Creativity and the Measurement of Subclinical Psychopathology in the General Population: Schizotypy, Psychoticism and Hypomania?

The aims of the study were to investigate the roles of well-known psychopathology measures in predicting creativity, to assess the concepts of a multi-trait and single trait understanding, and to evaluate the role of latent measures of hypomania predicting creativity. Following the completion of a battery of questionnaires 203 participants completed two creative cognition tasks. Multivariate multiple regression analyses revealed significant effects for both schizotypy and the latent hypomania scales. Critically, these showed that some negatively (introvertive anhedonia, excitement, and social vitality) and others positively (impulsive nonconformity and mood volatility) predicted creativity. These findings suggest future avenues should evaluate the roles of mood, autonomy, and asociality in mediating the link between sub-clinical psychopathology and creativity. Further, research should both manipulate state and control trait mood when evaluating psychopathology and creativity.

1. Introduction

Empirical research has investigated clinical, sub-clinical and eminent associations between creativity and psychopathology (Glazer, 2009). This study focuses upon the link between sub-clinical indicators of psychopathology and creative cognition. Specifically, those affect- and psychosis-associated self-reports that have been found to predict performance in creativity tasks (Abraham, Windmann, Daum & Güntürkün, 2005; Claridge & Blakey, 2009; Furnham, Batey Anand & Manfield, 2008). The following review assesses the evidence supporting positive and negative associations between these measures and creative cognition.

1.1. Affect-Associated Links to Creativity

Empirical support for the affective-disorders hypothesis is found in both the biographical reports and the empirical research conducted on artists (Andreasen, 2008; Frantom and Sherman, 1999; Jamison, 2011; Santosa, Strong, Nowakowska, Wang, Rennicke & Ketter, 2007). This research suggests a positive association between the manic aspects of affect and creativity (Koutsantoni, 2012; Ramey & Weisberg, 2004). Research on employing non-clinical samples has also found that this aspect of affect positively predicts creativity (Claridge & Blakey, 2009; Furnham et al., 2008; LeBoutillier, Barry & Westley, 2014; Rawlings & Georgiou, 2004; von Stumm, Cheung & Furnham, 2011). A brief outline of these is presented below.

Furnham et al. (2008) found a significant positive association between hypomania (as measured by the Hypomania Personality Scale: HPS) and three measures of creative thinking. Furthermore, in an alternative latent class analysis followed by

multiple regression analyses von Stumm et al. (2011) reported that hypomania (using the HPS) significantly predicted creative achievement class membership. Further research conducted by Claridge and Blakey (2009) aimed to identify the particular aspects of affect that predict creativity. They found that affective temperament was significantly related to divergent thinking scores. Further analyses showed that both the hyperthymic (high energy and excitement) and cyclothymic (alternating high and low moods) measures were significantly positively related to fluency and originality scores. No significant findings were observed for depressive, irritable, and anxious aspects of affect. These findings suggest that an individual's affective temperament may play an important role in determining their creative abilities. Furthermore, the anecdotal, biographical and empirical literatures, all support a closer association between the bipolar aspects of affect than the unipolar features (Koutsantoni, 2012; Ramey & Weisberg, 2004).

To further understand the affect-associates we aim to employ the sub-scale measures of Eckblad and Chapman's (1986) Hypomania Personality Scale (HPS) that have recently been reported by Schalet, Durbin and Revelle (2011). These are of particular interest as they suggest that the HPS consists of three latent variables. One of these is linked to both the cyclothymic (mood swings) and the 'speeded' and 'racing' thought aspects of the hyperthymic features of affect (mood volatility). The second taps in to the 'giddy' and 'high' aspects hyperthymic (excitability) hypomania. The final measure taps in to an extroverted hyperthymic dimension (social vitality) of hypomania. Namely, the perceived ability to 'inspire', 'persuade' and 'influence' others. Observation of these measures (see Figure 1.) suggests that the mood volatility measure is more likely to positively predict creative

cognition than the excitability and social vitality measures. This is tentative but based upon the nature of the items that make up these latent variables.

