

# **Stressful Eating Indulgence by Generation Z: A Cognitive Conceptual Framework of New Age Consumers' Obesity**

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**Purpose:** To delineate the phenomenon of stressful eating within generation Z due to the times they are living in. To extract propositions which elucidate phases of stressful eating within Zers.

**Methodology:** Based on relevant literature on consumer obesity, theories of pure impulse buying and reasoned action, cognitive constructs eminent for reasoned conditioned behaviour is extracted. Followed by extraction of the reasoned conditioned behaviour and its cognitive constructs within Zers. Thereafter a conceptual framework is developed with propositions of stressful eating within Zers.

**Findings:** Zers indulge in reasoned conditioned behaviour initially owing to their healthy understanding insights, and the activations of cognitive capacities within them due to the law of effect. The law of effect is cyclical after the first reasoned consumption among Zers, leading to obesity and constricting self-controlling behaviour.

**Originality Value:** It is the first study that provides a deep understanding of the cognitive mechanism orienting generation Z's stressful eating indulgence even though they have higher healthy lifestyle understandings.

**Keywords:** Obesity, Generation Z, Stressful Eating, Theory of Reasoned Action, Pure Impulse Buying, Law of Effect

**Paper Type:** Conceptual

## Introduction

Stress and obesity have been linked according to Tomiyama (2019) via many pathways. For instance, “First, stress interferes with cognitive processes such as executive function and self-regulation. Second, stress can affect behaviour by inducing overeating and consumption of foods that are high in calories, fat, or sugar; by decreasing physical activity; and by shortening sleep” (Tomiyama, 2019, p. 2). Michels (2019) highlights that psychosocial stress, uncontrolled eating and obesity are three interrelated concepts currently present in youth. There is also a strong notion among consumers that “dieting is successful only for short periods” (Luttikhuis *et al.*, 2009) which makes them indulge rather than refrain from eating and developing a belief that obesity is bulletproof to treatment (Michels, 2019).

Zers are more stressed and anxious than adults overall (APA, 2018; Bethune, 2019). Literature indicates that Zers are transforming the snacking industry (Bumbac, 2020; Segmanta, 2021). A recent study reported that 36% of generation Z individuals are emotional snackers. According to Segmanta’s (2021) study, 51.7% of the interviewed generation Zers mentioned that snacking satisfied an unknown craving and 34.9% reported that it helps deal with stress. Reports demonstrate that generation Z individuals are driven to consume food due to their “negative emotions” rather than “positive emotions” (Britain Thinks, 2021; FSA, 2019; Mintel, 2018; Sprake, 2018). Research indicates that when eating because of negative emotions, individuals of generation Z are 80% more likely to consume snack cakes, 65% more likely to snack on chocolates and 51% more likely to snack on candy (Segmanta, 2021).

Literature accentuates that emotionally driven snackers, especially negative emotion driven ones, prefer accessible snacks and food rather than healthy ones (Bumbac, 2020; FSA, 2019). For example, “For emotional snackers, the accessibility of a snack (45%) is much more important than its health (25%), while for non-emotional snackers, health and accessibility factors are of similar importance (29%)” (Segmanta, 2021). Among Zers, eating out or a takeaway from a fast-food restaurant was at 77%, after any activity such as classes or work (Britain Thinks, 2021). Furthermore, the percentage of those surveyed that ordered from a fast-food restaurant after work/university was at 50% and bought food or drink from a cafe or sandwich bar was at 49% according to FSA’s (2020) report on gen Zers. According to Cuevas *et al.* (2019), “Multiple types of stressors may be risk factors for obesity, and cumulative exposure to these stressors may increase the odds of obesity” (Cuevas *et al.*, 2019, p. 2). Moreover, a report by Bingham Memorial Hospital suggests, “Generation Z is dealing with increase in divorces, moves, multitude of societal changes, deaths, immense peer problems owing to social media causing lower self-esteem and depression leading to

unhealthy food consumption” (Bingham Memorial Hospital, 2017). Specifically, for example, factors such as sedentary lifestyles and poor dietary practices, can combine to increase obesity propensity (Cuevas *et al.*, 2019; Hruby and Hu, 2015).

Additionally, several literatures recommend that stress increases the danger of being overweight and obese via psychological and behavioural streams (Ouakinin *et al.*, 2018; Tomiyama, 2019). For instance, increase in stressful life occurrences are related with an increase in anxiety and depressive symptoms (Hammen, 2005) and individuals with depression are at a higher risk of obese weight gain in contrast to those without stress-induced depression (Luppino *et al.*, 2016). Exposure to stressors can increase the release of hormones, inducing the appetite toward high in sugar and fatty foods (Scott *et al.*, 2012). In this regard, for Zers as a cohort, whilst reports indicate and suggest their consumption of such obesity-orienting foods (Bumbac, 2021; FSA, 2021; Segmanta, 2021) none of the reports suggest why and how Zers, although knowing the aid of healthy eating (Vennare, 2019) succumb to such a behaviour in light of stressful exposures. This, therefore, raises the question: what cognitive construct enables such a behaviour that is based on consumption even though Zers understand the repercussions? This paper, therefore, focuses on delineating the phenomenon of stressful eating within Zers (i.e., the why and the how) due to the times they are living in by way of a cognitive conceptual paradigm. Further, the paper extracts propositions elucidating the phases of stressful eating within Zers. Thus, this paper fills the following gaps. First, extant consumer obesity literature has not focused on stressful eating as a phenomenon to be understood with differential cognitive explanations from a new age cohort perspective (Epel *et al.*, 2019; Halasi *et al.*, 2021). Second, several reports indicate how stress causes obesity, as well as what causes stress in Zers, but this has thus far not been mapped together into a conceptualisation that explains an obesity-inducing reasoned indulgence with a resulting cyclical process within the new cohort of consumers (Colak and Pap, 2021; Yasmin *et al.*, 2021). Consequently, this paper provides several contributions in terms of consumer obesity literature for the new age cohort. For instance, first, an extraction of theoretical and conceptual premise detailing what psyche causes stressful eating indulgence within a highly cognitive upcoming cohort – Zers which extant literature has a dearth of information about (Halasi *et al.*, 2021; Yasmin *et al.*, 2021). Second, an extensive elucidation of how theory of reasoned action from a food consumption perspective encapsulates pure impulse buying from an affective standpoint (Smith and Robbins, 2013) which in terms of consumer obesity has not been addressed (Epel *et al.*, 2019; Robinson *et al.*, 2020). Third, due to the understanding of the cognitive mechanisms of the law of effect in

