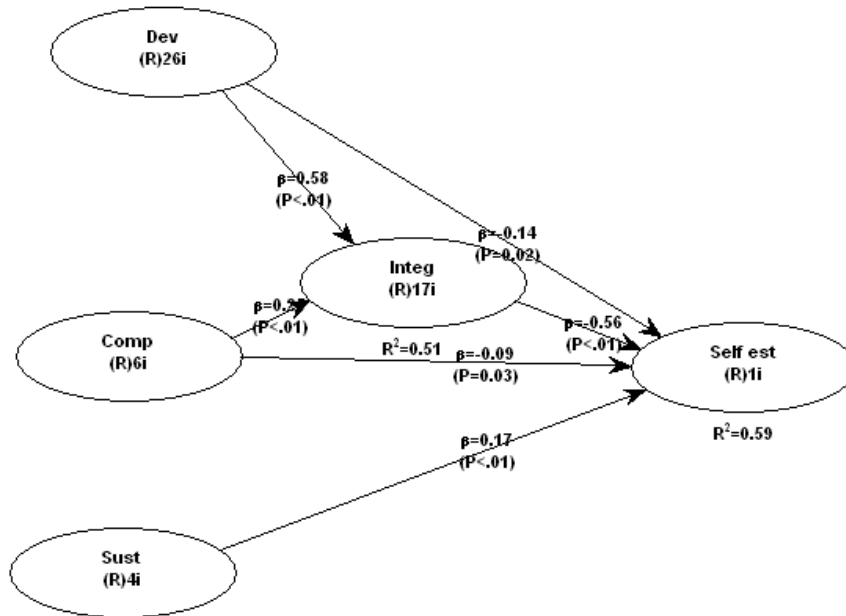
Figure 5: ICDSS Model

Model Fit Indices

Table 13: Model Fit

Model fit indices and P values		

APC=0.300, P<0.001		
ARS=0.549, P<0.001		
AVIF=1.423, Good if < 5		

Total Effects

The following represents the combination of direct and indirect effects of the path coefficients:

Table 14: Total Effects

	Dev	Comp	Integ	Sust	Self es
Dev					
Comp					
Integ	0.585	0.248			
Sust					
Self es	-0.471	-0.232	-0.563	0.167	

P values for total effects

	Dev	Comp	Integ	Sust	Self es
Dev					
Comp					
Integ	<0.001	<0.001			
Sust					
Self es	<0.001	<0.001	<0.001	0.004	

Effect Sizes

Table 15: Effect Sizes

Effect sizes for total effects

	Dev	Comp	Integ	Sust	Self es
Dev					
Comp					
Integ	0.395	0.115			
Sust					
Self es	0.279	0.103	0.409	0.055	

Implications

- The significant impact of development on integration and self-esteem.
- The impact of integration on self-esteem.
- Self-esteem is a separate factor (and could change the expression of the other factors).
- Sustainability (positive emotion) impacts self-esteem in the opposite direction to the other factors (although the effect size is small).
- Compassion is less impactful (although judged by romantic attachment items).

Standardized plots and non-standardized charts
Figure 6: Non-Linear relationships
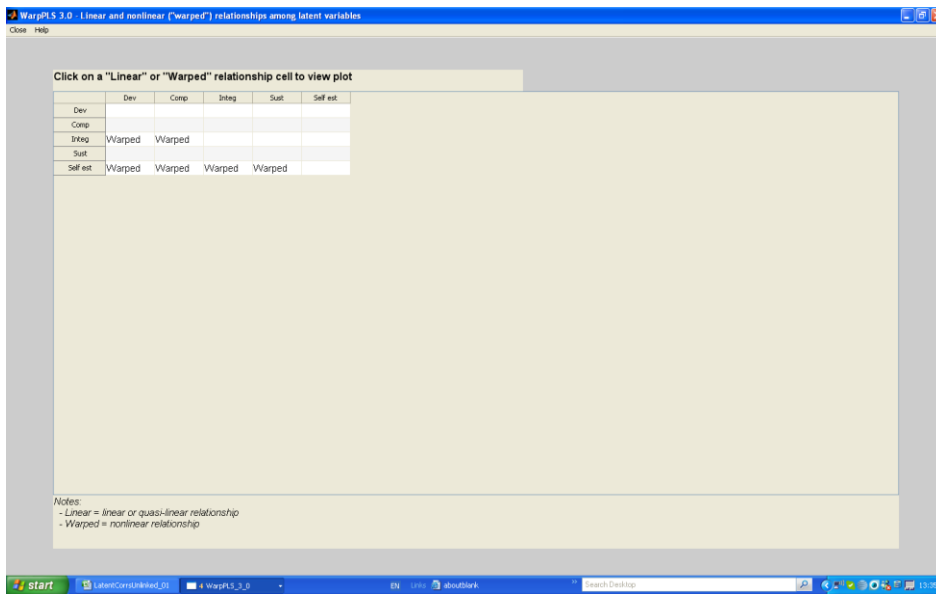
Relationships are warped.

Integration on self-esteem.

The worse the integration the lower the self-esteem *(RS to check scale direction, I believe that was it).*

Figure 7: Integration and Self-Esteem
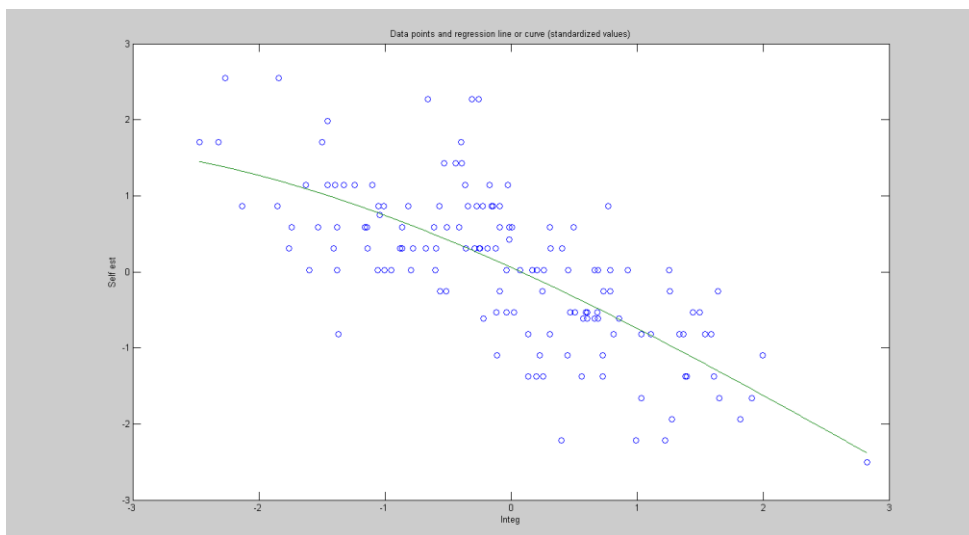
Figure 8: Development and Self-Esteem
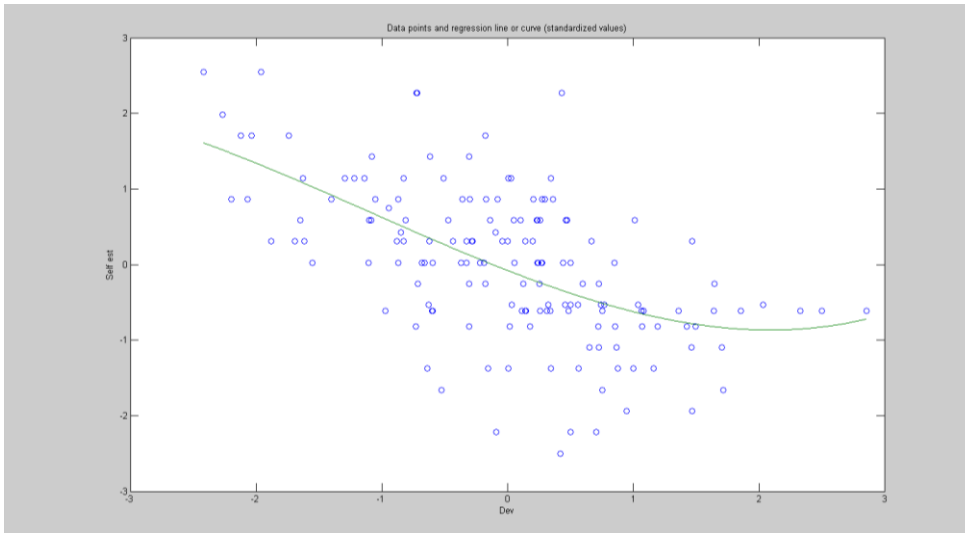
There is a turning point where self-esteem flat lines with worsening development *(RS to check scale direction, I believe that was it)*.

Figure 9: Compassion and Self-Esteem
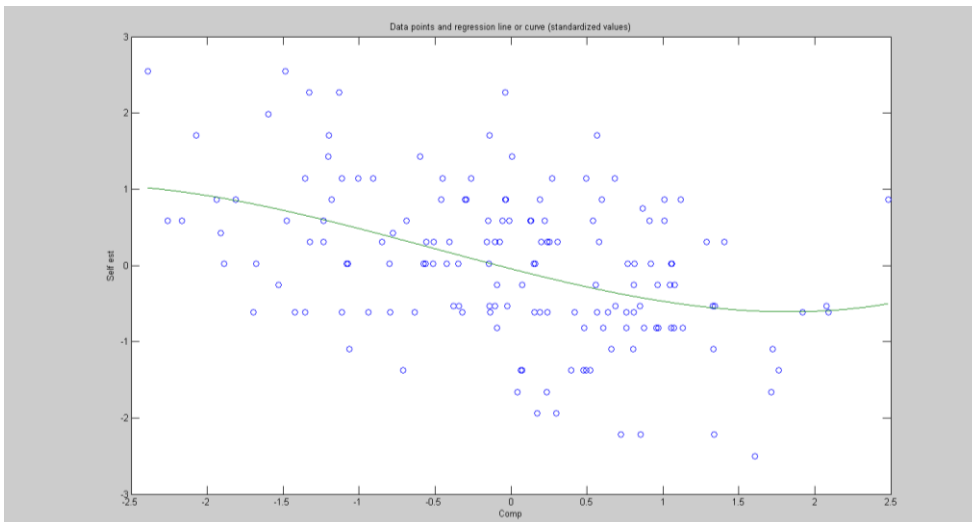
The worse the compassion the worse the self-esteem. But there is a turning point. *(RS to check scale direction, I believe that was it)*.

Figure 10: Development and Integration

Data points and regression line or curve (standardized values)
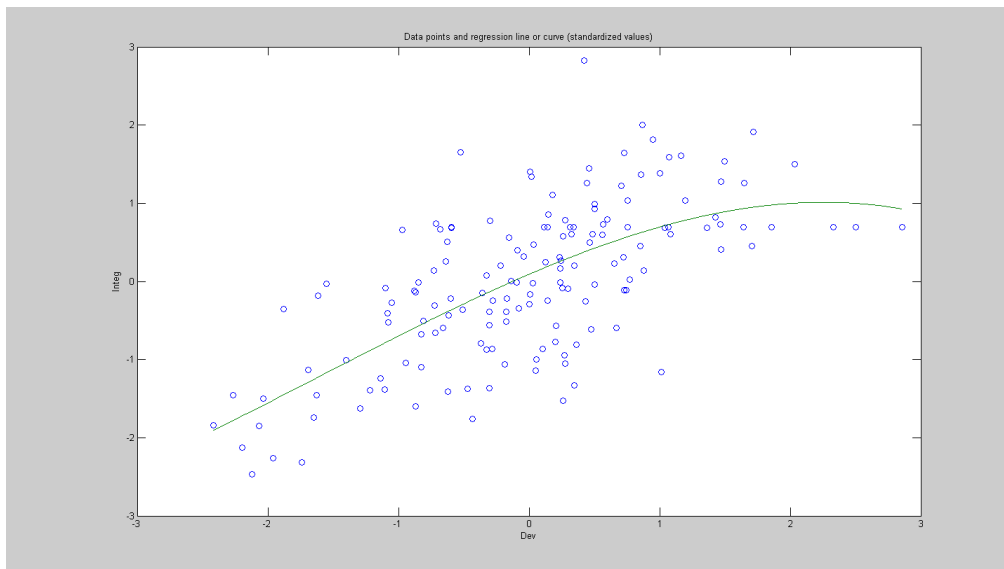
These findings point to a very interesting relationship where integration and development naturally platow at a certain point and stop exponential development as this will alter the characteristics of the social environment, perhaps in non-compassionate or unsustainable ways.

Conclusion:

It appears probable that from the evidence provided that Self-esteem (as a core concept of self-identity) does appear to change the expression and outcome of these core social processes that can radically readjust the social-emotional processes and how innovation is created within social group structures. This is highly valuable in that this model, especially if it can be reliably created to test critical aspects of dynamic group processes could provide a way to empirically test the emotional or psychological health of group systems functioning.

This could prove invaluable in designing and implementing programmes to improve intervention strategies in a more dynamic and socially integrated way.

Appendix XIII:

Equations for Implementation of the Full and ICDS Models in Future Software

Ned Kock

15 September 2013

ScriptWarp Systems™
Laredo, Texas
USA

Equations for Implementation of the Full and ICDS Models in Future Software

Summary

This is a confidential report prepared for Richard Sherry (RS). This report includes various analyses on the data provided by RS. Among these are analyses using linear algorithms based on the data provided, with the goal of replicating the Full and ICDS model analyses already conducted by another consultant, namely Steven Walden. This report also includes matrix algebra and linear equations that an experienced programmer can use to implement predictive software reflecting the Full and ICDS models. These equations establish numeric relationships between inner model and outer model variables. The programmer will be able to choose between the matrix algebra and linear equations; depending on the software development environment used, it will be easier to employ one format or the other.

Table of contents

1. Introduction

The Full and ICDS models generated by Steven Walden using nonlinear algorithms were used as a basis for new analyses, which are described next. The variables in the graphs for these models were re-arranged for clarity. One of the previous graphs, the one for the Full model, was very crowded.