1.2. Schizotypal and Psychotic Personality Links with Creativity

There is a comparable literature linked to the schizophrenia-associated aspects of psychosis. Research in to this area follows a similar format to that investigated by those interested in affect and creativity. However, there is a key difference in the interpretation of these disorders. Some argue that the association is related to a single personality construct (Eysenck, 1993, 1994) whilst others claim that the link is dependent upon multi-dimensional personality constructs (Mason, Claridge & Jackson, 1995). Both cases have investigated this relationship in the context of non-clinical samples. Research has observed a positive relationship between psychoticism and creativity in students and the general population (e.g. Abraham et al., 2005; Eysenck, 1994; and, Stavridou & Furnham, 1996). This has since been supported through a meta-analytic study that showed an overall small significant effect between the single Psychoticism construct and creativity across 32 studies (Acar & Runco, 2012). This supports Eysenck's (1993) notion that this measure is tapping in to an over-inclusive thinking style that is favorable to the generation of novel and creative ideas.

Much research has also reported a significant link between the multi-trait personality construct of the sub-clinical features of psychosis. One case that supports this construct is the observation that it is normally the positive subscales (unusual experiences

and impulsive nonconformity) that are linked to creativity (Batey & Furnham, 2008; Claridge & Blakey, 2009; LeBoutillier et al., 2014; Tsakanikos & Claridge, 2005). Justification for this is based upon notion that those who score high on these measures are more likely to, break conceptual boundaries, employ more problem solving strategies and to incorporate less relevant and socially acceptable ideas when completing creativity tasks (Burch, Pavelis, Hemsley & Corr, 2006; Stoneham & Coughtrey, 2009).

Conversely, a growing body of research suggests that the remaining schizotypy subscales (introvertive anhedonia and cognitive disorganisation) negatively predict performance on creativity tasks (Batey & Furnham, 2008; Claridge & McDonald, 2009; Nelson & Rawlings, 2008; Nettle, 2006; Schuldberg, 1990). These findings have been explained in the context of the reduced verbal fluency and the increased flattened affect associated with these subscales (Batey & Furnham, 2008) and thinking processes that favour convergence and inhibition (Claridge & Blakey, 2009; Nettle, 2006). These findings are also supported by a recent meta-analysis that failed to find many significant effects in an analysis of 45 studies (Acar & Sen, 2013). It did, nonetheless, report a small significant positive association between positive schizotypy and a similar negative association between introvertive anhedonia and creativity.

1.3. Aims of the Study

The aims of the present study are threefold. (1) Initially the authors aim to add to the empirical literature through the presentation of further research investigating the relationship between creativity and three measures of psychoticism, schizotypy, and hypomania. To explore the links between these variables in a large sample derived from the general public. (2) Further, the researchers aim to investigate the link between the multi-trait and single-trait construct understanding of the schizophrenia-associate measures and creativity. The researchers are specifically interested in examining positive, negative and asocial aspects of the schizophrenia-associated measures. It is expected that both the psychoticism and the positive schizotypy measures will predict performance on both verbal and figural measures of creativity. It is also proposed that the introverted anhedonia (more tentatively cognitive disorganization) will negatively predict performance on these tasks. (3) It is hard to predict links between the latent hypomania variables and performance on the verbal and figural creativity tasks. It may be tentatively proposed that mood volatility may positively predict performance. However, there is little in the previous literature to guide these findings.

2. Method

2.1. Participants

Two-hundred and three volunteers in the North London region took part in the study. There were 102 females and 101 males. Age ranged from 16-70 years old with a mean age of 30.44 years old (standard deviation=11.64). Participants were recruited from the general public. All participants were native English speakers living in London (UK) and were recruited through snowballing personal contacts of the data collection team. Four participants failed to complete all of the measures and were removed from further analyses.

2.2. Materials and Procedure

Following institutional ethical approval the materials were collected over two sessions. In the first session the participants completed the mental health questionnaires. In the second session they completed the creativity tests. All participants completed the self-report measures on their own. Creativity tests were recorded either individually or in groups of no larger than five participants. The following tests and questionnaires with derived subscales are described below.