relation to stress, the paper accentuates how stressful eating becomes a habitual practice after the first instance – i.e., a cyclical process within Zers (Davis and Carter, 2009; Pelchat *et al.*, 2004). This demonstrates the difference in cognition for Zers to previous generations (APA, 2010; Epel *et al.*, 2019).

From a managerial perspective, firstly, the paper's conceptualisation can aid food manufacturing managers to identify and tap into an under-served market (Cuevas *et al.*, 2019). Secondly, it also equips gyms and other recreational centres like martial arts centres to address and tap into the needs of Zers (Doctor NDTV, 2018). These types of businesses can provide a safe and friendly atmosphere, where gen Z cohort aid each other and have a community feel, while also enhancing Zers' capability to deal with bullying and providing adequate eating diets, and exercise regimen to support holistic development via the business's expertise (Cision, 2019) much needed to curb this stressful eating phenomenon.

From a societal perspective, the stressful eating cognitive conceptualisation for a new age cohort, aids in providing the ability for governments, NGOs and other healthy lifestyle institutes to design of appropriate obesity intervention plans (Cardel *et al.*, 2021; Epel *et al.*, 2019; Tomiyama, 2019) with an insight of where and how to intervene.

## **Conceptual Background**

### **Consumer Obesity**

According to a 2020 report by WHO, "In 2019, an estimated 38.2 million children under the age of five years were overweight or obese. Over 340 million children and adolescents aged 5-19 were overweight or obese in 2016. Overweight and obesity are linked to more deaths worldwide than underweight" (WHO, 2020). The fact that the World Health Organization (WHO) includes overweight and obesity in the same frame of reference can be linked to the understanding that individuals with a Body Mass Index (BMI) of 25.0-30.0 are considered overweight and 30.0 and above is obese according to the Centre for Disease Control and Prevention (CDC) (CDC, 2021). Furthermore, literature indicates that being obese and overweight both indicate having more body fat than what is considered healthy (National Kidney Foundation, 2021). Extant literature indicates that overweight and obesity are adopted by scholars within obesity studies and journals in the same frame of reference, as the BMI limit of one is the start of the other i.e., limit of being overweight is the start of reading to determine one's obesity (Boutelle *et al.*, 2021; Bradford, 2009; Cardel *et al.*, 2021; Carraca *et al.*, 2021; Dian and Triventi, 2021; Garcia-Gamboa *et al.*, 2021; Harton *et al.*,

2021; Ma *et al.*, 2020; Williams *et al.*, 2015). Therefore, we use a similar frame of reference for this conceptual paper too.

Obesity is usually estimated by an individual's BMI (Ritchie and Roser, 2017). BMI, "is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults. An individual with a BMI between 25.0 and 30.0 is considered to be 'overweight'; a BMI greater than 30.0 is defined as 'obese'" (CDC, 2021; Michels, 2019; Tomiyama, 2019). From a consumer behaviour and obesity perspective, studies demonstrate that stress and eating behaviour should be studied in terms of psychology and cognitions persuading such behaviour (British Psychological Society, 2019; Debeuf *et al.*, 2018; Hruska *et al.*, 2017). Literature suggests that most consumer obesity studies have focused on eating behaviours, diets, and food package labelling (Placzek, 2018; Richter, 2020; Robinson *et al.*, 2020). Research indicates that consumer obesity has been studied from a physical activity indulgence and/or sedentary life perspective (World Obesity Federation, 2017) and also from a taxation policy to curb indulgence in sugar and fatty foods perspective (Moore *et al.*, 2019). Extant literature on consumer obesity highlights insights into factors that affect obesity and intervention programs (Hill, 2021; Rabeea *et al.*, 2019). Most studies have focused on the stigma related to obesity and its effects (Askegaard *et al.*, 2014; Rodhain and Gourmelen, 2018). A recent case study highlighted factors affecting fast-food consumption (Utama *et al.*, 2020) and delineated therein that "taste, fast service, easy access and value for money" directed such consumption. Another study of the Slovak population in 2019 focused on healthy lifestyle preferences and the impact of consumer behaviour in obesity prevention and preference (Klepchova *et al.*, 2019). A recent 2020 study focused on YouTube videos and unhealthy food consumption (Castello-Martinez and Tur-Vines, 2020) leading to childhood obesity.

However, first, such factorial understanding is more quantitative and externally attributable. Second, currently Zers are known to be adept in healthy consumption understanding (Halton, 2020; Phaneuf, 2020; Walters, 2019). Having said all this, they are also the ones who consume the most unhealthy foods owing to their lifestyles (Britain Thinks, 2021; FSA, 2019). This therefore raises the main question in the focus of this paper: what cognitive construct enables such a behaviour that is based on consumption even though they understand the repercussions?

## **Generation Z and Consumer Obesity**

Zers constitutes individuals born from 1995 to late 2010 (most commonly agreed) (Dimock, 2019; Kamenidou *et al.*, 2019; Priporas, 2020). According to Scholz and Vyugina, “Gen Z are self-actualized based on Maslow’s hierarchy of needs as they want to know, to be able to understand and to explore” (Scholz and Vyugina, 2019, p. 278). According to Karla, “Generation Z are facing the dangers of obesity at an alarming rate.” (Karla, 2017). A study examining body mass index (BMI) across all five living cohorts in the UK (Zers, Millennials, Generation X, Baby Boomers and Pre-War) predicted that Zers have already developed a higher probability than older generations of becoming overweight or obese when they are adults (Johnson *et al.*, 2015). The Health Insurance Group’s 2019 report on Zers suggests that “Lack of exercise (explained partly by their love for social media and related isolation) and poor diet (in part, blamed on hidden high sugars in modern day food and drink) is a lethal combination that is negatively affecting the short- and long-term health of Gen Z leading to their rise in obese individuals” (The Health Insurance Group, 2019).