Additional analyses were conducted with linear algorithms, as the nonlinear shapes suggested the possibility that they were due in part due to measurement error being modeled as the underlying relationship.

The signs and path coefficients obtained through the linear and nonlinear analyses were fairly consistent, suggesting that the linear analyses results, which rely on a more widely accepted (or "classic") approach for multivariate analyses, are credible.

The new Full and ICDS models, employing this more widely accepted (or "classic") approach, are the ones used as the foundations for the equations for implementation of the Full and ICDS models in future software.

Equations are provided in both matrix algebra and linear equation formats. The equations establish numeric relationships between inner model and outer model variables. An experienced programmer can use the equations to implement predictive software reflecting the Full and ICDS models.

Inner model variables are the latent variables that are shown as ovals connected through arrows in the model graphs in this report. Outer model variables are the indicators used to measure inner model variables.

The programmer will be able to choose between the matrix algebra and linear equations. Depending on the software development environment used by the programmer, it will be easier to employ one format or the other.

2. New Full model analyses

Figure 2.1 shows the new Full model with results. The equations that will be provided later link latent variables (shown within ovals) with their indicators, as well as with other latent variables. The number of indicators is provided under each latent variable name – e.g., "6i" means 6 indicators. The names of the indicators are shown later, to avoid crowding.

Figure 2.1: New Full model with results
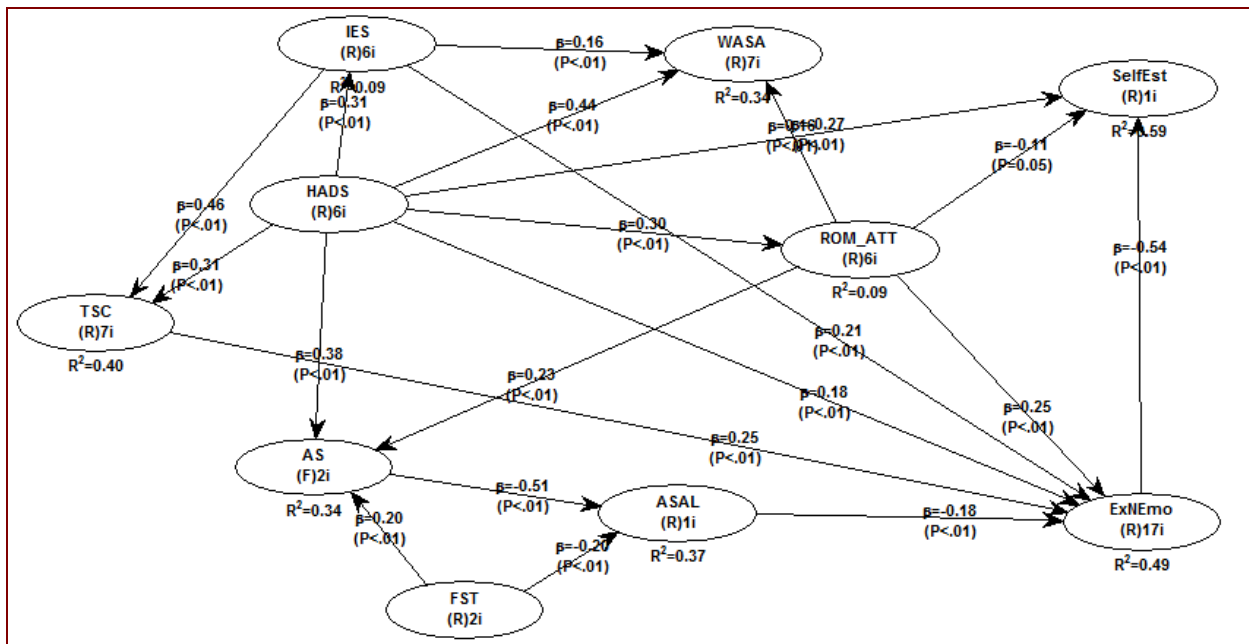
Among the new analyses conducted on the Full model were validity (convergent and discriminant), reliability, collinearity, and extended model fit and quality analyses. The validity, reliability, collinearity analyses replicate previous analyses, and suggest acceptable validity and reliability. The results of these analyses are provided in Appendix A.

The extended model fit and quality analyses include the calculation of the following indices: average path coefficient (APC), average R-squared (ARS), average adjusted R-squared (AARS), average block VIF (AVIF), average full collinearity VIF (AFVIF), Tenenhaus GoF (GoF), Sympson's paradox ratio (SPR), R-squared contribution ratio (RSCR), statistical suppression ratio (SSR), and nonlinear bivariate causality direction ratio (NLBCDR).

Table 2.1 shows the Full model fit and quality indices. They all present significant P values or are within acceptable ranges. They suggest a good fit between model and data. The last four indices (SPR, RSCR, SSR, and NLBCDR) are targeted at causality assessment. They suggest a lack of evidence that the hypothesized causal links in the Full model are wrong vis-à-vis the true population model.

Table 2.1: Full model fit and quality indices

Index	Value	P value or assessment criteria
Average path coefficient (APC)	0.283	P<0.001
Average R-squared (ARS)	0.339	P<0.001
Average adjusted R-squared (AARS)	0.329	P<0.001
Average block VIF (AVIF)	1.228	acceptable if <= 5, ideally <= 3.3
Average full collinearity VIF (AFVIF)	1.923	acceptable if <= 5, ideally <= 3.3
Tenenhaus GoF (GoF)	0.529	small >= 0.1, medium >= 0.25, large >= 0.36
Sympson's paradox ratio (SPR)	1.000	acceptable if >= 0.7, ideally = 1
R-squared contribution ratio (RSCR)	1.000	acceptable if >= 0.9, ideally = 1
Statistical suppression ratio (SSR)	1.000	acceptable if >= 0.7
Nonlinear bivariate causality direction ratio (NLBCDR)	1.000	acceptable if >= 0.7

3. New ICDS model analyses

Figure 3.1 shows the new ICDS model with results. The equations that will be provided later link latent variables (shown within ovals) with their indicators, as well as with other latent variables. The number of indicators is provided under each latent variable name – e.g., "6i" means 6 indicators. The names of the indicators are shown later, to avoid crowding.

Figure 3.1: New ICDS model with results
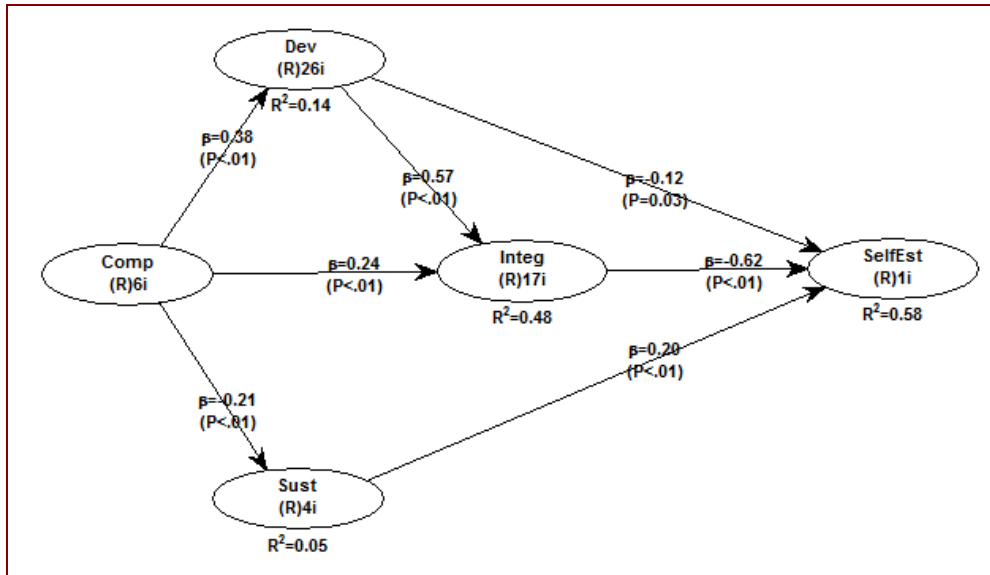
Among the new analyses conducted on the ICDS model were validity (convergent and discriminant), reliability, collinearity, and extended model fit and quality analyses. The validity, reliability, collinearity analyses replicate previous analyses, and suggest acceptable validity and reliability. The results of these analyses are provided in Appendix B.

Table 3.1 shows the ICDS model fit and quality indices. They all present significant P values or are within acceptable ranges. They suggest a good fit between model and data. The last four indices (SPR, RSCR, SSR, and NLBCDR) are targeted at causality assessment. They suggest a lack of evidence that the hypothesized causal links in the ICDS model are wrong vis-à-vis the true population model.

Table 3.1: ICDS model fit and quality indices

Index	Value	P value or assessment criteria
Average path coefficient (APC)	0.334	P<0.001
Average R-squared (ARS)	0.312	P<0.001
Average adjusted R-squared (AARS)	0.305	P<0.001
Average block VIF (AVIF)	1.403	acceptable if <= 5, ideally <= 3.3
Average full collinearity VIF (AFVIF)	1.916	acceptable if <= 5, ideally <= 3.3
Tenenhaus GoF (GoF)	0.485	small >= 0.1, medium >= 0.25, large >= 0.36
Sympson's paradox ratio (SPR)	1.000	acceptable if >= 0.7, ideally = 1
R-squared contribution ratio (RSCR)	1.000	acceptable if >= 0.9, ideally = 1
Statistical suppression ratio (SSR)	1.000	acceptable if >= 0.7
Nonlinear bivariate causality direction ratio (NLBCDR)	1.000	acceptable if >= 0.7

4. Full model outer equations

The Full model outer equations allow for the estimation of latent variable scores based on indicator scores, after the indicator scores are standardized. These equations rely on: (a) outer model weights for the Full model (listed in Appendix C), which link standardized indicators to latent variables; and (b) means and standard deviations for each indicator in the Full model (listed in Appendix D), which are used for standardization of indicator scores.

WASA: Matrix algebra equation

Below is the Full model outer equation for the latent variable WASA, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$WASA = WASAiW^T * ((WASAi - WASAiM) ./ WASAiSD))$$

In the equation above, WASAi is a column vector containing the indicators that make up the latent variable WASA. WASAiW is a column vector containing the weights associated with the indicators. WASAiM is a column vector containing the means of the indicators. WASAiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

WASAi=[
      WASA_Work
      WASA_Social
      WASA_Home
      WASA_PrivLeis
      WASA_Family
      WSAS_scale
      WASASGRouped
      ]

WASAiW=[
      0.162
      0.177
      0.167
      0.177
      0.169
      0.205
      0.139
      ]

WASAiM=[
      2.948
      2.277
      3.148
      2.858
      2.645
      13.858
      2.697
      ]

WASAiSD=[
    2.267
    2.152
    2.441
    2.413
    2.227
    9.553
    0.668
    ]

WASA: Linear equation

Below is the Full model outer equation for the latent variable WASA, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

WASA =
    0.162 * ((WASA_Work - 2.948) / 2.267) +
    0.177 * ((WASA_Social - 2.277) / 2.152) +
    0.167 * ((WASA_Home - 3.148) / 2.441) +
    0.177 * ((WASA_PrivLeis - 2.858) / 2.413) +
    0.169 * ((WASA_Family - 2.645) / 2.227) +
    0.205 * ((WSAS_scale - 13.858) / 9.553) +
    0.139 * ((WASASGRouped - 2.697) / 0.668)

TSC: Matrix algebra equation

Below is the Full model outer equation for the latent variable TSC, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$TSC = TSCiW^T * ((TSCi - TSCiM) ./ TSCiSD))$$

In the equation above, TSCi is a column vector containing the indicators that make up the latent variable TSC. TSCiW is a column vector containing the weights associated with the indicators. TSCiM is a column vector containing the means of the indicators. TSCiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

TSCi=[
    TSC_40scale
    TSC_40Dissociation
    TSC_40Anxiety
    TSC_40Depression
    TSC_40SATI
    TSC_40Sleepdisturbance
    TSC_40SexualProblems
    ]

TSCiW=[

0.185
0.163
0.158
0.17
0.167
0.155
0.143
]

TSCiM=[
39.134
5.857
7.724
10.806
5.622
9.071
4.962
]

TSCiSD=[
17.149
3.407
3.437
4.778
3.574
4.009
4.02
]

TSC: Linear equation

Below is the Full model outer equation for the latent variable TSC, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

TSC =
0.185 * ((TSC_40scale - 39.134) / 17.149) +
0.163 * ((TSC_40Dissociation - 5.857) / 3.407) +
0.158 * ((TSC_40Anxiety - 7.724) / 3.437) +
0.17 * ((TSC_40Depression - 10.806) / 4.778) +
0.167 * ((TSC_40SATI - 5.622) / 3.574) +
0.155 * ((TSC_40Sleepdisturbance - 9.071) / 4.009) +
0.143 * ((TSC_40SexualProblems - 4.962) / 4.02)

ROM_ATT: Matrix algebra equation

Below is the Full model outer equation for the latent variable ROM_ATT, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$ROM\_ATT = ROM\_ATTiW^T * ((ROM\_ATTi - ROM\_ATTiM) ./ ROM\_ATTiSD))$

In the equation above, ROM_ATTi is a column vector containing the indicators that make up the latent variable ROM_ATT. ROM_ATTiW is a column vector containing the weights associated with the indicators. ROM_ATTiM is a column vector containing the means of the indicators. ROM_ATTiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

ROM_ATTi=[
    ROM_ATT_AVOIDANC
    ROM_ATT_ANXIETY_
    ROM_ATT_SEC2
    ROM_ATT_FEAR2
    ROM_ATT_PRE2
    ROM_ATT_DIS2
    ]

ROM_ATTiW=[
    0.141
    0.161
    0.201
    0.203
    0.194
    0.196
    ]

ROM_ATTiM=[
    3.182
    3.71
    19.871
    21.937
    21.16
    20.088
    ]