2.2.1. The Shortened Oxford –Liverpool Inventory of Feeling and Experiences (O-Life: Mason, Linney & Claridge, 2005). This 43 item dichotomous self-report questionnaire measures four aspects of schizotypy: unusual experiences (UE); cognitive disorganization (CD); introvertive anhedonia (IA); and, impulsive Nonconformity (IN). Internal reliability measures for these reports

were measured using Cronbach's alpha. These ranged from acceptable to very good internal consistency: UE (α=.83); CD (α=.82); IA (α=.63); and, IN (α=.63).

2.2.2. The Shortened Eysenck Personality Questionnaire (EPQ: Eysenck, Eysenck & Barrett, 1985). This 48-item questionnaire measures three aspects of personality: psychoticism, neuroticism and extraversion. It also contains a 12-item lie scale that measures social desirability. The psychoticism measure (P), which records solitary, antisocial, unempathetic and unconventional characteristics, was used in the present study as a single-trait measure of psychoticism. A Cronbach's alpha internal reliability analysis showed acceptable internal consistency (α=.63). The remaining EPQ subscales were not investigated in the present study.

2.2.3. Hypomania Personality Scale (HPS: Eckblad and Chapman, 1986). This 48 item dichotomous (yes/no) self-report measure was used to assess thymotic characteristics. For the purpose of deriving a fuller understanding of the HPS (in the context of the mediating effects of sociality and mood) and creativity Schalet et al.'s (2011) three subscales of social vitality (SV), mood volatility (MV) and excitement (Ex.) were recorded. Previous research has shown that these related clusters measured independent aspects of hypomania. Cronbach's analyses showed that these scales yielded acceptable to good internal reliability: SV (α=.73); MV (α=.68); Ex. (α=.76).

2.2.4. The Creative Visualization Task (CVT: Finke, 1990). This modified version employed the stimuli from the original task reported in Finke and Slayton (1988) but used the scoring procedure outlined in Finke (1990); the choice of stimuli was based upon observations of ease of task performance during piloting. Fifteen shapes on separate cards were placed face-down and participants were required to randomly select three shapes and memorize them for a one-minute period. The shapes were then withdrawn and the participants were given one minute to combine the figures. The rules for integration were specified:

1. You can rotate the stimulus parts

2. You can change the size of the stimulus parts

3. You cannot change the basic shape of the stimulus parts

Two judges were informed about the nature of the task and were asked to make three judgments about each composite form. The first task was to identify the number of appropriate responses on the basis of:

1. Integration of all of the parts

2. Did not include other shapes

3. A title was provided

4. The object or scene fulfilled minimal correspondence with the title

If the response was judged to be appropriate the raters were required to state the correspondence of the form and whether or not they thought the composite form was creative. Pearson's product-moment correlations showed Inter-rater reliability coefficients exceeded 0.8 in all measures.

2.2.5. The Alternate Uses Task (AUT: Guilford, 1967). The researchers followed the standard format for the administration of the AUT. Participants were required to generate alternate uses for the following household products: bucket, chair, newspaper, paperclip, and rope. They were given three minutes for each product. The responses were scored for fluency and originality. Fluency scores represented the total number of responses given. Originality scores were determined by frequency of overall response. Hence, responses given by 5% of the participants were awarded a point and those given by 1% two points. Loquacity effects were adjusted by dividing total originality scores by total fluency scores. The fluency and originality measure were included in the analyses.

3. Results

3.1. Descriptive Statistics and Correlations

Descriptive statistics and Pearson's product-moment correlation coefficients between the target variables are shown in Table 1. These showed to-be-expected positive significant associations between these measures of creativity. In order to avoid repetition

(see Table 1.) the CVT Correspondence scores were removed from further analyses. The same procedures were conducted for the predictor variables (see Table 2.). These also show a large number of significant positive associations between the hypomania, schizotypy and psychoticism measures.

INSERT TABLE 1 ABOUT HERE

Pearson's r correlation coefficients between the predictor and target variables are presented in Table 3. In contrast to previous research the majority of the observed significant associations between the sub-clinical psychopathology and creativity measures were negative. This was expected for the introvertive anhedonia and cognitive disorganization (with AUT fluency) measures but not for the psychoticism, social vitality, and excitement variables. Indeed, there was only one significant positive association between the variables impulsive nonconformity and AUT fluency.