Consumer obesity studies have been very scarce in terms of Zers. However, in terms of their food indulgence, there are several reports. For example, Zers indulge in more carbohydrate food consumption than protein-based due to their energy rush requirements (Durukan and Gul, 2019). Literature suggests, “When you have elevated insulin levels for prolonged periods, as someone who eats a lot of processed carbohydrates or any carbohydrates would, that is a precursor to developing obesity” (Kumar, 2021). Reports suggest that the chances of Zers leading a healthier life without being obese is predicted to be very rare (Ipsos, 2021) and that they are two to three times more likely than any generation to be obese or overweight.

Zers are known to opt more for convenience and accessibility and quick food, thereby resulting in fast-food consumption and other on-the-go snacks (Britain Thinks, 2021; FSA, 2019; Segmanta, 2021). The preparation of food in fast-food chains is higher carbs, low nutrient contents and higher fats (Utama *et al.*, 2020). Such an approach is adopted by fast-food outlets, so consumers get accustomed to feeling full faster, resulting in two outcomes from a consumer perspective. First, higher rates of fats in their bodies will lead to higher probabilities of being obese. Second, due to the almost immediate effect of feeling full, consumers will be more likely to constantly indulge in this food. Their timeframes of food consumption to satisfy their need will be quicker given the consumer’s hectic schedules.

Reports demonstrate that Zers are more likely to consume raw fruits at least once a day and refrain from fish and seafood consumption in comparison to millennials (NatCen,

2019). FSA's (2019) report indicates that "Zers also eat more pre-packed sandwiches, ready meals and burgers than those aged 25-34 and 35-44 years old. The report also indicates that within generation Z, there will be differences i.e., "with males being more likely to say they eat burgers once or twice a week, and females aged 16-24 years old more likely to say they eat pre-packed sandwiches and ready-meals once or twice a week compared to males" (FSA, 2019). Such behavioural reports indicate that via their consumption choices, Zers are setting themselves up to be the most obese cohort in times to come. Literature indicates that life-course, stress factors, stage of life of a cohort and times of existence change food consumption within cohorts (Valk *et al.*, 2018; Rossum, 2017). Kumar (2021) accentuates "Historically, there has always been people that have a tendency to do emotional eating or binge eating or stress eating. It is related to how people are programmed in the brain. There are certain pleasure pathways that are triggered by eating food".

## **Methodology**

To delineate the phenomenon in question, we critique relevant literature on consumer obesity, theories of pure impulse buying, and reasoned action after which cognitive constructs eminent for reasoned conditioned behaviour is extracted (Green *et al.*, 2015; Snyder 2019). Following this, we extract the reasoned conditioned behaviour and its cognitive constructs within Zers as a cohort. Thereafter, a conceptual framework is developed with propositions of stressful eating within Zers. The delineation of the framework takes on the premise developed by critiquing literature and extracting cognitive constructs that are seen within Zers (Danermark *et al.*, 2019), this is pertinent to explaining their cognitive mechanism (Pawson, 2013). This gives birth to their reasoned impulse behaviour. Furthermore, within the framework, specific primary and secondary stressors from extant literature and organisational reports observed within Zers has been utilised to explicate the phenomenon (Bhaskar, 2008).

There is a paucity of studies on this topic for the cohort in question. This is why it is necessary to critique theories to understand and demonstrate new findings and dimensions of the psychology of consumer obesity in a highly cognitive cohort. Specifically, literature indicates that critiquing theories to provide novel insights and theory development is necessary when it is an understudied context and cohort (Baumeister and Leary, 1997; Snyder, 2019; Torraco, 2005). Therefore, we adopt a purposive literature review to address the question in context (Snyder, 2019) cogently derived for the synthesis of the conceptual understanding (Torraco, 2005). We select specific studies which answer explication of the

cognitive mechanism within the understudied cohort. Thereafter, we extract themes that answer the way in which the mechanism can be elaborated. In this regard, we utilise literature to support the themes extracted and provide a robust rationale (Green *et al.*, 2015; Snyder, 2019; Torraco, 2005). Thereafter, we conceptually synthesise the reviewed literature and extracted themes into further explanation by way of literature-backed insight of the law of effect as a cyclical process within Zers (Torraco, 2005). This provides the premise of building the conceptual framework (Baumeister and Leary, 1997). It further explicates the position of previously reviewed and critiqued literature in terms of triggers of consumer obesity within Zoomers and enables elucidating phases of stressful eating within this specific cohort.

## **Literature Review**

### **Hawkins-Stern Pure Impulse Buying Theory and Consumer Obesity**

Impulse buying is a widely acknowledged phenomenon in retail research (Badgaiyan and Verma, 2014; Cakanlar and Nguyen, 2019; Mattila and Wirtz, 2008; Stern, 1962). Literature indicates however that within the impulse buying phenomenon, pure impulse buying behaviour and consumer obesity has been rarely linked in a food consumption study (de Almeida and Isabel, 2018; Meilmann and Brunner, 2019). Most studies have essentially been focused on external stimuli, for example, such as on-the-go checkout impulses (attraction to chocolates, and other sugary foods at the checkout) (Pallikara *et al.*, 2021) warranting increased purchase, or packaging and food labelling and the impulse triggered from it (Kinard, 2019). However, Hawkins-Stern, when introducing the impulse buying theory, divided the theory into four categories: pure impulse buying, reminder impulse buying, suggested impulse buying and planned impulse buying (Agarwal and Chetty, 2021). Studies thus far, due to the focus on external factors of retail checkouts etc., invariably have focused on reminder impulse (Piron, 1991) and suggested impulse (Dutta and Mandal, 2018; Stern, 1962). However, pure impulse buying has a deeper connotation than these as it stems from a psychological necessity owing to a psychological need followed by a purchase action (Dutta and Mandal, 2018; Yuan, 2020). Table I below presents select pure impulse and consumer obesity studies and the cognitive capacity extracted therein.