ROM_ATTiSD=[
    1.295
    1.293
    8.57
    14.762
    13.907
    11.983
    ]

ROM_ATT: Linear equation
Below is the Full model outer equation for the latent variable ROM_ATT, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

ROM_ATT =
      0.141 * ((ROM_ATT_AVOIDANC - 3.182) / 1.295) +
      0.161 * ((ROM_ATT_ANXIETY_ - 3.71) / 1.293) +
      0.201 * ((ROM_ATT_SEC2 - 19.871) / 8.57) +
      0.203 * ((ROM_ATT_FEAR2 - 21.937) / 14.762) +
      0.194 * ((ROM_ATT_PRE2 - 21.16) / 13.907) +
      0.196 * ((ROM_ATT_DIS2 - 20.088) / 11.983)

IES: Matrix algebra equation
Below is the Full model outer equation for the latent variable IES, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$IES = IESiW^T * ((IESi - IESiM) ./ IESiSD))$$

In the equation above, IESi is a column vector containing the indicators that make up the latent variable IES. IESiW is a column vector containing the weights associated with the indicators. IESiM is a column vector containing the means of the indicators. IESiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

IESi=[
      IES_R
      IES_R_Avoidance
      IES_R_Intrusion
      IES_R_Hyperarousal
      IES_R_Average
      IES_RGroup
      ]

IESiW=[
      0.186
      0.16
      0.174
      0.172
      0.186
      0.18
      ]

IESiM=[
      30.307
      1.292
      1.6
      1.223
      1.378
      1.91
      ]

IESiSD=[
      19.73

0.9
1.106
1.002
0.897
0.84
]

IES: Linear equation

Below is the Full model outer equation for the latent variable IES, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

IES =
 0.186 * ((IES_R - 30.307) / 19.73) +
 0.16 * ((IES_R_Avoidance - 1.292) / 0.9) +
 0.174 * ((IES_R_Intrusion - 1.6) / 1.106) +
 0.172 * ((IES_R_Hyperarousal - 1.223) / 1.002) +
 0.186 * ((IES_R_Average - 1.378) / 0.897) +
 0.18 * ((IES_RGroup - 1.91) / 0.84)

HADS: Matrix algebra equation

Below is the Full model outer equation for the latent variable HADS, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$HADS = HADSiW^T * ((HADSi - HADSiM) ./ HADSiSD))$$

In the equation above, HADSi is a column vector containing the indicators that make up the latent variable HADS. HADSiW is a column vector containing the weights associated with the indicators. HADSiM is a column vector containing the means of the indicators. HADSiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

HADSi=[
 HADS_Anxiety
 HADS_ANXIETY2
 HADS_Depression2
 HADS_Depression
 HADS_positivesubscale
 HADS_Negativesubscale
 ]

HADSiW=[
 0.19
 0.181
 0.176
 0.191
 0.192
 0.194

]

HADSiM=[
   11.179
   2.394
   7.183
   1.697
   6.192
   12.358
   ]

HADSiSD=[
   3.81
   0.857
   3.405
   0.678
   2.892
   4.211
   ]

HADS: Linear equation

Below is the Full model outer equation for the latent variable HADS, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

HADS =
   0.19 * ((HADS_Anxiety - 11.179) / 3.81) +
   0.181 * ((HADS_ANXIETY2 - 2.394) / 0.857) +
   0.176 * ((HADS_Depression2 - 7.183) / 3.405) +
   0.191 * ((HADS_Depression - 1.697) / 0.678) +
   0.192 * ((HADS_positivesubscale - 6.192) / 2.892) +
   0.194 * ((HADS_Negativesubscale - 12.358) / 4.211)

FST: Matrix algebra equation

Below is the Full model outer equation for the latent variable FST, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

FST = FSTiW^T * ((FSTi - FSTiM) ./ FSTiSD))

In the equation above, FSTi is a column vector containing the indicators that make up the latent variable FST. FSTiW is a column vector containing the weights associated with the indicators. FSTiM is a column vector containing the means of the indicators. FSTiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

FSTi=[
   FSTScale
   FSTScale2

]

FSTiW=[
    0.534
    0.534
    ]

FSTiM=[
    2.435
    1.435
    ]

FSTiSD=[
    2.779
    0.457
    ]

FST: Linear equation

Below is the Full model outer equation for the latent variable FST, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

FST =
    0.534 * ((FSTScale - 2.435) / 2.779) +
    0.534 * ((FSTScale2 - 1.435) / 0.457)

AS: Matrix algebra equation

Below is the Full model outer equation for the latent variable AS, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$AS = ASiW^T * ((ASi - ASiM) ./ ASiSD))$$

In the equation above, ASi is a column vector containing the indicators that make up the latent variable AS. ASiW is a column vector containing the weights associated with the indicators. ASiM is a column vector containing the means of the indicators. ASiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

ASi=[
    AS_AEI
    AS_SE
    ]

ASiW=[
    0.588
    0.588
    ]

ASiM=[
        15.769
        15.379
        ]

ASiSD=[
        4.911
        5.617
        ]

AS: Linear equation
Below is the Full model outer equation for the latent variable AS, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

AS =
        0.588 * ((AS_AEI - 15.769) / 4.911) +
        0.588 * ((AS_SE - 15.379) / 5.617)

ASAL: Matrix algebra equation
Below is the Full model outer equation for the latent variable ASAL, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$ASAL = ASALiW^T * ((ASALi - ASALiM) ./ ASALiSD))$$

In the equation above, ASALi is a column vector containing the indicators that make up the latent variable ASAL. ASALiW is a column vector containing the weights associated with the indicators. ASALiM is a column vector containing the means of the indicators. ASALiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

ASALi=[
        AS_AL
        ]

ASALiW=[
        1
        ]

ASALiM=[
        20.682
        ]

ASALiSD=[
        4.159
        ]

ASAL: Linear equation
Below is the Full model outer equation for the latent variable ASAL, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-" = scalar subtraction; "/" = scalar division; and "+" = scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

ASAL =
$$((AS\_AL - 20.682) / 4.159)$$

ExNEmo: Matrix algebra equation
Below is the Full model outer equation for the latent variable ExNEmo, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T" = transpose of matrix M; "*" = matrix multiplication; "-" = matrix subtraction; and "./" = element-by-element matrix division.

$$ExNEmo = ExNEmoiW^T * ((ExNEmoi - ExNEmoiM) ./ ExNEmoiSD))$$

In the equation above, ExNEmoi is a column vector containing the indicators that make up the latent variable ExNEmo. ExNEmoiW is a column vector containing the weights associated with the indicators. ExNEmoiM is a column vector containing the means of the indicators. ExNEmoiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

ExNEmoi=[
    Impulsivity
    Avoidance
    Intrusion
    hyperarousal
    Flight
    Freeze
    Fight
    Dissociation
    LLS
    Trauma
    Anxiety
    Negativity
    Attachmentnegative
    FPSs
    CPS
    FLSCTs
    Defensivenerss
    ]

ExNEmoiW=[
    0.064
    0.071
    0.073
    0.067
    0.072
    0.073
    0.057

0.072
0.073
0.068
0.071
0.076
0.077
0.068
0.064
0.075
0.074
]

ExNEmoiM=[
27.357
20.886
20.561
18.587
20.322
14.183
11.229
13.251
31.65
29.759
28.112
98.512
58.316
32.5
25.867
36.241
27.465
]

ExNEmoiSD=[
4.876
4.652
5.822
4.842
4.167
4.36
2.494
3.545
8.075
6.01
7.355
19.532
13.86
5.889
5.261
8.738

6.166
]

ExNEmo: Linear equation
Below is the Full model outer equation for the latent variable ExNEmo, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

ExNEmo =
        0.064 * ((Impulsivity - 27.357) / 4.876) +
        0.071 * ((Avoidance - 20.886) / 4.652) +
        0.073 * ((Intrusion - 20.561) / 5.822) +
        0.067 * ((hyperarousal - 18.587) / 4.842) +
        0.072 * ((Flight - 20.322) / 4.167) +
        0.073 * ((Freeze - 14.183) / 4.36) +
        0.057 * ((Fight - 11.229) / 2.494) +
        0.072 * ((Dissociation - 13.251) / 3.545) +
        0.073 * ((LLS - 31.65) / 8.075) +
        0.068 * ((Trauma - 29.759) / 6.01) +
        0.071 * ((Anxiety - 28.112) / 7.355) +
        0.076 * ((Negativity - 98.512) / 19.532) +
        0.077 * ((Attachmentnegative - 58.316) / 13.86) +
        0.068 * ((FPSs - 32.5) / 5.889) +
        0.064 * ((CPS - 25.867) / 5.261) +
        0.075 * ((FLSCTs - 36.241) / 8.738) +
        0.074 * ((Defensivenerss - 27.465) / 6.166)

SelfEst: Matrix algebra equation
Below is the Full model outer equation for the latent variable SelfEst, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

SelfEst = SelfEstiW^T * ((SelfEsti - SelfEstiM) ./ SelfEstiSD))

In the equation above, SelfEsti is a column vector containing the indicators that make up the latent variable SelfEst. SelfEstiW is a column vector containing the weights associated with the indicators. SelfEstiM is a column vector containing the means of the indicators. SelfEstiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

SelfEsti=[
        Selfesteem
        ]

SelfEstiW=[
        1
        ]

SelfEstiM=[

14.913
]

SelfEstiSD=[
3.566
]

SelfEst: Linear equation
Below is the Full model outer equation for the latent variable SelfEst, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

SelfEst =
((Selfesteem - 14.913) / 3.566)

5. Full model inner equations

The Full model inner equations allow for the estimation of latent variable scores based on other latent variable scores, namely the scores of those latent variables that point at them. These equations rely on inner model path coefficients.

WASA: Matrix algebra equation
Below is the Full model inner equation for the latent variable WASA, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

$$WASA = WASAb^T * WASAp$$

In the equation above, WASAp is a column vector containing the predictor latent variables that point at WASA. WASAb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

WASAp=[
  ROM_ATT
  IES
  HADS
  ]

WASAb=[
  0.157
  0.16
  0.444
  ]

WASA: Linear equation
Below is the Full model inner equation for the latent variable WASA, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

WASA =
  0.157 * ROM_ATT +
  0.16 * IES +
  0.444 * HADS

TSC: Matrix algebra equation
Below is the Full model inner equation for the latent variable TSC, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

$$TSC = TSCb^T * TSCp$$

In the equation above, TSCp is a column vector containing the predictor latent variables that point at TSC. TSCb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

TSCp=[
   IES
   HADS
   ]

TSCb=[
   0.46
   0.312
   ]

TSC: Linear equation
Below is the Full model inner equation for the latent variable TSC, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

TSC =
   0.46 * IES +
   0.312 * HADS

ROM_ATT: Matrix algebra equation
Below is the Full model inner equation for the latent variable ROM_ATT, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

ROM_ATT = ROM_ATTb^T * ROM_ATTp

In the equation above, ROM_ATTp is a column vector containing the predictor latent variables that point at ROM_ATT. ROM_ATTb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

ROM_ATTp=[
   HADS
   ]

ROM_ATTb=[
   0.3
   ]

ROM_ATT: Linear equation
Below is the Full model inner equation for the latent variable ROM_ATT, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

ROM_ATT =
   0.3 * HADS

IES: Matrix algebra equation
Below is the Full model inner equation for the latent variable IES, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

$$IES = IESb^T * IESp$$

In the equation above, IESp is a column vector containing the predictor latent variables that point at IES. IESb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

IESp=[
     HADS
     ]

IESb=[
     0.308
     ]

IES: Linear equation
Below is the Full model inner equation for the latent variable IES, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

IES =
     0.308 * HADS

AS: Matrix algebra equation
Below is the Full model inner equation for the latent variable AS, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

$$AS = ASb^T * ASp$$

In the equation above, ASp is a column vector containing the predictor latent variables that point at AS. ASb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

ASp=[
     ROM_ATT
     HADS
     FST
     ]

ASb=[
     0.231
     0.385
     0.199
     ]

AS: Linear equation
Below is the Full model inner equation for the latent variable AS, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

AS =
        0.231 * ROM_ATT +
        0.385 * HADS +
        0.199 * FST

ASAL: Matrix algebra equation
Below is the Full model inner equation for the latent variable ASAL, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

$ASAL = ASALb^T * ASALp$

In the equation above, ASALp is a column vector containing the predictor latent variables that point at ASAL. ASALb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

ASALp=[
        FST
        AS
        ]

ASALb=[
        -0.201
        -0.511
        ]

ASAL: Linear equation
Below is the Full model inner equation for the latent variable ASAL, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

ASAL =
        -0.201 * FST +
        -0.511 * AS

ExNEmo: Matrix algebra equation
Below is the Full model inner equation for the latent variable ExNEmo, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

$ExNEmo = ExNEmob^T * ExNEmop$

In the equation above, ExNEmop is a column vector containing the predictor latent variables that point at ExNEmo. ExNEmob is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

ExNEmop=[
      TSC
      ROM_ATT
      IES
      HADS
      ASAL
      ]

ExNEmob=[
      0.245
      0.248
      0.208
      0.184
      -0.185
      ]

ExNEmo: Linear equation
Below is the Full model inner equation for the latent variable ExNEmo, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

ExNEmo =
      0.245 * TSC +
      0.248 * ROM_ATT +
      0.208 * IES +
      0.184 * HADS +
      -0.185 * ASAL

SelfEst: Matrix algebra equation
Below is the Full model inner equation for the latent variable SelfEst, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

SelfEst = $SelfEstb^T$ * SelfEstp

In the equation above, SelfEstp is a column vector containing the predictor latent variables that point at SelfEst. SelfEstb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

SelfEstp=[
      ROM_ATT
      HADS
      ExNEmo
      ]

SelfEstb=[
      -0.109
      -0.268
      -0.543

]

SelfEst: Linear equation
Below is the Full model inner equation for the latent variable SelfEst, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

SelfEst =
  -0.109 * ROM_ATT +
  -0.268 * HADS +
  -0.543 * ExNEmo

6. ICDS model outer equations

The ICDS model outer equations allow for the estimation of latent variable scores based on indicator scores, after the indicator scores are standardized. These equations rely on: (a) outer model weights for the ICDS model (listed in Appendix E), which link standardized indicators to latent variables; and (b) means and standard deviations for each indicator in the ICDS model (listed in Appendix F), which are used for standardization of indicator scores.