INSERT TABLE 2 ABOUT HERE

As creative thinking tasks tend to produce significantly correlated measures and because the study included a large number of target variables (inflating the error rate) multivariate multiple regression analyses were conducted. In total, four analyses were performed. Two for each for the psychosis-associated and affective-associated variables to predict figural (CVT) and verbal (AUT) creativity.

3.2. Multivariate Regressions Employing the Schizotypal and Psychotic Personality Predictor Variables

In order to understand the unique role of the psychosis-associated variables the EPQ psychoticism and the measures of schizotypy were employed as predictor measures for the verbal and figural creativity measures. The tolerance values for these predictors were above 0.10 indicating that the multicollinearity assumptions had not been violated. This showed an overall significant Wilks' Lamda multivariate effect on the target verbal creativity measures ($F(10,380)=3.20$, $p=.001$). Univariate analyses revealed that the psychosis-associated variables significantly predicted AUT fluency ($F(5,190)=5.05$, $Adj.R^2=.094$, $p<0.001$) but not AUT originality ($F(5,190)=1.36$, $Adj.R^2=.009$, $p=.243$). Parameter estimates for individual predictors on the fluency measure are presented in Table 4. These show that impulsive nonconformity positively and introverted anhedonia negatively predicted this measure. Neither, psychoticism, cognitive disorganisation nor unusual experiences predicted scores on the AUT measures.

INSERT TABLE 3 ABOUT HERE

Further analyses were conducted using the figural CVT measures as the multivariate dependent variables. Tolerance measures were again above 0.10 showing that multicollinearity assumptions had not been violated. This showed an overall significant Wilks' Lamda multivariate effect for the psychoticism predictors (F(10,386)=1.88, p=.047). However, exploration of the univariate effects showed that these variables did not combine to produce significant effects for either the fluency (F(5,193)=0.92, $Adj.R^2$=.022, p=.469) or the originality (F(5,193)=0.96, $Adj.R^2$ = .001, p=.441) measures.

INSERT TABLE 4 ABOUT HERE

3.3. Multivariate Regressions Employing the Affect-Associated Predictor Variables

The same models were applied to include the three sub-scale measures derived from the Hypomania scale, namely, social vitality, mood volatility and excitement (Schalet et al., 2011). Once again, tolerance values for these predictors indicated that multicollinearity assumptions had not been violated. Analyses of the verbal creativity task (AUT) showed a significant Wilks' Lamda multivariate effect, (F(6, 382)=3.04, p=.007). Moreover, when the affective-associated predictor variables were assessed

independently for each target variable significant effects were found for both the verbal fluency (F(3,192)=3.27, $Adj.R^2$ =.03, p=.022) and especially for the verbal originality (F(3,192)=4.89, $Adj.R^2$ =.06 p=.003) measures. Further analyses on the influence of the predictors on each of the univariate target variable are presented in Table 5. In summary these show that the three affective associated variables predicted verbal fluency and originality. Interestingly, two of these (social vitality and excitement) negatively predicted and one (mood volatility) consistently positively predicted verbal creative performance on the AUT measures. A final analysis showed that the affective-associated variables did not predict performance on the figural CVT creativity task (F(6,390)=0.47, p=.830). Consequently, this concluded the results section and no further analyses were conducted.

INSERT TABLE 5 ABOUT HERE

4. Discussion

These findings add to an understanding of the link between measures of sub-clinical psychopathology and creativity in the general population. They suggest, firstly, that measures of sub-clinical psychopathology positively and negatively predict creativity; secondly, that they should be understood as multi-trait variables, and finally that the mood and sociality measures of hypomania

may be important latent predictors of creativity. The following discussion reviews the univariate and multivariate findings in the context of previous and future research.