**[TABLE 1 HERE]**



Whilst the above studies explicate impulse buying and consumer obesity, none really highlight the cognitive construct which underlies impulsive food consumption behaviour and stimulates indulgence in obesity-leading food consumption. The resulting literature from these studies also focuses on demonstrating that individuals who are obese indulge in impulsive food consumption and not the other way around. That is to say, the concept that pure impulse can be a prime generator of action leading to obesity-related food consumption has not been considered in consumer obesity studies thus far. However, every action needs a stimulus (AQA, 2021) and individuals who are obese indulge in a particular kind of impulsive food consumption due to a particular reason. No one is born obese as genes and behaviour both contribute to obesity i.e., an individual becomes obese through habits (CDC, 2021). Therefore, first there is a stimulus which stimulates the need and then an action that is repetitively followed over time, leading to obesity in the individual.

Studies on rash-spontaneous food behaviour indicate that participants in those studies had more problems withholding an “initiated prepotent reaction and suppressing a dominant oculomotor reaction” (Leehr *et al.*, 2016; Schag *et al.*, 2013). According to Giel (2017), “the action of such pure impulse is usually irrespective of stimulus category, which means that they were not enhanced when confronted with food pictures” (Giel *et al.*, 2017). This further indicates how pure impulse owing to certain factors of the environment (De Rinzo *et al.*, 2021; Meilmann and Brunner, 2019) can lead to the action of food consumption that finally results in obesity. Such a behaviour can be further mapped to “the law of effect” by Edward Thorndike. The law of effect states that, “when satisfaction follows an association, it is more likely to be repeated” (Cherry, 2020). Smith and Robbins (2013) term this law of effect within obese individuals consuming food for stress and other factors as “a reflection of an addiction analogous to drug abuse, with individuals becoming physically and psychologically dependent on foods high in fat and sugar for calming themselves.” (Smith and Robbins, 2013, p. 805). Literature accentuates that such a dependency is usually succumbed to due to stress factors i.e., stress generated from financial aspects, home requirements, personal lives and relationships, work-life and student life issues (Kumar, 2021; Meilmann and Brunner, 2019; Schag *et al.*, 2013; Wang *et al.*, 2004).

From a neurobiological perspective, such law of effect owing to decrease in dopamine D2 receptors can “directly affect the mesolimbic dopamine and opioid pathways, with consumption of each type of substance increasing neurotransmitter levels” (Dichiara and Imperato, 1998; Rada *et al.*, 2005; Small *et al.*, 2003). Such neurotransmitter effects lead to “cue-induced anticipation” of these sugars and fatty food consumption (Smith and Robbins,

2013). This, thereafter, leads to “elevated activity in the fronto-limbic circuitry to correspond with striatal dopamine D2 receptor release” (Pelchat *et al.*, 2004; Small *et al.*, 2003; Stice *et al.*, 2008) which leads to excessive impulsive consumption of foods and sugary substances owing to the known reward “after-effect” of feeling well based on the food consumption (Davis and Carter, 2009). In due course, this impulsiveness becomes compulsive owing to the neurobiological mechanism and law of effect attributable to the consumption (Smith and Robbins, 2013). Now that we have highlighted the cognitive underpin of pure impulse, we need to understand the rationalising in a highly cognitive cohort (Francis and Hoefel, 2018), Zers. Thus, we need to further question and understand what cognitive construct can result in individuals reasoning their indulgence in regard to their impulsive food consumption?

### **Theory of Reasoned Action in Relation to Pure Impulse and Consumer Obesity**

The theory of reasoned action informs individuals’ behaviour in specific contexts (Ajzen and Fishbein, 1980) and has been seen in consumer obesity studies. However, the literature indicates it is more utilised from a prevention programmes perspective (de Plaza *et al.*, 2021; Hayba *et al.*, 2021; Lash *et al.*, 2017). The integration of the reasoning of action in relation to a pure impulse leading to obesity is relatively sparse. Table II below presents select studies on the consumer in relation to theory of reasoned action and pure impulse.

#### **[TABLE 2 HERE]**

These studies demonstrate how pure impulse moderates attitudes towards obesity-producing food consumption. Further, being quantitative in nature, these studies focus on understanding collective impulsiveness in obese individuals in light of certain factors, and not how or why the factors lead to obesity-oriented consumption of food. Therefore, they can be said to be biased in their understanding whilst providing an opportunity to extract cognitive construct’s understanding as according to the theory of reasoned action. “Attitude is a cognitive variable, it is an evaluation based on expected likelihoods of consequences and their values” (Trafimow, 2009). Researchers believe that attitudes within the reasoning of an action constitute both “affective” and “cognitive” components (Breckler and Wiggins, 1989; Crites *et al.*, 1994). If such is the case, then to say that theory of reasoned action in itself constitutes “affective component” – within consumer obesity being “pure impulse”, and the

cognitive aspect derived earlier being “decrease in D2 receptor resulting in compulsive food consumption” can be logically said to be true.