Dev: Matrix algebra equation

Below is the ICDS model outer equation for the latent variable Dev, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$Dev = DeviW^T * ((Devi - DeviM) ./ DeviSD))$$

In the equation above, Devi is a column vector containing the indicators that make up the latent variable Dev. DeviW is a column vector containing the weights associated with the indicators. DeviM is a column vector containing the means of the indicators. DeviSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

Devi=[
     WASA_Work
     WASA_Social
     WASA_Home
     WASA_PrivLeis
     WASA_Family
     WSAS_scale
     WASASGRouped
     TSC_40scale
     TSC_40Dissociation
     TSC_40Anxiety
     TSC_40Depression
     TSC_40SATI
     TSC_40Sleepdisturbance
     TSC_40SexualProblems
     IES_R
     IES_R_Avoidance
     IES_R_Intrusion
     IES_R_Hyperarousal
     IES_R_Average
     IES_RGroup
     HADS_Anxiety
     HADS_ANXIETY2
     HADS_Depression
     HADS_positivesubscale
     HADS_Negativesubscale
     AS_SE
     ]

DeviW=[
0.05
0.051
0.05
0.056
0.052
0.063
0.052
0.07
0.062
0.059
0.066
0.063
0.056
0.052
0.059
0.049
0.053
0.056
0.059
0.055
0.059
0.057
0.045
0.047
0.058
0.045
]

DeviM=[
2.948
2.277
3.148
2.858
2.645
13.858
2.697
39.134
5.857
7.724
10.806
5.622
9.071
4.962
30.307
1.292
1.6
1.223
1.378

1.91
11.179
2.394
7.183
6.192
12.358
15.379
]

DeviSD=[
2.267
2.152
2.441
2.413
2.227
9.553
0.668
17.149
3.407
3.437
4.778
3.574
4.009
4.02
19.73
0.9
1.106
1.002
0.897
0.84
3.81
0.857
3.405
2.892
4.211
5.617
]

Dev: Linear equation
Below is the ICDS model outer equation for the latent variable Dev, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

Dev =
0.05 * ((WASA_Work - 2.948) / 2.267) +
0.051 * ((WASA_Social - 2.277) / 2.152) +
0.05 * ((WASA_Home - 3.148) / 2.441) +
0.056 * ((WASA_PrivLeis - 2.858) / 2.413) +

0.052 * ((WASA_Family - 2.645) / 2.227) +
0.063 * ((WSAS_scale - 13.858) / 9.553) +
0.052 * ((WASASGRouped - 2.697) / 0.668) +
0.07 * ((TSC_40scale - 39.134) / 17.149) +
0.062 * ((TSC_40Dissociation - 5.857) / 3.407) +
0.059 * ((TSC_40Anxiety - 7.724) / 3.437) +
0.066 * ((TSC_40Depression - 10.806) / 4.778) +
0.063 * ((TSC_40SATI - 5.622) / 3.574) +
0.056 * ((TSC_40Sleepdisturbance - 9.071) / 4.009) +
0.052 * ((TSC_40SexualProblems - 4.962) / 4.02) +
0.059 * ((IES_R - 30.307) / 19.73) +
0.049 * ((IES_R_Avoidance - 1.292) / 0.9) +
0.053 * ((IES_R_Intrusion - 1.6) / 1.106) +
0.056 * ((IES_R_Hyperarousal - 1.223) / 1.002) +
0.059 * ((IES_R_Average - 1.378) / 0.897) +
0.055 * ((IES_RGroup - 1.91) / 0.84) +
0.059 * ((HADS_Anxiety - 11.179) / 3.81) +
0.057 * ((HADS_ANXIETY2 - 2.394) / 0.857) +
0.045 * ((HADS_Depression - 7.183) / 3.405) +
0.047 * ((HADS_positivesubscale - 6.192) / 2.892) +
0.058 * ((HADS_Negativesubscale - 12.358) / 4.211) +
0.045 * ((AS_SE - 15.379) / 5.617)

Comp: Matrix algebra equation
Below is the ICDS model outer equation for the latent variable Comp, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$Comp = CompiW^T * ((Compi - CompiM) ./ CompiSD))$$

In the equation above, Compi is a column vector containing the indicators that make up the latent variable Comp. CompiW is a column vector containing the weights associated with the indicators. CompiM is a column vector containing the means of the indicators. CompiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

Compi=[
    ROM_ATT_AVOIDANC
    ROM_ATT_ANXIETY_
    ROM_ATT_SEC2
    ROM_ATT_FEAR2
    ROM_ATT_PRE2
    ROM_ATT_DIS2
    ]

CompiW=[
    0.141
    0.161
    0.201
    0.203

0.194
       0.196
       ]

CompiM=[
       3.182
       3.71
       19.871
       21.937
       21.16
       20.088
       ]

CompiSD=[
       1.295
       1.293
       8.57
       14.762
       13.907
       11.983
       ]

Comp: Linear equation
Below is the ICDS model outer equation for the latent variable Comp, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

Comp =
       0.141 * ((ROM_ATT_AVOIDANC - 3.182) / 1.295) +
       0.161 * ((ROM_ATT_ANXIETY_ - 3.71) / 1.293) +
       0.201 * ((ROM_ATT_SEC2 - 19.871) / 8.57) +
       0.203 * ((ROM_ATT_FEAR2 - 21.937) / 14.762) +
       0.194 * ((ROM_ATT_PRE2 - 21.16) / 13.907) +
       0.196 * ((ROM_ATT_DIS2 - 20.088) / 11.983)

Integ: Matrix algebra equation
Below is the ICDS model outer equation for the latent variable Integ, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

Integ = IntegiW^T * ((Integi - IntegiM) ./ IntegiSD))

In the equation above, Integi is a column vector containing the indicators that make up the latent variable Integ. IntegiW is a column vector containing the weights associated with the indicators. IntegiM is a column vector containing the means of the indicators. IntegiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

Integi=[

Impulsivity
Avoidance
Intrusion
hyperarousal
Flight
Freeze
Fight
Dissociation
LLS
Trauma
Anxiety
Negativity
Attachmentnegative
FPSs
CPS
FLSCTs
Defensivenerss
]

IntegiW=[
0.064
0.071
0.073
0.067
0.072
0.073
0.057
0.072
0.073
0.068
0.071
0.076
0.077
0.068
0.064
0.075
0.074
]

IntegiM=[
27.357
2.344
20.561
18.587
20.322
14.183
11.229
13.251
31.65

29.759
28.112
98.512
58.316
32.5
25.867
36.241
27.465
]

IntegiSD=[
4.876
0.976
5.822
4.842
4.167
4.36
2.494
3.545
8.075
6.01
7.355
19.532
13.86
5.889
5.261
8.738
6.166
]

Integ: Linear equation
Below is the ICDS model outer equation for the latent variable Integ, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

Integ =
    0.064 * ((Impulsivity - 27.357) / 4.876) +
    0.071 * ((Avoidance - 2.344) / 0.976) +
    0.073 * ((Intrusion - 20.561) / 5.822) +
    0.067 * ((hyperarousal - 18.587) / 4.842) +
    0.072 * ((Flight - 20.322) / 4.167) +
    0.073 * ((Freeze - 14.183) / 4.36) +
    0.057 * ((Fight - 11.229) / 2.494) +
    0.072 * ((Dissociation - 13.251) / 3.545) +
    0.073 * ((LLS - 31.65) / 8.075) +
    0.068 * ((Trauma - 29.759) / 6.01) +
    0.071 * ((Anxiety - 28.112) / 7.355) +
    0.076 * ((Negativity - 98.512) / 19.532) +

0.077 * ((Attachmentnegative - 58.316) / 13.86) +
0.068 * ((FPSs - 32.5) / 5.889) +
0.064 * ((CPS - 25.867) / 5.261) +
0.075 * ((FLSCTs - 36.241) / 8.738) +
0.074 * ((Defensivenerss - 27.465) / 6.166)

Sust: Matrix algebra equation
Below is the ICDS model outer equation for the latent variable Sust, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

$$Sust = SustiW^T * ((Susti - SustiM) ./ SustiSD))$$

In the equation above, Susti is a column vector containing the indicators that make up the latent variable Sust. SustiW is a column vector containing the weights associated with the indicators. SustiM is a column vector containing the means of the indicators. SustiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

Susti=[
     Positivity
     Attachmentpositive
     Selfawareness
     Conscienntiousness
     ]

SustiW=[
     0.303
     0.297
     0.294
     0.228
     ]

SustiM=[
     73.574
     45.158
     41.79
     17.847
     ]

SustiSD=[
     8.548
     6.304
     5.42
     4.013
     ]

Sust: Linear equation
Below is the ICDS model outer equation for the latent variable Sust, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction;

"/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

Sust =
  0.303 * ((Positivity - 73.574) / 8.548) +
  0.297 * ((Attachmentpositive - 45.158) / 6.304) +
  0.294 * ((Selfawareness - 41.79) / 5.42) +
  0.228 * ((Conscienntiousness - 17.847) / 4.013)

SelfEst: Matrix algebra equation
Below is the ICDS model outer equation for the latent variable SelfEst, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; "*" = matrix multiplication; "-"= matrix subtraction; and "./" = element-by-element matrix division.

SelfEst = SelfEstiW^T * ((SelfEsti - SelfEstiM) ./ SelfEstiSD))

In the equation above, SelfEsti is a column vector containing the indicators that make up the latent variable SelfEst. SelfEstiW is a column vector containing the weights associated with the indicators. SelfEstiM is a column vector containing the means of the indicators. SelfEstiSD is a column vector containing the standard deviations of the indicators. These column vectors are listed below.

SelfEsti=[
  Selfesteem
  ]

SelfEstiW=[
  1
  ]

SelfEstiM=[
  14.913
  ]

SelfEstiSD=[
  3.566
  ]

SelfEst: Linear equation
Below is the ICDS model outer equation for the latent variable SelfEst, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; "-"= scalar subtraction; "/" = scalar division; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

SelfEst =
  ((Selfesteem - 14.913) / 3.566)

7. ICDS model inner equations

The ICDS model inner equations allow for the estimation of latent variable scores based on other latent variable scores, namely the scores of those latent variables that point at them. These equations rely on inner model path coefficients.

Dev: Matrix algebra equation
Below is the ICDS model inner equation for the latent variable Dev, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

$$Dev = Devb^T * Devp$$

In the equation above, Devp is a column vector containing the predictor latent variables that point at Dev. Devb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

Devp=[
    Comp
    ]

Devb=[
    0.377
    ]

Dev: Linear equation
Below is the ICDS model inner equation for the latent variable Dev, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

Dev =
    0.377 * Comp

Integ: Matrix algebra equation
Below is the ICDS model inner equation for the latent variable Integ, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

$$Integ = Integb^T * Integp$$

In the equation above, Integp is a column vector containing the predictor latent variables that point at Integ. Integb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

Integp=[
    Dev
    Comp
    ]

Integb=[
    0.569
    0.238
    ]

Integ: Linear equation
Below is the ICDS model inner equation for the latent variable Integ, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

Integ =
    0.569 * Dev +
    0.238 * Comp

Sust: Matrix algebra equation
Below is the ICDS model inner equation for the latent variable Sust, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

Sust = Sustb^T * Sustp

In the equation above, Sustp is a column vector containing the predictor latent variables that point at Sust. Sustb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

Sustp=[
    Comp
    ]

Sustb=[
    -0.213
    ]

Sust: Linear equation
Below is the ICDS model inner equation for the latent variable Sust, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

Sust =
    -0.213 * Comp

SelfEst: Matrix algebra equation
Below is the ICDS model inner equation for the latent variable SelfEst, expressed in matrix algebra format. The symbols used and their meanings are the following: "M^T"= transpose of matrix M; and "*" = matrix multiplication.

SelfEst = SelfEstb^T * SelfEstp

In the equation above, SelfEstp is a column vector containing the predictor latent variables that point at SelfEst. SelfEstb is a column vector containing the inner model path coefficients (a.k.a. beta coefficients) associated with the predictor latent variables. These column vectors are listed below.

SelfEstp=[
      Dev
      Integ
      Sust
      ]

SelfEstb=[
      -0.122
      -0.622
      0.198
      ]

SelfEst: Linear equation
Below is the ICDS model inner equation for the latent variable SelfEst, expressed in linear equation format. The symbols used and their meanings are the following: "*" = scalar multiplication; and "+"= scalar addition. Here "scalar" means an operation involving real numbers, instead of matrices.

SelfEst =
      -0.122 * Dev +
      -0.622 * Integ +
      0.198 * Sust

8. Concluding remarks

The inner equations for both the Full and ICDS models allow for the estimation of latent variable scores based on the scores of other latent variables. The equations have been generated based on least squares algorithms, which are algorithms that minimize the sum of squared residuals. The equations can be seen as representing best-fitting lines passing through points, as in Figure 8.1, which depicts the relationship between the latent variables Comp and Dev in the ICDS model.