4.1. Schizotypal and Psychotic Personality Variables

The initial multivariate multiple regression analyses employed the schizophrenia-related predictors of mental illness, namely, psychoticism and the four schizotypy measures. The finding that impulsive nonconformity positively predicted creative cognition concurs with previous research (Batey & Furnham, 2008; Burch et al., 2006; Claridge & Blakey, 2009; O'Reilly, Dunbar & Bentall, 2001, Shuldberg, 1990). These findings also accord with Acar & Sen's (2013) meta-analytic review of the relationship between schizotypy and creativity that found that impulsive and unspecified schizotypy showed a small but significant positive effect. The finding that introverted anhedonia is negatively linked to verbal creativity was also found in previous research (Batey & Furnham, 2008; Claridge & Blakey, 2009, Nettle & Clegg, 2006; Schuldberg, 1990). Whilst some previous research showed the opposite effect (e.g. Cox & Leon, 1999) for introverted anhedonia these results concur with Acar and Sen's (2013) meta-analytic finding that there was an overall negative relationship between this variable and creativity.

Two of the measures of psychosis-related psychopathology that are frequently linked to creativity but were not significant in the multivariate analyses presented in this study were Mason et al.'s (2005) unusual experiences and Eysenck et al.'s (1985) psychoticism. Unusual experiences has often been linked to creativity (Batey & Furnham, 2008; Claridge & Blakey, 2009;

LeBoutillier et al., 2014; Nelson & Rawlings, 2008; Nettle, 2006; Nettle & Clegg, 2006). The present findings may be explained by the use of performance measures of creativity. For example, some of these studies (Batey & Furnham, 2008; Claridge & Blakey, 2009; and Nettle & Clegg, 2006) employed self-report and biographical measures of creativity. Similarly, others have investigated the link in either specific creative samples or through mediating variables (LeBoutillier et al., 2014; Nettle, 2006; Nelson and Rawlings, 2008). For example, Nelson and Rawlings (2008) observed the link between unusual experiences and the phenomenology of creativity in artists. Consequently, the present findings do not show that there is not a link between unusual experiences and creativity but that that the association is not straightforward and may not occur with the present sample and protocol.

The finding that the psychoticism variable did not predict creativity (and was also negatively related to one of the measures of creativity) is harder to explain. The opposite of this finding has been observed in a range of studies (Abraham et al., 2005; Eysenck, 1994; Joy, 2008; and, Stavridou & Furnham, 1996) and a recent meta-analytic review found an overall small positive significant effect (Acar & Runco, 2012). Given the general nature of a meta-analysis it is difficult to compare the present sample and protocol with the moderating variables presented in their review. What is notable, however, are the differences in effect reported by age of the participants in Acar and Runco's (2012) study. This suggests that the relationship between psychoticism and creativity may be partially determined by the age of the participants. They found that significant effects tend to appear in those

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studies employing student samples and disappear in those with older samples (age 30 years plus). Overall the present findings suggest that a multi-trait understanding (the schizotypy sub-measures) of the link between psychopathology measures and creativity enables better predictive validity than a single-trait psychoticism understanding in a non-student population.

4.2. Affect-Associated Variables

The most interesting finding in this study came from the analyses that employed the latent affective disorder measures developed by Schalet et al. (2011) as predictors of creativity. Observation of the multivariate analysis of the AUT creativity measure showed that social vitality and excitement negatively and mood volatility positively predicted scores on this creativity measure. Several tentative suggestions emerge from these findings. The first is that previous researchers, in using a combined measure of hypomania may have inadvertently combined one positive and two negative latent predictors of creativity. The second is that these findings may be tapping into normal functions of non-clinical traits that happen to be enhanced in people with mental health issues. These are discussed in the context of well-known aspects of mood and personality that are also associated with creativity and cognitive performance.

Initial discussion should be grounded in the observation that these effects are small, accounting for less than 4% of the variance in the data. However, they are interesting to the extent that they partition the supporting roles of aspects of affect. Close

inspection of Schalet et al.'s (2011) analysis of the structure of the Eckblad and Chapman's (1986) HPS reveals an often over-looked aspect of the measure, namely, that two parts of it (excitement and mood volatility) measure mood traits and the other how you perceive yourself in the context of others (social vitality).   This becomes clearer when you list the highest loading items on these measures reported by Schalet et al. (2011).