From a neurobiological standpoint, the frontal lobe of the brain performs reasoning, critical thinking, and judgement in an individual (BC Campus, 2021). In this regard, neurological studies demonstrate that decreased dopamine D2 receptors result in reduced frontal metabolism (Volkow *et al.*, 1993) i.e., a decrease in thinking and reasoning functions of the brain (NIA, 2021). Therefore, in terms of consumer obesity and food consumption, due to reduced D2 receptors resulting in a reduction of frontal lobe metabolism:

- (i) An individual’s thinking is affected such that reasoning can no longer take shape, thus resulting in more food consumption indulgence based on the initial pure impulse which started D2 dopamine reduction.
- (ii) A cycle of stress-induced eating in relation to consumer obesity, which is not a choice in people but more of an involuntary and unknown consumption process being initiated.
- (iii) Consumer obesity is a by-product of stress-inducing pure impulse, setting a course to decrease D2 receptors and reduce frontal lobe metabolism. Unhealthy food consumption therefore results, which is reasoned within an individual by default due the fact that the theory of reasoned action’s affective component is “pure impulse”. The cognitive component is “D2 receptors’ reduction leading to reduction/decrease in frontal lobe metabolism”.

Now that we have underpinned the cognition entailed in stressful eating which leads to food consumption and consumer obesity, we further need to understand why it is resorted to by a highly aware, cognitive and health-conscious cohort. One answer can be that as detailed above, since it is more a neurologically involuntary mechanism, there is not much control other than the first indulgence. However, why do Zers undertake the first stress-induced consumption?

### **Cognitive Mechanism Among Generation Z Highlighting the Law of Effect in Fostering Reasoned Impulsive Stressful Eating**

Drawing on the cognitive constructs derived owing to the literature reviewed above, Table III presents studies on consumer obesity and stress and cognitive construct extracted therein in light of the law of effect.

**[TABLE 3 HERE]**

Findings from the above studies delineate how emotions, specifically negative emotions, enhance an individual's necessity for unhealthy food via their cognitive comprehension and mechanisms. Further, how in light of dieting, emotions play havoc if unhealthy food is consumed. This leads to guilt, resulting in a temptation for more unhealthy food rather than restraint. The studies emphasise an important culmination of stress, impulse, and obesity consumption. However, these studies, whilst enriching understanding of stress and obesity-oriented-food consumption, fail to address the causal cognitive mechanism. The studies have focused on behavioural orientation perspective, when in reality it is a cognitive construct effecting orientation in an individual. Hence, owing to critiqued literature, we can derive:

- (i) pure impulse drives food consumption owing to stress factors,
- (ii) reasoned action encompasses pure impulse, and during stress is guided by the stress factor owing to decreased D2 dopamine and further reduction in frontal lobe mechanism,
- (iii) consumer food indulgence is undertaken due to the insula's need to restore homeostatic balance via restoring dopamine levels.

Research studies indicate that the law of effect accentuates that “individuals are likely to repeat behaviour which provides satisfaction in such a way that it becomes a pattern.” (Thorndike, 1927, p. 65). Literature also demonstrates that sugar foods used as a stress coping mechanism is strongly etched in people's minds. For example, chocolate indulgence when there is sadness stemming from stress (Munichor and Friedlander, 2019). However, whilst the effect of sugar on stress reduction has been highlighted, there is a huge gap on the stimulation of that need whilst knowing the repercussions of such indulgence in the future by a cognitive cohort (Woods and Begg, 2015).

Recent studies on the brain and the law of effect highlight that when individuals' choices ran counter to their general behavioural tendency owing to adequate understanding, there is an enhanced activity in the Anterior Cingulate Cortex (ACC) (De Martino *et al.*, 2006). Thus, this suggests, an opposition within individuals between two neural systems, with ACC activation consistent with the detection of conflict between predominantly “analytic response tendencies” and “an emotional amygdala” (Botvinick *et al.*, 2001; Miller and Cohen, 2001). During such a time, the ACC is seen to be highly activated, specifically in adolescents (Lock *et al.*, 2011).

Drawing on the above understandings from previous studies of decreased D2 dopamine receptors (Smith and Robbins, 2013) in light of a pure impulse and further derivation of how that affects the resulting reduction in frontal lobe metabolism, the mechanism thereby results in reduced reasoning but acts on the impulse. Studies within stress and ACC (the neural control circuitry of the brain) demonstrate that stress-impulses activate the ACC circuitry to overpower cues (Epel *et al.*, 2019). Stevens *et al.* (2011) suggest that the “ACC is affective—involved in emotion assessment, emotion-related learning, and autonomic regulation” (p. 37) and certain areas within ACC control-conditioned learning toward stimuli. Heatherton and Wagner (2011) indicate that self-regulation of emotion is a conscious and voluntary process influenced by multiple factors, including mood and competing regulatory demands. According to Stevens *et al.* (2011), “reaction to emotional stimuli is controlled by a “top-down” emotion-regulation process from several areas of frontal cortex” (p. 39). Thus, we can say that the frontal lobe is a part of the frontal cortex, which is needed to self-regulate and self-control emotions in the face of impulses. Since it is reduced in its capacity to act (derived earlier) due to stress, the ACC, due to pure impulse takes over to perform the neural circuitry required to complete a specific task, which is the stress-induced eating (Stevens *et al.*, 2011; Epel *et al.*, 2019). Therefore, a pure impulse driven food consumption in Zers is established.

Epel *et al.*, (2019) demonstrate that stress induces a need for reward, and more so during food consumption. In terms of Zers as a cohort, their ACC primarily is very high in performance due to their video gaming habits (Bayindir and Kavanagh, 2019), as increased video gaming is seen to result in increased ACC activation and further increased faster judgement calls and mature decision-making (Dye *et al.*, 2009; Small *et al.*, 2009). Nevertheless, their primary indulgence of stressful eating as an action, albeit cognitively involuntary, cannot be termed involuntary from an initial choice perspective. Why? Because within hyper cognitive cohorts who understand the effects of fatty food consumption, this ACC limbic system operates differently owing to habitual conditioning (Everitt and Robbins, 2005) which is where the law of effect takes shape and takes over the initial process. So within well-informed cohorts, predetermined habitual (conditioned traits) take over their food consumption (Epel *et al.*, 2019; Gibson, 2006; Schwabe and Wolf, 2009; Tomiyama, 2019) which makes them search for high caloric foods to consume (Epel *et al.*, 2019; Tomiyama, 2019). Thus, within highly informed conscious cohorts such as Zers, stressful eating and indulgence in high caloric food consumption initially is a choice resulting from specific

motivators. These motivators stem from habitually conditioned responses owing to the law of effect such as: -

- (i) High caloric food consumption as a distraction from the stressful impulse.
- (ii) Sugary foods as a treat which is sought as a reward and/or relaxation reward following a stressful impulse or situation (Dallman *et al.*, 2005; Macht *et al.*, 2005; Pecoraro *et al.*, 2004).