Figure 8.1: Relationship between Comp and Dev in ICDS model
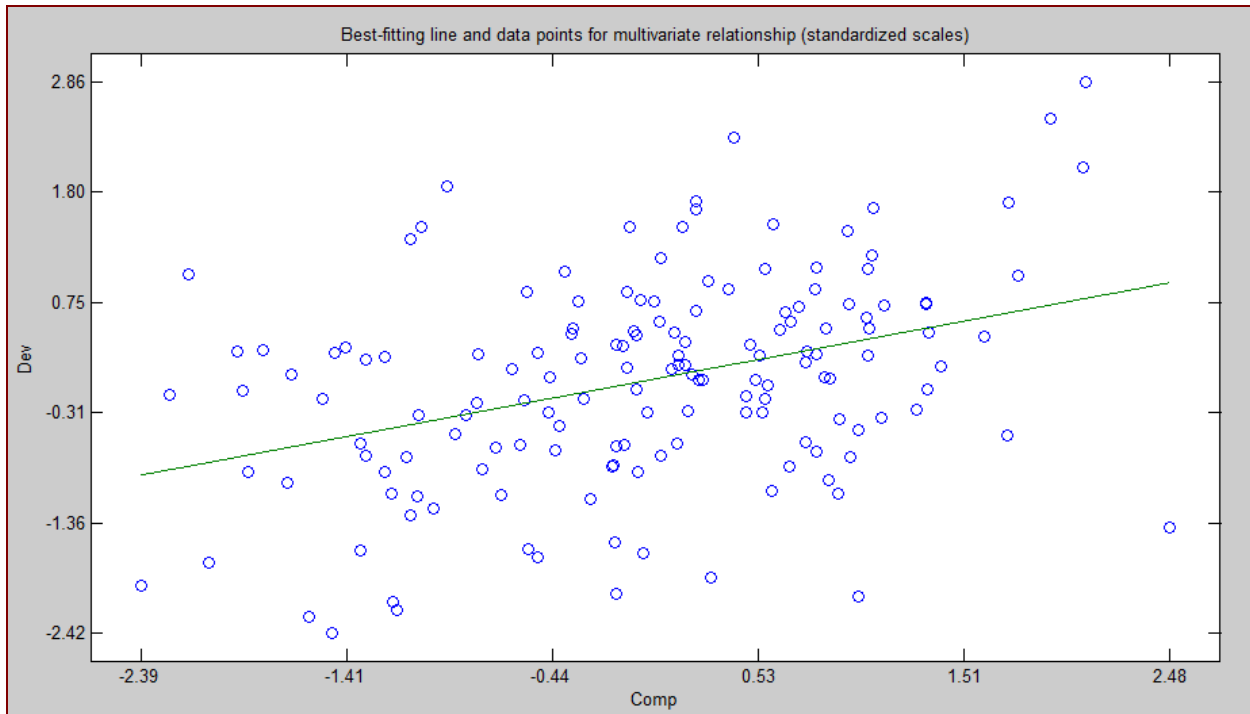
The latent variable scores generated based on the inner equations listed in this report for both the Full and ICDS models will fall along best-fitting lines, which means that in many cases they will be significantly different from the scores in the original dataset used to generate the equations.

The differences between latent variable scores obtained through the inner equations and the scores in the original dataset will be proportional to the R-squared coefficients for the latent variables. These are listed in tables 8.1 and 8.2, for the Full and ICDS models, respectively.

Table 8.1: R-squared coefficients for Full model

WASA	TSC	ROM_ATT	IES	AS	ASAL	ExNEmo	SelfEst
0.345	0.397	0.09	0.095	0.34	0.366	0.487	0.591

Table 8.2: R-squared coefficients for ICDS model

Dev	Integ	Sust	SelfEst
0.142	0.483	0.045	0.577

The lower the R-squared coefficient for a latent variable, the greater will be the associated residual (a.k.a. error). Thus, the lower the R-squared, the greater the differences between latent variable scores obtained through the inner equations and the scores in the original dataset.

All latent variable scores generated based on the equations listed here will be on standardized scales. In a standardized scale, the mean is 0 and the standard deviation is 1. Latent variables do not exist in unstandardized format.

Latent variables that are endogenous can have their scores calculated based on inner or outer equations. An endogenous latent variable is one in which there is at least one other latent variable pointing at it.

Latent variables that are exogenous can have their scores calculated based only on outer equations. An exogenous latent variable is one in which there is no other latent variable pointing at it.

The inner equations are particularly useful when questionnaire responses associated with endogenous latent variables are not available for an individual, in which case the scores for those latent variables will have to be estimated (or predicted) based on other latent variable scores.

Finally, the match between the values obtained through the inner and outer equations and the "real world" depends on the extent to which the original dataset from which the equations were produced is representative of the population of interest (e.g., mental health patients).

If the original dataset represents poorly the population of interest, the match between the values obtained through the inner and outer equations and what would be expected in the "real world" will also be poor. In the context of health treatments, this could lead to misdiagnoses and other problems, some of which could be serious.

References

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum.

Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research,* 18(1), 39-50.

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2009). *Multivariate data analysis*. Upper Saddle River, NJ: Prentice Hall.

Kline, R.B. (1998). *Principles and practice of structural equation modeling*. New York, NY: The Guilford Press.

Nunnally, J.C. (1978). *Psychometric theory.* New York, NY: McGraw Hill.

Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory*. New York, NY: McGraw-Hill.

Wagner, C.H. (1982). Simpson's paradox in real life. *The American Statistician*, 36(1), 46–48.

Appendix A: Full model validity, reliability, and collinearity tests

Validity tests are needed to establish whether a measurement instrument has been understood by the respondents in the way that it was intended by the designer(s) of the instrument. One of the key components of a measurement instrument is typically a questionnaire, which may be used in a survey. Two types of validity are normally tested for: convergent and discriminant. Reliability tests are needed to establish whether a measurement instrument has been understood in the same way by different respondents. Finally, collinearity tests are needed to rule out the presence of redundant latent variables i.e., variables that essentially measure the same "thing".

Two criteria are recommended as the basis for concluding that a measurement instrument has acceptable convergent validity in the context of a specific study: that the P values associated with the loadings be lower than 0.05 and that the loadings be equal to or greater than .5 (Hair et al., 2009).

Table A.1 shows the loadings and cross-loadings associated with each of the latent variables in the model. All of the P values were lower than 0.001. Loadings are unrotated and cross-loadings are oblique-rotated, both after separate Kaiser normalizations. Cells containing loadings are shaded. Indicator names have been reduced to avoid crowding. As it can be seen, the measurement instrument for the Full model has acceptable convergent validity.

Table A.1: Full model loadings and cross-loadings

	WASA	TSC	ROM_ATT	IES	HADS	FST	AS	ASAL	ExNEmo	SelfEst
WASA_Wo	0.63	-0.134	-0.217	0.131	-0.073	0.086	-0.111	-0.196	0.036	-0.089
WASA_So	0.649	0.157	0.042	-0.168	-0.185	-0.11	0.205	0.057	0.025	0.068
WASA_Ho	0.678	0.02	0	0.03	-0.147	0.149	-0.052	0.073	-0.142	-0.086
WASA_Pr	0.624	-0.017	0.008	0.066	0.051	-0.071	-0.047	0.035	-0.17	-0.212
WASA_Fa	0.623	0.045	0.034	-0.113	0	-0.042	0.142	0.105	0.129	0.133
WSAS_sc	0.643	0.017	-0.023	-0.015	-0.08	0.001	0.031	0.017	-0.022	-0.036
WASASGR	0.509	-0.151	0.208	0.115	0.648	-0.007	-0.257	-0.138	0.224	0.321
TSC_40s	-0.005	0.604	0.033	0.001	0.011	0.009	-0.025	-0.019	-0.005	-0.025
TSC_40D	0.025	0.637	-0.046	0.09	0.016	0.03	0.12	0.136	-0.112	0.042
TSC_40A	-0.066	0.607	0.029	-0.122	0.1	-0.177	0.013	-0.003	0.01	-0.056
TSC_40D	0.048	0.567	-0.021	-0.026	0.035	-0.08	-0.047	-0.178	0.125	0.007
TSC_40S	0.091	0.632	0.018	0.122	-0.124	0.001	0.069	0.092	-0.019	0.07
TSC_40S	-0.048	0.635	-0.082	-0.034	-0.057	0.107	0.001	0.039	-0.03	-0.09
TSC_40S	-0.057	0.632	0.07	-0.038	0.014	0.15	-0.158	-0.075	0.038	0.067
ROM_ATT	-0.01	0.08	0.726	-0.254	0.166	-0.01	0.068	0.078	-0.047	0.002
ROM_ATT	0.016	-0.141	0.774	0.169	-0.119	-0.117	-0.029	-0.099	0.005	-0.021
ROM_ATT	-0.001	0.007	0.715	0.031	-0.018	0.027	-0.013	0.001	0.01	0
ROM_ATT	-0.002	0.019	0.718	-0.012	0.009	0.02	0.001	0.011	0.002	0.005
ROM_ATT	0.001	-0.002	0.713	0.068	-0.043	0.03	-0.022	-0.01	0.019	0.004
ROM_ATT	-0.004	0.034	0.721	-0.072	0.048	0.013	0.018	0.028	-0.009	0.005
IES_R	0.011	0	-0.012	0.711	0.001	-0.001	-0.006	-0.006	-0.006	-0.005
IES_R_A	0.005	-0.058	0.075	0.721	0.042	0.106	-0.048	-0.055	0.154	0.294
IES_R_I	-0.03	-0.024	-0.036	0.713	-0.011	0.003	0.007	0.033	-0.052	-0.141
IES_R_H	0.013	0.048	-0.03	0.678	-0.012	-0.093	0.044	-0.028	-0.06	-0.126
IES_R_A	0.011	0	-0.012	0.711	0.001	-0.001	-0.006	-0.006	-0.006	-0.005
IES_RGr	-0.011	0.031	0.022	0.725	-0.018	-0.012	0.009	0.055	-0.018	-0.001
HADS_An	0.192	-0.015	-0.13	-0.034	0.55	0.025	0.221	0.057	0.231	0.068
HADS_AN	0.229	-0.132	-0.139	0.07	0.539	0.058	0.223	0.051	0.178	-0.043

	WASA	TSC	ROM_ATT	IES	HADS	FST	AS	ASAL	ExNEmo	SelfEst
HADS_De	-0.172	0.062	0.098	-0.095	0.707	0.005	-0.139	0.009	-0.184	-0.133
HADS_De	-0.132	0.042	0.086	0.036	0.701	-0.035	-0.153	-0.057	-0.148	0.022
HADS_po	-0.112	0.027	0.06	0.004	0.664	-0.041	-0.106	-0.072	-0.003	0.095
HADS_Ne	0.167	-0.045	-0.08	0.031	0.573	0.026	0.127	0.068	0.067	-0.023
FSTScal	0.03	0.021	-0.013	-0.046	-0.074	0.821	0.043	0	-0.013	-0.011
FSTScal	-0.03	-0.021	0.013	0.047	0.074	0.791	-0.043	0	0.013	0.011
AS_AEI	-0.073	-0.051	-0.066	-0.005	-0.055	-0.131	0.706	-0.066	-0.001	0.047
AS_SE	0.106	0.074	0.096	0.007	0.08	0.19	0.543	0.096	0.001	-0.068
AS_AL	0	0	0	0	0	0	0	1	0	0
Impulsi	0.027	0.063	-0.002	0.093	0.01	0.178	-0.285	-0.282	0.554	0.203
Avoidan	0.044	-0.129	0.011	0.097	-0.139	-0.021	0.178	0.234	0.601	0.059
Intrusi	0.132	-0.083	-0.124	0.06	-0.09	-0.107	0.387	0.242	0.536	-0.206
hyperar	-0.02	0.261	-0.232	0.105	-0.058	-0.224	0.132	-0.025	0.554	-0.005
Flight	-0.034	-0.086	0.163	0.073	-0.065	0.179	-0.082	-0.051	0.561	0.019
Freeze	0.106	-0.082	-0.102	-0.078	-0.037	-0.003	0.002	0.032	0.571	-0.192
Fight	-0.071	-0.021	0.103	-0.1	-0.011	-0.01	-0.252	-0.209	0.6	-0.054
Dissoci	0.101	-0.09	-0.064	-0.02	-0.05	0.175	-0.03	-0.036	0.559	-0.059
LLS	-0.01	-0.005	0.193	-0.105	0.073	-0.03	-0.172	0.034	0.581	0.05
Trauma	-0.142	0.277	-0.136	0.079	0.098	-0.184	-0.043	-0.116	0.553	0.027
Anxiety	0.043	0.021	-0.079	-0.006	-0.062	-0.085	0.194	-0.016	0.551	-0.05
Negativ	-0.064	0.079	0.09	-0.091	0.051	-0.044	-0.178	-0.075	0.598	0.131
Attachm	-0.005	0.003	0.113	-0.059	-0.041	-0.045	-0.033	0.079	0.592	0.062
FPSs	-0.06	-0.04	0.017	-0.028	0.274	0.193	-0.019	-0.093	0.513	-0.002
CPS	-0.051	0.118	-0.089	0.135	0.194	0.062	-0.186	-0.27	0.533	0.282
FLSCTs	0.01	-0.174	-0.025	0.017	-0.016	0.044	0.127	0.188	0.56	-0.254
Defensi	-0.023	-0.056	0.05	-0.114	-0.068	-0.047	0.234	0.188	0.575	-0.065
Selfest	0	0	0	0	0	0	0	0	0	1

The following criterion is recommended for discriminant validity assessment: for each latent variable, the square root of the AVE should be higher than any of the correlations involving that latent variable (Fornell & Larcker, 1981). If this criterion is met, a measurement instrument is said to have acceptable discriminant validity in the context of a specific study.

That is, in a table containing square roots of the AVEs on the diagonal and latent variable correlations elsewhere, the values on the diagonal should be higher than any of the values above or below them, in the same column. Or, the values on the diagonal should be higher than any of the values to their left or right, in the same row; which means the same as the previous statement, given the repeated values of the latent variable correlations table.

Table A.2 shows the square roots of the AVEs for each latent variable (on the diagonal) and the correlations among latent variables. Cells containing square roots of the AVEs, on the diagonal, are shaded. As it can be seen, the measurement instrument for the Full model has acceptable convergent validity.