One potential explanation for the positive association between the AUT and the HPS mood volatility variable is that it is tapping in to a well researched association between positive mood and creativity. As Hirt, Devers and McCrea state:

"When are we most creative? Arguably, the most heavily researched predictor of creativity within the social psychological literature has been mood. One of the more robust findings has been that positive mood leads to greater creativity." (2008, p.214).

The mood volatility effect is also supported by this literature as research has shown that both negative and positive moods predict creativity (Gasper, 2003; George & Zhou, 2001, 2002; Kaufmann & Vosburg, 1997). Here it may be argued that those people who report a higher mood volatility trait were more likely to experience stronger negative or positive states when they completed the task. These may facilitate creativity. This is also supported in the biographical literature where both negative and positive states have been linked to history-making creativity (Akinola & Mendes, 2008).

A further question that arises is why does the cyclothymic (mood volatility) positively predict creativity when its companion hyperthymic variable (excitement) is negatively linked? This is especially interesting given the strong association between these

variables. This is a difficult question but there is a nuanced difference between the two measures. The excitement variable leans toward a state arousal (giddiness, anxiousness) whereas the mood volatility variable lends more to persistent fluctuations in mood.

As there is little reference to these measures explanations are weak. Furthermore, there are no credible associations found in Schalet et al.'s (2011) research to support a significant negative association between excitement and creativity. Indeed, they found significant positive associations between this measure and those of extraversion, openness, and absorption, all of which are often linked to creativity. Furthermore, observation of the correlations between the three HPS variables shows that excitement is strongly related to both mood volatility and social vitality. Further research should investigate this intricate link between both positive and negative predictors of verbal creativity. This could require the inclusion of measures that have previously been investigated in the context of hypomania but not creativity. These should include extraversion, openness and absorption.

An initial observation of the items that load highest on the hyperthymic social vitality variable offers little insight in to why this variable is negatively related to creativity (see Schalet et al., 2011). In order to glimpse potential explanations it is necessary to look at the broader literature on creativity. Ironically, the literature suggests that this measure should be linked to individual differences (e.g. motivation, impression management, and social facilitation) that are positively associated with creativity tasks (Amabile, 1985; Barron & Harrington, 1981; Uziel, 2010). An alternative explanation may be that the negative association found with social vitality is

indirectly linked to the need for creative people to be autonomous and independent from the group. The need to detach yourself from opinion is as important as the well-researched requirement to be open to other views (Feist, 1988).

4.3. Limitations and Future Research

The findings related to the psychoticism and the creative cognition measures reveal an evident, but often overlooked, observation that there are negative and positive associations between sub-clinical psychopathology measures and creativity. These have not always been highlighted in the previous literature but should be investigated further. Future research may offer a resolution to the counter-claims of those who argue that we should be celebrating, not pathologizing, creativity (Schlesinger, 2012).

This study represents an initial understanding of the link between the three latent measures of hypomania and creative cognition. As such they are limited in the contexts of both the sample and the selected creativity tasks. The positive and negative mood-related measures require research that explores the relationship between ratings on sub-clinical psychopathology measures, manipulations of mood, and performance on creativity tasks. For example, it may be beneficial to merge the mental health and mood protocols to evaluate the effects of state and trait mood variability on creativity. Finally, these findings complement the significant negative effect found with the introverted anhedonia measure that taps in to a flattened affect. Furthermore, they suggest that both the schizotypy and the hypomania mood variables should be conceptualized in a unitary multi-trait understanding of creativity and psychopathology. Further research is required to understand these relationships in the context of creativity.