This conditioning of food consumption toward a stressful response is provided by the neural mechanism of “dopamine self-stimulation”. This enforces food consumption indulgence in light of stress, owing to a necessity to revive the dopamine levels back to normal levels. The focus is not on the stressor but on the activity performed prior to being stressed (Athalye *et al.*, 2018). Within Zers, given that their understanding of healthy food may be high, their existence is met with constant stressful needs of life, work, and school/university expectations. Thus, such an indulgence can be seen to be rationalised via the necessity to be back to performing and disregarding the stressor for the time being. However, how does the process of rationalisation take place within Zers?

To answer this, we need to understand stress as not merely affecting psychologically-induced eating but also other factors and variables in an individual (Castello-Martinez and Tur-Vines, 2020). Herrnstein indicates, in terms of the law of effect and choice, “it seems safe to assume that all environments continually demand choices, even though in many cases measuring the alternatives is near to impossible” (Herrnstein, 1970, p. 255). Hence, if stressors are not curbed by indulging in food, the effects can be detrimental (Tomiya, 2019). Therefore, one answer would be as a rationalising cognition within Zers. The pros of indulging in food owing to the habitual conditioning of the law of effect outweighs the cons of non-indulgence in stressful eating. However, neuropsychologically speaking, literature suggests that neural activation within the law of effect details activation of “insula”, “putamen” and “caudate” axials of the brain (Jastreboff *et al.*, 2013) as a product of food cravings owing to varied stimuli. The “insula” controls “cognitive control” (Neuroscientifically, 2013), the “putamen” contributes to cognitive functioning in terms of “learning and memory” (Ell *et al.*, 2011) and the “caudate” aids “in learning, memory, reward, motivation, emotion, and romantic interaction” (Driscoll *et al.*, 2020). The insula is part of the frontal lobe within the brain and aids in reasoning. Further activation of the three together is seen in food cravings within people during stressful times (Jastreboff *et al.*, 2013). If such is the case, then we can logically derive the following owing to the reasoning and affective activations initiated within the brain’s anatomy within the law of effect:

- (i) The law of effect generates rationalised habitual conditioned response due to stress and sugar understanding.
- (ii) Rationalising of the food choice is initiated as a result of the cognitive control exercised by the insula, which focuses on bringing about homeostatic balance within an individual considering specific survival needs such as taste, visceral sensation and autonomy.
- (iii) Stressful eating is indulged in because the caudate present in the frontal lobe orients one to a reward/distraction-oriented behaviour in light of the stress impulses.

As the “insula” deals with restoring homeostatic balance and enforces autonomy stemming from its cognitive control (reasoning control) function, disregard for reasoned judgement followed by pure reasoned conditioned behaviour due to the activation of “putamen” and “caudate” axials is a by-product within Zers. Gen Zers believe in exercising their autonomy (Wearesocial, 2019) and making meaning of their experiences (Spotify, 2019) as a result of the stressful times they live in (McMaster, 2020). Due to the fact that stressful situations are known to increase the habits of exercising autonomy (Tomiyaama *et al.*, 2019); Zers will indulge in stressful eating due to the law of effect as a “reasoned conditioned food consumption behaviour” stemming from the above delineations.

Research suggests that this “law of effect” once initiated and conditioned can have a two-way affair operating within individuals (Epel *et al.*, 2019). In terms of Zers, we can describe it further as a principle due to the fact that stress is a product in itself. Stress then stimulates the law of effect, resulting in unhealthy food consumption. The previous indulgence then produces more stress within an individual because he/she is becoming fat/overweight or obese. Instead of becoming a stimulant of better health within the individual, it further releases and activates the same cognition of the law of effect on the cognitive grounds of “putamen” in the brain which deals with “memory and learning of conditioned behaviour” (Ell *et al.*, 2011) and the “caudate” which deals with “learning, memory, reward and motivation” (Driscoll *et al.*, 2020). Stress stemming from becoming obese/overweight results in further unhealthy and sugary food, accessibility, and convenience foods. Hence, Zers thereafter are in an immovable position within an obesity-driven food consumption behaviour as logically explained earlier.

## **The Cognitive Conceptual Framework of Stressful Eating Among Generation Z**

Considering the fact that stressors within Zers will be different than stress factors of previous generations (Tomiya, 2019) it is imperative to build the conceptual framework in line with the times the generation is growing up in. Therefore, current stress-inducing factors (primary first initiators of stress) from reports on Zers shall be seen in this light. Furthermore, stress-resulting consumptions' effects and the cohort's resulting issues shall be taken up as secondary stress factors in the derived two-way law of effect on stressful eating concept for Zers. Figure 1 demonstrates the conceptual framework of stressful eating among Zers leading to obesity.

**[FIGURE 1 HERE]**

## **Describing the Framework Via Propositions of Stressful Eating Phases Among Generation Z**

Drawing on the detailed conceptual framework explicated earlier in its derivation in the sections above, within Zers we can understand the phases of stressful eating leading to heightened consumer obesity seen today. Each primary stress factor induces stressful eating from the conditioned reasoned behaviour owing to the "law effect" and the "axials stimulated in the brain". However, each secondary stress factor may vary and thus the reaction of the Zoomer to the situation will change, yet still being within the cyclical obesity-producing food consumption process. Hence, we propose:

**P1:** University and school-based peer pressures as stress factors (Barna, 2021; Cain, 2019; Hicock, 2021; The Economist, 2019). These stimulate the stressful consumption of obesity-producing food due to social media connectivity-generated stressors because of peers and self-imposed attitudes. In this, the primary stress factor is peer dependent, and the secondary stressors are also peer-review/validation dependent. The results are stimulation of self-anger, depression, giving up etc within the Zer, resulting in more stressful eating consumption. Figure 2 below demonstrates the proposition of phases of stressful eating leading to obesity as a result of peer pressure as a primary stress factor and its consequential secondary stressors.