Table A.2: Full model latent variable correlations and square roots of average variances extracted

	WASA	TSC	ROM_ATT	IES	HADS	FST	AS	ASAL	ExNEmo	SelfEst
WASA	0.831	0.584	0.327	0.333	0.541	0.215	0.328	-0.203	0.519	-0.455
TSC	0.584	0.874	0.3	0.556	0.454	0.301	0.325	-0.139	0.544	-0.426
ROM_ATT	0.327	0.3	0.905	0.23	0.3	0.08	0.362	-0.15	0.453	-0.436
IES	0.333	0.556	0.23	0.945	0.308	0.133	0.246	-0.004	0.459	-0.352
HADS	0.541	0.454	0.3	0.308	0.889	0.25	0.504	-0.272	0.484	-0.564
FST	0.215	0.301	0.08	0.133	0.25	0.936	0.313	-0.361	0.239	-0.167

	WASA	TSC	ROM_ATT	IES	HADS	FST	AS	ASAL	ExNEmo	SelfEst
AS	0.328	0.325	0.362	0.246	0.504	0.313	0.85	-0.574	0.469	-0.52
ASAL	-0.203	-0.139	-0.15	-0.004	-0.272	-0.361	-0.574	1	-0.307	0.316
ExNEmo	0.519	0.544	0.453	0.459	0.484	0.239	0.469	-0.307	0.835	-0.723
SelfEst	-0.455	-0.426	-0.436	-0.352	-0.564	-0.167	-0.52	0.316	-0.723	1

Note: Square roots of average variances extracted (AVEs) shown on diagonal in shaded cells.

One criterion is recommended as the basis for concluding that a measurement instrument has acceptable reliability in the context of a specific study: the compositive reliability for each latent variable should be equal to or greater than .7 (Fornell & Larcker, 1981; Nunnally; 1978 Nunnally & Bernstein, 1994).

This applies only to "true" latent variables that is, to latent variables measured through 2 or more indicators. Table A.3 shows the composite reliability coefficients for each latent variable. As it can be seen, the measurement instrument for the Full model has acceptable reliability.

Table A.3: Full model latent variable composite reliability coefficients

WASA	TSC	ROM_ATT	IES	HADS	FST	AS	ASAL	ExNEmo	SelfEst
0.939	0.957	0.964	0.98	0.958	0.934	0.839	1	0.975	1

One criterion is recommended in connection with variance inflation factors (VIFs) in the context of a full collinearity test. The criterion is that VIFs be lower than 5 (Hair et al., 2009 Kline, 1998). High VIFs usually occur for pairs of latent variables, and suggest that the latent variables measure the same construct.

This may call for the removal of cross-loading indicators from the latent variables, re-grouping of indicators, or removal of one of the latent variables from the model. Table A.4 shows the VIFs for each latent variable. As it can be seen, the measurement instrument for the Full model is free from multicollinearity.

Table A.4: Full model latent variables and respective VIFs

WASA	TSC	ROM_ATT	IES	HADS	FST	AS	ASAL	ExNEmo	SelfEst
1.875	2.154	1.358	1.587	1.903	1.269	2.113	1.684	2.725	2.558

Appendix B: ICDS model validity, reliability, and collinearity tests

The criteria used here for the assessment of validity, reliability, and collinearity for the ICDS model are the same as those used for the Full model. Table B.1 shows the loadings and cross-loadings associated with each of the latent variables in the model.

All of the P values were lower than 0.001. Loadings are unrotated and cross-loadings are oblique-rotated, both after separate Kaiser normalizations. Cells containing loadings are shaded. Latent variable and indicator names were reduced to avoid crowding. As it can be seen, the measurement instrument for the ICDS model has acceptable convergent validity.

Table B.1: ICDS model loadings and cross-loadings

	Dev	Comp	Integ	Sust	SelfEst
WASA_Wo	0.732	-0.278	-0.08	0.095	-0.381
WASA_So	0.699	0.214	-0.191	0.215	-0.209
WASA_Ho	0.76	0.056	-0.215	0.036	-0.048
WASA_Pr	0.71	0.06	-0.398	0.151	-0.479
WASA_Fa	0.694	0.138	-0.171	0.125	-0.308
WSAS_sc	0.719	0.05	-0.228	0.137	-0.304
WASASGR	0.659	0.162	-0.341	0.08	-0.597
TSC_40s	0.73	0.043	0.256	-0.094	0.466
TSC_40D	0.805	-0.001	0.117	-0.012	0.459
TSC_40A	0.713	0.075	0.146	-0.011	0.28
TSC_40D	0.699	-0.012	0.355	-0.119	0.401
TSC_40S	0.774	0.044	0.262	-0.08	0.582
TSC_40S	0.752	-0.059	0.286	-0.103	0.498
TSC_40S	0.747	0.039	0.327	-0.154	0.58
IES_R	0.754	-0.024	0.343	-0.073	0.584
IES_R_A	0.765	0.025	0.41	-0.099	0.679
IES_R_I	0.731	-0.044	0.335	-0.063	0.538
IES_R_H	0.729	-0.029	0.32	-0.076	0.503
IES_R_A	0.754	-0.024	0.343	-0.073	0.584
IES_RGr	0.761	0.012	0.335	-0.065	0.617
HADS_An	0.642	-0.101	-0.366	0.119	-0.843
HADS_AN	0.631	-0.1	-0.368	0.124	-0.849
HADS_De	0.659	-0.015	-0.565	0.013	-0.766
HADS_po	0.663	-0.017	-0.507	0.126	-0.798
HADS_Ne	0.644	-0.085	-0.426	0.061	-0.824
AS_SE	0.54	0.154	-0.209	-0.112	-0.889
ROM_ATT	-0.102	0.786	-0.154	-0.186	-0.239
ROM_ATT	-0.049	0.834	0.032	0.138	0.053
ROM_ATT	0.034	0.787	0.031	0.019	0.046
ROM_ATT	0.015	0.789	0.005	-0.012	0.007
ROM_ATT	0.052	0.787	0.055	0.045	0.085
ROM_ATT	-0.013	0.789	-0.034	-0.054	-0.052
Impulsi	0.084	-0.069	0.685	-0.21	0.391
Avoidan	0.005	0.084	0.697	0.225	0.095
Intrusi	0.121	-0.049	0.651	0.176	-0.432
hyperar	0.227	-0.184	0.677	-0.043	0.163
Flight	-0.022	0.149	0.673	0.089	0.116
Freeze	-0.089	-0.096	0.681	0.011	-0.247

	Dev	Comp	Integ	Sust	SelfEst
Fight	-0.231	0.05	0.693	-0.134	0.028
Dissoci	-0.032	-0.084	0.684	-0.068	-0.04
LLS	-0.103	0.19	0.67	-0.004	0.051
Trauma	0.19	-0.138	0.672	-0.077	0.162
Anxiety	0.055	-0.03	0.675	0.179	-0.247
Negativ	-0.075	0.065	0.697	-0.04	0.165
Attachm	-0.073	0.131	0.686	0.055	0.112
FPSs	0.005	-0.073	0.635	-0.278	-0.259
CPS	0.181	-0.157	0.666	-0.257	0.316
FLSCTs	-0.055	0.032	0.663	0.352	-0.502
Defensi	-0.181	0.104	0.675	0.051	-0.236
Positiv	0.031	0.008	-0.122	0.918	-0.115
Attachm	0.063	-0.013	0.095	0.84	0.343
Selfawa	0.062	-0.015	-0.179	0.906	-0.111
Conscie	-0.232	0.028	0.321	0.968	-0.15
Selfest	0	0	0	0	1

Table B.2 shows the square roots of the AVEs for each latent variable (on the diagonal) and the correlations among latent variables. Cells containing square roots of the AVEs, on the diagonal, are shaded. As it can be seen, the measurement instrument for the ICDS model has acceptable convergent validity.

Table B.2: ICDS model latent variable correlations and square roots of average variances extracted

	Dev	Comp	Integ	Sust	SelfEst
Dev	0.688	0.377	0.659	-0.224	-0.576
Comp	0.377	0.905	0.453	-0.213	-0.436
Integ	0.659	0.453	0.835	-0.101	-0.723
Sust	-0.224	-0.213	-0.101	0.887	0.288
SelfEst	-0.576	-0.436	-0.723	0.288	1

Note: Square roots of average variances extracted (AVEs) shown on diagonal in shaded cells.

Table B.3 shows the composite reliability coefficients for each latent variable. As it can be seen, the measurement instrument for the ICDS model has acceptable reliability, as the compositive reliability coefficients for all latent variables are greater than .7 (Fornell & Larcker, 1981; Nunnally, 1978; Nunnally & Bernstein, 1994).

Table B.3: ICDS model latent variable composite reliability coefficients

Dev	Comp	Integ	Sust	SelfEst
0.959	0.964	0.975	0.936	1

Table B.4 shows the VIFs for each latent variable. As it can be seen, the measurement instrument for the ICDS model is free from multicollinearity, as the VIFs are all lower than 5 (Hair et al., 2009 Kline, 1998).

Table B.4: ICDS model latent variables and respective VIFs

Dev	Comp	Integ	Sust	SelfEst
1.893	1.331	2.793	1.17	2.396

Appendix C: Full model outer weights

Table C.1 shows the outer model weights for the Full model. These are the nonzero cells in the table. Latent variable and indicator names were reduced to avoid crowding. All of the weights yielded effect sizes equal or greater than the threshold of 0.02 recommended by (Cohen, 1988). No instances were found in which the weight and loading for an indicator had different signs, suggesting no instances of Simpson's paradox (Wagner, 1982) in the outer model.

Table C.1: Full model outer weights

	WASA	TSC	ROM_ATT	IES	HADS	FST	AS	ASAL	ExNEmo	SelfEst
WASA_Wo	0.162	0	0	0	0	0	0	0	0	0
WASA_So	0.177	0	0	0	0	0	0	0	0	0
WASA_Ho	0.167	0	0	0	0	0	0	0	0	0
WASA_Pr	0.177	0	0	0	0	0	0	0	0	0
WASA_Fa	0.169	0	0	0	0	0	0	0	0	0
WSAS_sc	0.205	0	0	0	0	0	0	0	0	0
WASASGR	0.139	0	0	0	0	0	0	0	0	0
TSC_40s	0	0.185	0	0	0	0	0	0	0	0
TSC_40D	0	0.163	0	0	0	0	0	0	0	0
TSC_40A	0	0.158	0	0	0	0	0	0	0	0
TSC_40D	0	0.17	0	0	0	0	0	0	0	0
TSC_40S	0	0.167	0	0	0	0	0	0	0	0
TSC_40S	0	0.155	0	0	0	0	0	0	0	0
TSC_40S	0	0.143	0	0	0	0	0	0	0	0
ROM_ATT	0	0	0.141	0	0	0	0	0	0	0
ROM_ATT	0	0	0.161	0	0	0	0	0	0	0
ROM_ATT	0	0	0.201	0	0	0	0	0	0	0
ROM_ATT	0	0	0.203	0	0	0	0	0	0	0
ROM_ATT	0	0	0.194	0	0	0	0	0	0	0
ROM_ATT	0	0	0.196	0	0	0	0	0	0	0
IES_R	0	0	0	0.186	0	0	0	0	0	0
IES_R_A	0	0	0	0.16	0	0	0	0	0	0
IES_R_I	0	0	0	0.174	0	0	0	0	0	0
IES_R_H	0	0	0	0.172	0	0	0	0	0	0
IES_R_A	0	0	0	0.186	0	0	0	0	0	0
IES_RGr	0	0	0	0.18	0	0	0	0	0	0
HADS_An	0	0	0	0	0.19	0	0	0	0	0
HADS_AN	0	0	0	0	0.181	0	0	0	0	0
HADS_De	0	0	0	0	0.176	0	0	0	0	0
HADS_De	0	0	0	0	0.191	0	0	0	0	0
HADS_po	0	0	0	0	0.192	0	0	0	0	0
HADS_Ne	0	0	0	0	0.194	0	0	0	0	0
FSTScal	0	0	0	0	0	0.534	0	0	0	0
FSTScal	0	0	0	0	0	0.534	0	0	0	0
AS_AEI	0	0	0	0	0	0	0.588	0	0	0
AS_SE	0	0	0	0	0	0	0.588	0	0	0
AS_AL	0	0	0	0	0	0	0	1	0	0
Impulsi	0	0	0	0	0	0	0	0	0.064	0
Avoidan	0	0	0	0	0	0	0	0	0.071	0
Intrusi	0	0	0	0	0	0	0	0	0.073	0
hyperar	0	0	0	0	0	0	0	0	0.067	0
Flight	0	0	0	0	0	0	0	0	0.072	0
Freeze	0	0	0	0	0	0	0	0	0.073	0

	WASA	TSC	ROM_ATT	IES	HADS	FST	AS	ASAL	ExNEmo	SelfEst
Fight	0	0	0	0	0	0	0	0	0.057	0
Dissoci	0	0	0	0	0	0	0	0	0.072	0
LLS	0	0	0	0	0	0	0	0	0.073	0
Trauma	0	0	0	0	0	0	0	0	0.068	0
Anxiety	0	0	0	0	0	0	0	0	0.071	0
Negativ	0	0	0	0	0	0	0	0	0.076	0
Attachm	0	0	0	0	0	0	0	0	0.077	0
FPSs	0	0	0	0	0	0	0	0	0.068	0
CPS	0	0	0	0	0	0	0	0	0.064	0
FLSCTs	0	0	0	0	0	0	0	0	0.075	0
Defensi	0	0	0	0	0	0	0	0	0.074	0
Selfest	0	0	0	0	0	0	0	0	0	1

Appendix D: Full model indicator means and standard deviations

Table D.1 shows the means (Mean) and standard deviations (SD) for each indicator in the Full model. Other descriptive statistics are also provided: Min (minimum value), Max (maximum value), Median (value separating the higher half from the lower half of the data), and Mode (value that appears most often). These statistics reflect the values obtained after the software's missing value correction was applied, whereby empty cells were filled with column means. Because of this, in cases where there were several empty cells prior to correction, the Mode equals the Mean.