With respect to the hypomania social vitality variable the present findings suggest a paradoxical stance between openness, social vitality and creative cognition that requires further investigation. Whilst there are associations between the three variables, research suggests that these are intricate relationships. These findings may, on initial reading, conflict with the previous research (Furnham et al., 2008; George & Zhou, 2001; and, Miller & Tal, 2007). However, if these variables are explored in detail it may be the case that social vitality is tapping in to the wrong parts of openness, absorption, and extraversion. Further research that incorporates all of these variables is required to understand these associations. Finally, these results again link to the findings found with the psychosis-associate variables. As with the mood volatility variable they suggest a unitary multi-trait understanding or the 'madness-genius' debate. Further research is also required to investigate the potential mediating role of asociality and autonomy in this debate. This may be achieved through the employment of alternative measures of personality linked to social vitality and openness; e.g. independence, sociability, social discomfort, emotional detachment, liberalism, and positive expressivity.

4.4. Conclusion

So do the analyses on the psychosis and affect measures merge? Impulsive nonconformity and introverted anhedonia (asocial-schizotypy), mood volatility, excitement and social vitality all significantly predict creativity in different but inter-related ways. It is possible to view these as expressions of mood and personality. It may be that underlying all of these measures is

openness (or a closedness) to new ideas and the sovereignty (or dependence and indifference) to create. These ideas are speculative but offer prospects for future research and analyses.

The aim of this research was to investigate the link between three well-researched measures of sub-clinical psychopathology and two measures of creativity. The key findings were firstly, that impulsive nonconformity positively and introvertive anhedonia negatively predict verbal creativity. The second finding, that the latent variables derived from the HPS both positively and negatively predict performance on verbal creativity, offers a new insight in to the study of hypomania and creativity. Future research should confirm, clarify and improve our understanding of these findings. There are many measures and protocols that could be used to further an understanding of these variables. Research should explore the potential mediating effects of alternative mood and personality measures that may be linked to the schizotypal and affect psychopathologies. It should also consider the well-known measures (e.g. openness and absorption) linked to creativity.

Table 1.

 Descriptive Statistics and correlations between Target Creative Cognition Variables.

Variable	Mean	St. Dev.	1	2	3	4
CVT Fluency(1)	6.81	4.15				

CVT Correspondence (2)	17.71	12.36	.91***			
CVT Originality (3)	5.21	3.52	.88***	.91***		
AUT Fluency (4)	39.96	14.38	.42***	.47***	.49***	
AUT Originality (5)	0.54	0.53	.36***	41***	.41***	.55***

Note. N=199; *p < .05. **p<.01. ***p < .001; AUT means Alternate Uses Task; CVT means

Creative Visualization Task.

Table 2.

Descriptive Statistics and correlations between the Affect and Psychosis

Variables.

Variable	Mean	St. Dev.	1	2	3	4	5	6	7
Social Vitality (1)	8.35	3.76							
Mood Volatility (2)	7.19	3.12	.37***						
Excitement (3)	3.03	2.22	.39***	.56***					
Unusual Experiences (4)	4.73	3.29	.16*	.48***	.30***				
Cognitive Disorganization (5)	5.08	3.09	.09	.41***	.24***	.42***			
Introvertive Anhedonia (6)	2.46	2.12	.03	.16*	.15*	.14*	.24***		
Impulsive Nonconformity (7)	4.44	1.90	.23**	.47***	.31***	.34***	.39***	.08	
Psychoticism (8)	3.62	2.15	.27***	.20**	.23**	.13	.13	.23**	.37***

Note. N=199; *p < .05. **p<.01. ***p < .001; AUT means Alternate Uses Task; CVT means Creative Visualization Task.

Table 3.

Correlations between the Affect and Psychosis Predictor and Creative Cognition Target Variables

Variable	AUT Fluency		AUT Originality		CVT Fluency		CVT Originality	
Social Vitality	-.10		-.19	**	-.05		.01	
Mood Volatility	.02		.04		-.03		-.13	
Excitement	-.16	*	-.13		-.07		.03	
Unusual Experiences	.12		.07		.02		-.09	
Introvertive Anhedonia	-.27	***	-.06		.14	*	.11	
Cognitive Disorganization	.002		.05		.05		-.22	**
Impulsive Nonconformity	.16	*	.14	*	-.01		-.06	
Psychoticism	-.06		-.19	**	.08		-.02	

Note. N=199; . *p < .05. **p<.01. ***p < .001; AUT means Alternate Uses Task; CVT means Creative Visualization Task