**[FIGURE 2 HERE]**



**P2:** COVID-19's implications of being in lockdowns and isolation has resulted in a lot of stress and anxiety within generation Z individuals (Gander, 2020). Therefore, stress from the uncertainty of futures, job opportunities in light of COVID-19 and having to stay at home in lockdowns results in much stress-induced eating owing to the anxiety (Senthilingam, 2021; Tomiyama, 2019). This then begins stressful eating and results in more stress i.e., secondary stress, when the current stress factors increase anxieties and worries owing to news of economies heading for massive downturns etc. This secondary stress is followed by continuation of the cyclical stressful eating process by the Zoomer. However, the secondary stressor is not social media controlled/peer dependent, but is dependent on the primary stress factor. In such cases, until the Zoomer gets what he/she wants, which is normalcy of life, the cycle of stressful eating will continue. Figure 3 below demonstrates the proposition of phases of stressful eating, leading to obesity as a result of COVID-19 implications as a primary stressor and its secondary stress effects.

**[FIGURE 3 HERE]**

**P3:** As Zers are one of the most inclusive, diverse, self-actualised generation thus far (Francis and Hoefel, 2018; Scholz and Vyugina, 2019), occurrences across the globe affect them deeply (AECF, 2021). Hence, when racial tragedies occur while having been born in a more racially diverse family setting than previous generations (Wearesocial, 2019), generation Z believe that such occurrences can happen to them, and affect them and their family (AECF, 2021; Gander, 2020). Furthermore, many also detest and talk about such occurrences in such a way that it becomes an obsession, a deep concern which produces stress, anxiety, worry, and/or depression, resulting in race-oriented stress. In this case, the secondary stress factor is externally dependent and only a rectification of the situation can result in curbing the stress-induced therein. Figure 4 below demonstrates the proposition of phases of stressful eating leading to obesity caused by worldly occurrences and its obsession and resulting secondary stressors instating the cyclical stressful eating pattern in this cohort.

**[FIGURE 4 HERE]**

**P4:** Learning from previous generations, Zers are trying to be financially more prudent (Crouth, 2019) such that they are very frugal by default (Bayindir and Kavanagh, 2019). This financial anxiety is not only due to current and past financial worries, but also the future.

Stemming from the implications of the pandemic, many worry what their lives will be like and how much they should save, earn etc. In this case however, the anxiety, worry and/or stress, albeit external in nature, can be handled well by taking steps to get internships, jobs etc. However, increasing reports of the pandemic's implications of lay-offs, jobs made redundant etc. provide further stress so that Zoomers believe there is no hope and become more stressed and depressed for their future financial security and independence. A study by Averett and Smith (2014) indicates financial worries are linked to increased obesity. Furthermore, weight gain caused by financial worries, and weight loss treatments being expensive to a Zer increases financial anxiety and worry. Figure 5 below demonstrates the proposition of phases of stressful eating leading to obesity as a result of financial anxiety as a primary stressor and its implications as a secondary stressor.

**[FIGURE 5 HERE]**

**P5:** Due to their dieting habits, and worries about weight (Solmi and Patalay, 2020) Zoomers tend to be characterised with higher anxiety and depression leading to, not curbing, an increase in obesity-producing food consumption (Epel *et al.*, 2019). Thus, in this scenario, secondary stressors' anxiety effects are seen to act as a primary stressor depicting the cyclical effects of "law of effect" in generation Z. Figure 6 below demonstrates the proposition of phases of stressful eating leading to obesity as a result of dieting as a habit, and its primary as well as secondary stressor effects.

**[FIGURE 6 HERE]**

**P6:** Zers are seen to be victims of social media in such a way that (a) they lead externally validated lives, (b) their bodies are in the open to be appreciated and/or criticised (Datar, 2019). In this scenario, the secondary stressor of hate posts or social media ridicule becomes a primary stressor as does sharing a photo, which can be met with immediate criticism, causing stress (Healthline, 2020) and stressful eating's cyclical process in the Zoomer. Figure 7 below demonstrates the proposition of phases of stressful eating leading to obesity as a result of social media, although secondary stressors, transforming to primary stressors.

**[FIGURE 7 HERE]**

The framework enables understanding of a specific food consumption trend by underpinning the cognitive bearings owing to critiqued literature of “impulse buying” and “theory of reasoned action” synthesising in “the law of effect” explicated earlier, within this cohort. It further delineates the primary stressors within Zers currently observed and explicates the mechanism of stressful eating derived within Zers earlier (Jastreboff, 2013). The effects of stressful eating cause further stress owing to living in the age of social media within Zers. This effect leads to implementation of the stressful eating pattern once again due to reasoned conditioned behaviour. Thus, it exemplifies that the stressful eating process within Zers is cyclical in nature after the “first instance/Phase I” onward (Epel *et al.*, 2019; Neuroscientifically, 2013) owing to the conditions of existence. Furthermore, it is imperative to highlight that such a cyclical process is in contrast to that of previous generations (APA, 2010).

## **Conclusion**

Via critiquing literature, we found why generation Z consumers stress eat and how the first instance of indulgence is a reasoned conditioned behaviour. However, the subsequent consumption is a cyclical process of stressful eating owing to the enforcement of the law of effect due to brain activations within this cohort. Thus, stressful eating by Zers is first a choice, and then becomes a process of “conditioned memory” and “stress reward” mechanism thereafter. This can also explain why Zers are unable to attempt to stick to rigid diets. Although many Zers also exercise (which from the context of obesity both diets and exercise are needed) (Hayba *et al.*, 2021) they are still unable to become healthy. This is due to the conditioned pleasure which sugary foods provide in light of stressors.