Table C.1: Full model means, standard deviations, and other descriptive statistics

	Mean	SD	Min	Max	Median	Mode
WASA_Work	2.948	2.267	0	8	2	2
WASA_Social	2.277	2.152	0	8	2	0
WASA_Home	3.148	2.441	0	8	3	2
WASA_PrivLeis	2.858	2.413	0	8	2	0
WASA_Family	2.645	2.227	0	8	2	2
WSAS_scale	13.858	9.553	0	38	12	8
WASASGRouped	2.697	0.668	1	3	3	3
TSC_40scale	39.134	17.149	2	104	39.134	39.134
TSC_40Dissociation	5.857	3.407	0	18	5.857	5.857
TSC_40Anxiety	7.724	3.437	0	18	7.724	7.724
TSC_40Depression	10.806	4.778	0	26	10.806	10.806
TSC_40SATI	5.622	3.574	0	18	5.622	5.622
TSC_40Sleepdisturbance	9.071	4.009	0	18	9.071	9.071
TSC_40SexualProblems	4.962	4.02	0	23	4.962	4.962
ROM_ATT_AVOIDANC	3.182	1.295	1.056	6.167	3	2
ROM_ATT_ANXIETY_	3.71	1.293	1.111	6.5	3.833	4.667
ROM_ATT_SEC2	19.871	8.57	-0.882	40.733	20.602	7.759
ROM_ATT_FEAR2	21.937	14.762	-13.218	58.384	23.357	2.145
ROM_ATT_PRE2	21.16	13.907	-12.217	54.053	22.996	1.096
ROM_ATT_DIS2	20.088	11.983	-6.51	48.88	20.088	5.929
IES_R	30.307	19.73	0	82	30.8	0
IES_R_Avoidance	1.292	0.9	0	3.375	1.38	0
IES_R_Intrusion	1.6	1.106	0	4	1.51	1
IES_R_Hyperarousal	1.223	1.002	0	4	1.143	0
IES_R_Average	1.378	0.897	0	3.727	1.4	0
IES_RGroup	1.91	0.84	1	4	2	2
HADS_Anxiety	11.179	3.81	0	20	13	13.24
HADS_ANXIETY2	2.394	0.857	1	3	3	3
HADS_Depression2	7.183	3.405	0	17	8.05	8.05
HADS_Depression	1.697	0.678	1	3	2	2
HADS_positivesubscale	6.192	2.892	0	14	7	7.47
HADS_Negativesubscale	12.358	4.211	1	23	14.42	14.42
FSTScale	2.435	2.779	0	13	2.435	0
FSTScale2	1.435	0.457	1	2	1.435	1
AS_AEI	15.769	4.911	4	28	15.769	15.769
AS_SE	15.379	5.617	4	28	15.379	15.379
AS_AL	20.682	4.159	7	28	20.682	20.682
Impulsivity	27.357	4.876	14	43	29	29.1
Avoidance	20.886	4.652	10	31	21.07	21.07
Intrusion	20.561	5.822	9	35	21	24.35
hyperarousal	18.587	4.842	9	34	18.25	21.08

	Mean	SD	Min	Max	Median	Mode
Flight	20.322	4.167	12	32	20.32	22.67
Freeze	14.183	4.36	6	24	14.12	16.8
Fight	11.229	2.494	7	20	11	9
Dissociation	13.251	3.545	6	21	13.06	15.44
LLS	31.65	8.075	15	51	34	35.75
Trauma	29.759	6.01	16	50	29.759	29.62
Anxiety	28.112	7.355	14	52	28	25.81
Negativity	98.512	19.532	48	146	106.28	106.28
Attachmentnegative	58.316	13.86	27	91	60.69	60.69
FPSs	32.5	5.889	19	49	32	35.88
CPS	25.867	5.261	13	43	26.25	26.25
FLSCTs	36.241	8.738	18	54	35	42.8
Defensivenerss	27.465	6.166	14	44	26.47	31.17
Selfesteem	14.913	3.566	6	24	15	12.74

Appendix E: ICDS model outer weights

Table E.1 shows the outer model weights for the ICDS model. These are the nonzero cells in the table. Latent variable and indicator names were reduced to avoid crowding. All of the weights yielded effect sizes equal or greater than the threshold of 0.02 recommended by (Cohen, 1988). No instances were found in which the weight and loading for an indicator had different signs, suggesting no instances of Simpson's paradox (Wagner, 1982) in the outer model.

Table E.1: ICDS model outer weights

	Dev	Comp	Integ	Sust	SelfEst
WASA_Wo	0.05	0	0	0	0
WASA_So	0.051	0	0	0	0
WASA_Ho	0.05	0	0	0	0
WASA_Pr	0.056	0	0	0	0
WASA_Fa	0.052	0	0	0	0
WSAS_sc	0.063	0	0	0	0
WASASGR	0.052	0	0	0	0
TSC_40s	0.07	0	0	0	0
TSC_40D	0.062	0	0	0	0
TSC_40A	0.059	0	0	0	0
TSC_40D	0.066	0	0	0	0
TSC_40S	0.063	0	0	0	0
TSC_40S	0.056	0	0	0	0
TSC_40S	0.052	0	0	0	0
IES_R	0.059	0	0	0	0
IES_R_A	0.049	0	0	0	0
IES_R_I	0.053	0	0	0	0
IES_R_H	0.056	0	0	0	0
IES_R_A	0.059	0	0	0	0
IES_RGr	0.055	0	0	0	0
HADS_An	0.059	0	0	0	0
HADS_AN	0.057	0	0	0	0
HADS_De	0.045	0	0	0	0
HADS_po	0.047	0	0	0	0
HADS_Ne	0.058	0	0	0	0
AS_SE	0.045	0	0	0	0
ROM_ATT	0	0.141	0	0	0
ROM_ATT	0	0.161	0	0	0
ROM_ATT	0	0.201	0	0	0
ROM_ATT	0	0.203	0	0	0
ROM_ATT	0	0.194	0	0	0
ROM_ATT	0	0.196	0	0	0
Impulsi	0	0	0.064	0	0
Avoidan	0	0	0.071	0	0
Intrusi	0	0	0.073	0	0
hyperar	0	0	0.067	0	0
Flight	0	0	0.072	0	0
Freeze	0	0	0.073	0	0
Fight	0	0	0.057	0	0
Dissoci	0	0	0.072	0	0
LLS	0	0	0.073	0	0
Trauma	0	0	0.068	0	0
Anxiety	0	0	0.071	0	0

	Dev	Comp	Integ	Sust	SelfEst
Negativ	0	0	0.076	0	0
Attachm	0	0	0.077	0	0
FPSs	0	0	0.068	0	0
CPS	0	0	0.064	0	0
FLSCTs	0	0	0.075	0	0
Defensi	0	0	0.074	0	0
Positiv	0	0	0	0.303	0
Attachm	0	0	0	0.297	0
Selfawa	0	0	0	0.294	0
Conscie	0	0	0	0.228	0
Selfest	0	0	0	0	1

Appendix F: ICDS model indicator means and standard deviations

Table F.1 shows the means (Mean) and standard deviations (SD) for each indicator in the ICDS model. Other descriptive statistics are also provided: Min (minimum value), Max (maximum value), Median (value separating the higher half from the lower half of the data), and Mode (value that appears most often). These statistics reflect the values obtained after the software's missing value correction was applied, whereby empty cells were filled with column means. Because of this, in cases where there were several empty cells prior to correction, the Mode equals the Mean.

Table F.1: ICDS model means, standard deviations, and other descriptive statistics

	Mean	SD	Min	Max	Median	Mode
WASA_Work	2.948	2.267	0	8	2	2
WASA_Social	2.277	2.152	0	8	2	0
WASA_Home	3.148	2.441	0	8	3	2
WASA_PrivLeis	2.858	2.413	0	8	2	0
WASA_Family	2.645	2.227	0	8	2	2
WSAS_scale	13.858	9.553	0	38	12	8
WASASGRouped	2.697	0.668	1	3	3	3
TSC_40scale	39.134	17.149	2	104	39.134	39.134
TSC_40Dissociation	5.857	3.407	0	18	5.857	5.857
TSC_40Anxiety	7.724	3.437	0	18	7.724	7.724
TSC_40Depression	10.806	4.778	0	26	10.806	10.806
TSC_40SATI	5.622	3.574	0	18	5.622	5.622
TSC_40Sleepdisturbance	9.071	4.009	0	18	9.071	9.071
TSC_40SexualProblems	4.962	4.02	0	23	4.962	4.962
IES_R	30.307	19.73	0	82	30.8	0
IES_R_Avoidance	1.292	0.9	0	3.375	1.38	0
IES_R_Intrusion	1.6	1.106	0	4	1.51	1
IES_R_Hyperarousal	1.223	1.002	0	4	1.143	0
IES_R_Average	1.378	0.897	0	3.727	1.4	0
IES_RGroup	1.91	0.84	1	4	2	2
HADS_Anxiety	11.179	3.81	0	20	13	13.24
HADS_ANXIETY2	2.394	0.857	1	3	3	3
HADS_Depression	7.183	3.405	0	17	8.05	8.05
HADS_positivesubscale	6.192	2.892	0	14	7	7.47
HADS_Negativesubscale	12.358	4.211	1	23	14.42	14.42
AS_SE	15.379	5.617	4	28	15.379	15.379
ROM_ATT_AVOIDANC	3.182	1.295	1.056	6.167	3	2
ROM_ATT_ANXIETY_	3.71	1.293	1.111	6.5	3.833	4.667
ROM_ATT_SEC2	19.871	8.57	-0.882	40.733	20.602	7.759
ROM_ATT_FEAR2	21.937	14.762	-13.218	58.384	23.357	2.145
ROM_ATT_PRE2	21.16	13.907	-12.217	54.053	22.996	1.096
ROM_ATT_DIS2	20.088	11.983	-6.51	48.88	20.088	5.929
Impulsivity	27.357	4.876	14	43	29	29.1
Avoidance	2.344	0.976	1.143	5.714	2.286	2.344
Intrusion	20.561	5.822	9	35	21	24.35
hyperarousal	18.587	4.842	9	34	18.25	21.08
Flight	20.322	4.167	12	32	20.32	22.67
Freeze	14.183	4.36	6	24	14.12	16.8
Fight	11.229	2.494	7	20	11	9
Dissociation	13.251	3.545	6	21	13.06	15.44
LLS	31.65	8.075	15	51	34	35.75

	Mean	SD	Min	Max	Median	Mode
Trauma	29.759	6.01	16	50	29.759	29.62
Anxiety	28.112	7.355	14	52	28	25.81
Negativity	98.512	19.532	48	146	106.28	106.28
Attachmentnegative	58.316	13.86	27	91	60.69	60.69
FPSs	32.5	5.889	19	49	32	35.88
CPS	25.867	5.261	13	43	26.25	26.25
FLSCTs	36.241	8.738	18	54	35	42.8
Defensivenerss	27.465	6.166	14	44	26.47	31.17
Positivity	73.574	8.548	49	94	73.1	73.1
Attachmentpositive	45.158	6.304	28	58	45.37	45.37
Selfawareness	41.79	5.42	28	56	42	42.55
Conscienntiousness	17.847	4.013	8	26	19	19.7
Selfesteem	14.913	3.566	6	24	15	12.74

Appendix XIV: Integrated Ethical Framework for Diagram x.2

Alexander (1996) highlighted key importance with the formal diagnosis:

1) PTSD diagnosis has given genuine credibility to much traumatic suffering.

2) It has stimulated a more open debate about the condition.

3) It has stimulated broader-based research activity.

Models--Problems:

1) No single model has achieved prominence for the reason none has been able to bridge all of the critical research material to survive criticism.

2) The problems of causation for differentiating acute versus chronic.

3) Equally, the contributing factors as to the cause of delayed onset are unknown (Alexander, 1996).

4) Findings that neuroticism and a past history of treatment of psychological disorder were better predictors of posttraumatic morbidity than the degree of exposure or the losses sustained—The problem is that however, these are identifiable etiological factors these do not provide information with enough precision to begin to understand what are the underlying factors that would likely explain internal psychological dysfunction, developmental difficulties, or social contextualization (MacFarlane, 1989).

Treatment—Problems:

1) There is little theoretical basis for treatment choices—especially as there are problems with the clarity of assessment, therefore this would affect treatment and making sure assessment and treatment decisions are correctly made.

2) Medications are equally not clear.

3) There is a confusion and failure to build on earlier findings and clinical experience.

The existence of measures those are construct-valid and widely adopted, with an effective feedback system.

Conceptualization—"How did I arrive at my conceptual framework?"

This is a challenging question as part of the work-based doctorate requires the in depth expertise within one specialist field. In part, after 15 years of clinical and research work at different levels helped to drastically change on the goals of the depth of vision I began in exploring this question of what is the relationship between vulnerability and resiliency within psychological trauma. The biggest change in crystallizing this change came from the findings from the principal component analysis (PCA) and the extremely significant results ($p<0.0001$). The centrality of negativity within the context of positivity and intelligence began a course of thinking that deeply had me revaluate the possible relationship of personality factors and character structure. This started me looking at underlying possible links including biology (with stress and resiliency factors and even looking at quantum mechanics).

How did I distinguish between factual and conceptual findings? First, using extremely meticulously examined research findings. The Data from this doctoral research has been relentlessly studied and checked. The high level of significance provides another layer of confirmation where the findings provided a space to try to check and further contextualize what these results could possible mean. This began a route to try to piece together the interrelationship between these three factors and returning to my clinical experience working with patients who had frequently very difficult times improving in regards to their symptoms. This began a process of self questioning of returning to trying to fundamentally reappraising, just like with the literature review and the pattern of key gaps being fundamental to improving the discipline itself, this work provided a significantly deeper space to understand this first examination. What repeatedly emerged from this stage of the work was the prevalence of negative processes and the pervasive

impact upon intelligence as well as conflict. In other words, intelligence becomes a space that has a polymorphic and developmental process. In a similar way to the findings about life events and traumatic experience this framework becomes a projective litmus test that distills the internal nature or a combination of the interaction of internal and external forces much like quantum mechanics. The examination of the bipolarity of the very close processes between vulnerability and resiliency link all of the way down to the micro quantum level as Brax et al, (2010) outline with the chameleon properties of dark energy. Brax highlights, "However, applying these constraints to chameleonic fields is not straightforward because the mass of the chameleon field depends on its environment" (p. 8). This is very true also of stress hormones that have a contextualized relationship that not only mortifies the neurochemistry, but the subjective perceptual processing equally is very malleable and dependent.

This project has opened up fields and interconnected fields that I had absolutely no idea that I would have any clue that I would be reading about and trying to piece together. Returning to the conceptual framework and being able to distinguish between these findings reaches to the serious problem that at most of these very hard science levels, like studied in physics, the inter-layer of intention and the observer effect appears to be a critical factor in nearly all of the outcomes from Schrödinger's cat to psychology experiments (see Tiller et al.'s, 2001 work). Whether it is bodily inflammation or interplanetary inflation, there are processes that cannot easily be controlled or accounted for by ordinary means. Why is it that some stress can be good for bone growth or plant hardiness, but others can contribute to a criss-cardiac event or stroke?

Statement of the Problem and Significance:

Problem 1: is how can we more affectively assess psychological trauma and understand underlying aspects of how to more affectively and successfully treat these issues. The significance of these changes needs to be understood on the individual level, the integration with the social processes, and how the conceptual tools need to be improved, as well as how these could impact the professional environment of trauma psychology as well.

Solution 1: By Looking at the gaps and areas of non-integration it provides a new methodology of looking at integrated meaning.

Problem 2: No integrated psychometric tests exists (as highlighted by Alexander, 1993) that can adequately manage the complexity of clinical material found in real treatment situations.

Solution 2: The STAT provides a valid and reliable psychometric platform that integrates the underlying theoretical and methodological insights to work to facilitate identifying, unlearning negative and detrimental multiple processes, and psycho-educationally helping to understand on individual and organizational levels to lower vulnerability and increase well-being and resiliency. This application provides a thoroughly worked through and applicable model that is being brought out onto the wider commercial market.

Problem 3: Many of the significant individual and social stress related problems of functioning and performance are obdurately difficult to reliably assess never-mind flexibly treat.

Solution 3: The STAT provides a cross validated reliable measure that has an integrated full spectrum levels of functioning for negative and positive scales that can be benchmarked across scores of 'very healthy,' 'ordinary,' 'clinical,' and 'severe' categories. Work is being done to validate the STAT psychometric via the BPS pathway approval. Further inquiry is being done to look at how to use modern structural equation modeling (SEM) for quantitative social dynamic modeling. The other two related significant aspects include the development of a Limited Liability Company—Psychological Systems Ltd. and this includes a new website, and specialty designed psychometric platform for assessment and treatment including a computer generated report. The test has been redeveloped for 5 different sections of psychological assessment covering diverse areas including: clinical psychology, education, extreme environments, hr/Organizational. Architectural—client interface, and Aesthetic Medicine.

Appendix XV—
Curriculum for U4U Course
Authors: Richard Sherry and Professor John Lumley
U4U Curriculum – based on 4 sequential levels of increasing complexity of knowledge and skills:
1. Individual: self understanding and support – 3 weeks (10 hours) with optional examination and certification
2. Carers of Individuals: 3 months (40 hours) examination and certification
3. Community Carers and Assessors: 1 year (180 credits) examination and diploma
4. Society Managers, Trainers, Educators and Researchers: 3 years (540 credits) examination and degree

The curriculum is cumulative over the four areas, but some themes cover a continuous spectrum from individual through community to national and international levels, with increasing complexity and influence on social structures – they are introduced piecemeal at the appropriate level – they include:
1. Vulnerability (including health challenges and disorders)
2. Responsibility, and ethical and legal framework
3. Systems analysis
4. Resources and infrastructure
5. Political engagement

Vulnerability and Systems management
Appendix 1
Vulnerability
Personal safety and security
Addiction: alcohol/drugs
Community ethnic and gender issues
Poverty, Illiteracy
Homeless
Physical/domestic violence
Crime
Human trafficking
Immigration
Environment/climate
Natural and man-made disasters
Displacement
Refugees
Health challenges:
Infection HIV/AIDS/Epidemic/Tropical
Mental disorders
Cardiac/Cancer/ other Lethal conditions

Systems
Need evaluation and assessment
Whether planned change by gradual exploration, development and evolution or
Intensive rapid transformation through creative alternatives with
Essential built in resilience and sustainability
Ensured continued monitoring and re-evaluation

LEVEL 1 - Understanding aging and self-help [10 hours]
Ages of man
Demography of UK population
Cultural and social traditions and changing values
Effect of advancing years on the individual/problems, needs and challenges

Health (Body Changes):
Nutrition/BMI diets
Fitness – exercise programmes
Disorders of each system, including mental state
Skills transformation
Activities
Vulnerability – safety/security
Economic issues/wealth management/pensions
Insurance, wills
Housing/share/care homes
Self-support, personal responsibility
Communication, basic IT
Dependence
Available support
 Local, national: government, commercial, voluntary bodies
Dying, sorting affairs, death, funerals

LEVEL 2 - Caring for Individuals [40 hours]
Attendance at a level 1 Course
Advocate of caring society
Knowledge of requirements for mental and physical systemic care
Activity, mobility and dietary promotion
Ethnic and cultural variation
Recognition of additional needs of cared individuals
Identifying level of care – intermittent/partial/full time
Knowledge of caring systems
Understanding Social Structure and available community resources
Links with local physiotherapists, district nurses and GPs
Ethical and legal responsibility
CRB Check
Value as a vehicle driver
Need for home adaptation
3 Monitored case studies, written up and presented
Linked to communal networks with fellow practitioners
Awareness of limitations
Responsibility for updating knowledge and skills

Level 3 – Social Care and Management Diploma [1 year]
For Monitors, Measurers and Management of Carers
Possible intercalated BSc
Attendance at Level 1 and 2 Courses
Historical and social anthropology
Care in the Big Society
Social and political issues
Political and media engagement
Charities/charitable law
Management studies
Business studies
Wealth management, pensions, insurance
Housing and architectural issues
Age-friendly and health awareness in public building
Assessing social and health needs in population
Including physical and mental handicap
Improvement measures

Disease prevention
Interventional models, their measurement and sustainability
Integrated health and comparative issues
Quality of Life measurement
Measurement of function
3-month placement in approved caring environment

Level 4 – Advanced Social Care and Management Degree [3 years]
Directed at Trainers, Educators, Researchers
Attendance at level 1, 2 and 3 Courses
History of Public Services and Public Health Systems
Comparison of Global Health Systems
Political, Geopolitical, Philosophical, Psychological Issues
Social Democracy in Health Care Delivery
Social Structures and the effects of collaboration, intervention, innovation and change on health care delivery
Epidemiological influences on Health Care
Population Vulnerability
Social Responsibility
Social engagement and exploration of alternatives in health care development
Training, Education, Research in Social Care
Further Business and Management modules
Leadership
Dissertation and presentation of a Research Project

Appendix XIV: Integrated Ethical Framework for Diagram x.2 (pg 174)

4) **Integrated Ethical Framework**: The three main systems of ethical theories themselves are critiqued. These include Utilitarian, Deontological, and Virtue Ethics and problems within the moral philosophical field are addressed to find resolution in developing a new integrated ethical model of compassionate developmental sustainability or ICDS Ethics. This innovation becomes the starting point with knowledge-claims for a comprehensive reintegrated ethical model that could offer a reasoned argument to work to prevent or resolve significant moral conflicts and how to build much more compassionate development. This strand of the project moves to help map improved integration of the health needs and balance of the individual and that of the organisation in more compassionate and sustainable relationships and better understanding how traumatic experiences may impact these eco-systems.

Appendix XVI: End Notes:

Koll'si   In critiquing both the present and possible future DSM diagnostic examination of PTSD[i] there are some changes, most notably a greater awareness of the developmental disordered component to PTSD, for example van der Kolk's developmental trauma disorder (van der Kolk and d'Andrea, 2010) that are likely to increase a more holistic approach the impact of distressing experience along with its biological and emotional consequences (for a full listing see appendix).

[ii] Marlow, *MSc Business Psychology*, Research Methods Lecture 3; Gray, 2007, *Psychology*, Chapter 2 Methods of Psychology

[iii] These points will be explored later in the paper.

[iv]   This average CAPS score might be layering together data scores that should have been examined as separate aspects of the test's results, which could possibly account for several standard scores (as outlined within the Findings chapter) not being significant.

[v] **How to define the Cut-off Points for the STAT Measures/Tests using ROC Curve**
The Receiver Operating Characteristic (ROC) curves are a useful way to determine and establish the related optimal cut-off points and interpret sensitivity and specificity levels of the new diagnostic measures. ROC curves are a generalization of the set of potential combinations of sensitivity and specificity possible for predictors. ROC curve analyses can mainly provide evidence about cut-off scores of the measures. An overall indication of the diagnostic accuracy of a ROC curve is the area under the curve (AUC). AUC values closer to 1 indicate the screening measure reliably distinguishes among students with satisfactory and unsatisfactory reading performance, whereas values at .50 indicate the predictor is no better than chance (Zhou *et al.* 2002).
In ROC Curve Analysis, *sensitivity* is defined as the capacity of an assessment instrument or measure to yield a positive result for a person with the diagnostic condition or attribute of interest (e.g. at Risk). Similarly, *specificity* reflects the capacity of an assessment instrument to yield a negative result for a person without a diagnostic condition or attribute (e.g. Not at Risk) (Glaros & Kline, 1988). Poor Sensitivity means a given cut-off produces a large number of false negative errors, meaning that some true malingerers go undetected. In contrast, poor Specificity results in higher numbers of false positive errors, which means that a legitimate case may be classified as invalid. Sensitivity and Specificity are directly dependent on the classification scheme (cut-off) employed with a given diagnostic technique and are independent of base-rates (Greve & Bianchini, 2004).

[vi] **Overview of the Principle Component (PCA) & Exploratory Factor Analysis (FA)**

Factor analysis (FA) is an interdependence technique of the Multivariate Data Analysis (MDA) reduces the large number of variables and serves to group this data into a smaller number of factors and as such is a "non-dependent" procedure. FA is also part of the general linear model (GLM) family of procedures and makes many of the same assumptions as the multiple regression analysis (Hair *et al.,* 2010).

Typologically, there are two types of factor analysis. *Exploratory factor analysis (EFA)* is used to uncover the underlying structure of a relatively large set of observed variables. This is the most common form of factor analysis. There is no prior theory and one uses factor loadings to intuit the factor structure of the data. In contrast, *Confirmatory factor analysis (CFA)* seeks to determine if the number of factors and the loadings of measured (indicator) variables on them conform to what is expected on the basis of pre-established theory. In general, EFA is a data-driven approach, while the CFA is theory-driven one (Hair *et al.,* 2010; Thompson, 2004).

Methodologically, there are several different types of FA, with the most common being principal components analysis (PCA). While FA is closely related to PCA, the two are not identical. Latent variable models, including factor analysis, use regression-modelling techniques to test hypotheses producing error terms, while PCA is a descriptive statistical method. Factor analysis is preferable when theoretical ideas about relationships between variables exist, whereas PCA should be used if the goal of the researcher is to explore patterns in their data (a sort of pattern recognition). Plus, PCA results in principal components that account for a maximal amount of variance for observed variables; Factor analysis accounts for common variance in the data (a technique for data reduction). Finally, In PCA, the components yielded are uninterruptable, i.e. they do not represent underlying 'constructs'; in FA, the underlying constructs can be labelled and readily interpreted, given an accurate model specification.

FA generates a table in which the rows are the observed raw indicator variables and the columns are the factors or latent variables, which explain as much of the variance in these variables as possible. The cells in this table are *factor loadings*. The factor loadings (component loadings in PCA) are the correlation coefficients between the variables (rows) and factors (columns). The squared factor loading is the percent of variance in that indicator variable explained by the factor.

In FA, the meaning of the factors must be induced from seeing which observed variables are most heavily loaded on which factors. This inferential labelling process can be fraught with subjectivity as diverse researchers impute different labels.

In this study factor analysis is employed, as Kim (2008) asserted, it is the most popular statistical procedure to identify symptom clusters in other disciplines (e.g., general medicine, psychology, psychiatry, and neuroscience). FA may identify groups of symptoms interrelated due to a common underlying source (factor) and it can be a good start for examination of a common cause or dimension of symptoms or indicators in fields like health psychology and psychiatry.

[vii]   "Thus, signalling through Y1 receptor on T cells inhibits T cell activation and controls the magnitude of T cell responses. Paradoxically, Y1–/– mice were resistant to T helper type 1 (Th1) cell–mediated inflammatory responses and showed reduced levels of the Th1 cell–promoting cytokine interleukin 12 and reduced interferon production. This defect was due to functionally impaired antigen-presenting cells (APCs), and consequently, Y1–/– mice had reduced numbers of effectors T cells. These results demonstrate a fundamental bimodal role for the Y1 receptor in the immune system, serving as a strong negative regulator on T cells

as well as a key activator of APC function. Our findings uncover a sophisticated molecular mechanism regulating immune cell functions that can lead to stress-induced immunosuppression" (Wheyway et al., 2005, abstracts, p.1).

^{viii} For example, in earlier versions of DSM, homosexuality was considered a form of psychopathology, where in more recent versions DSM IV TR (2000) this is thankfully no longer the case. It is possible the conceptualizations of the field of clinical psychology in the way that how psychopathology is looked at without weighing up strengths within the clinical formulation could also become part of professional working practice that would be in need of change and this difference highlights the biases that have operated within the profession and what innovations need to facilitate these problems from undermining good patient care.

In twin registry veterans' pre-morbid environmental factors were not found to be significantly causative for development of PTSD symptomatology (True et al., 1993). However, one glaring problem with many of these studies was that the other twin's exposure rate or stress level related to occupation was not controlled for within the research.