Furthermore, as mentioned as part of the abstract’s novelty, the propositions proposed as part of this study with regard to a new cohort as generation Z, is very new. Extant literature on consumer obesity has not focused on these propositions and stressful eating phases within the cohort of study (Colak and Pap, 2021; Halasi *et al.*, 2021; Yasmin *et al.*, 2021). Specifically, even in 2021 when Zers are an upcoming cohort with abundant spending power in the marketplace and more health understanding than previous generations (Vellore-Nagarajan *et al.*, 2021), obesity studies have only focused on elderly population and millennials (Al-Mendalawi, 2021; Cornil *et al.*, 2021; Robinson *et al.*, 2020) and the conceptualisation of such a stressful eating phenomenon’s delineation has not been seen thus far. But reports as indicated in the manuscript have mentioned the implications of which this

paper provides the understanding of “why” and “how”. Therefore, the implications of this paper, and contributions are immense and detailed below.

## **Implications**

**Theoretical Implications** –First, an extraction of theoretical and conceptual premise detailing what psyche causes stressful eating indulgence within a highly cognitive upcoming cohort – Zers, which extant literature has a dearth of (Halasi *et al.*, 2021; Yasmin *et al.*, 2021). Second, an extensive elucidation of how theory of reasoned action from a food consumption perspective encapsulates pure impulse buying from an affective standpoint (Smith and Robbins, 2013) which in terms of consumer obesity has not been addressed (Epel *et al.*, 2019; Robinson *et al.*, 2020). Third, due to the understanding of the cognitive mechanisms of the law of effect in relation to stress, the paper accentuates how stressful eating becomes a habitual practice after the first instance – i.e., a cyclical process within Zers (Davis and Carter, 2009; Pelchat *et al.*, 2004). This demonstrates the difference in cognition for Zers to previous generations (APA, 2010; Epel *et al.*, 2019). Fourth, the paper provides clear theoretical and conceptual foundations for how first-time stressful eating is indulged in, contributing to a dearth in conceptualisations of consumer obesity (Colak and Pap, 2021; Yasmin *et al.*, 2021). Demonstrating it is a choice owing to a well-reasoned conditioned behaviour due to activations of cognitive control mechanism of the brain, followed by axial activations of memory and reward (the latter being instrumental in prompting unhealthy food consumption from the second and third times) (Volkow *et al.*, 1993). Fifth, the paper provides understanding of the mechanism of stressful eating within Zers as a whole concept (Tomiyaama, 2019). Even in 2019-2021, there is a scarcity of studies overlooking the cohort in question.

Sixth, the paper delineates the ways in which stressful eating can be seen within Zers (Epel *et al.*, 2019). Seventh, the paper provides elucidation of stress factors within Zers, with both primary and secondary stressors due to conditions of existence, which then causes the cyclical stressful eating process, and is in contrast to previous generations. Eighth, it depicts implications of stress and anxiety leading to obesity-driven food consumption that owe to times being lived in, and the detrimental effects of social media age inducing the law of effect of the stressors and thereby stressful eating (Datar, 2019). Ninth, the paper provides an understanding of the detrimental effects of how being health conscious as a cohort has an opposite effect than what should be achieved, within this generation (Epel *et al.*, 2019). The afore-mentioned contributions specifically, have been covered only in reports and are scarce

in contemporary academic literature (Halasi *et al.*, 2021; Tomiyama, 2019; Robinson *et al.*, 2020; Yasmin *et al.*, 2021).

**Managerial Implications**—Food brands and manufacturers are equipped with the understanding of stressful eating as a consumption indulgence within Zers. This will enable food brands to tap an under-served market (Cuevas *et al.*, 2019). For example, a food market wherein stressful indulgence in food occurs, could provide promotional messages to consume food whilst providing food that is low in sugar, low in fats yet maintaining the taste (Robinson *et al.*, 2020). For instance, offering a selection of foods made from sugar alternates like jaggery, honey, agave nectar, or coconut sugar i.e., natural sugars instead of refined full sugar. This will produce the same taste but curb weight gains (Kayla and Kelly, 2020). Another example is foods made from whole grain cereals, millets, and wholemeal breads rather than white breads and higher sugar content ingredients.

Businesses such as gyms and other recreational centres will be enabled to understand what causes stress within generation Z individuals and can utilise stress-linking-obesity as a targeted promotion mechanism which is an under-tapped market. Generation Zers are health conscious but highly neglected as a clientele in terms of their stress handling capacities and stressful eating habits as a cyclical worry and stressor. Owing to the conceptualisation and propositions, businesses such as self-defence recreational centres, kickboxing dojos, mixed martial arts centres, gyms, etc. can provide additional services from their existing set of services (Doctor NDTV, 2018). These types of businesses can provide a safe and friendly atmosphere, where gen Z cohort aid each other and have a community feel, while also enhancing Zers' capability to deal with bullying etc via the business's expertise (Cision, 2019).

Further, as Zers are known to be communaholics, these centres can lessen Zoomers' fear of bullying, (Francis and Hoefel, 2018) which causes further stress. They could also provide a series of courses which target stressors highlighted above and seen within Zers, as well as the reactions of Zers. Offering guidance on healthy eating, diet and menu plans (which help to curb obesity-driven food consumption) could all be combined with enhanced self-defence workouts. This, therefore, will provide the Zers a good psychological “let it out” environment, as built-up stress leads to further obesity-producing consumption (Epel *et al.*, 2019). Exercising in such a way that all calories are burned (WHO, 2020) will result in healthy eating in light of correct exercising. Building communities of healthy eating, safety,

friendliness, and correct exercising for this cohort will thereby reduce chances of obesity. Such a community orientation also increases holistic societal benefits.

**Social Implications** – From a societal standpoint, the understanding of the mechanism of stressful eating among the new cohort of the workforce can aid in the design of appropriate obesity intervention plans (Cardel *et al.*, 2021; Epel *et al.*, 2019; Tomiyama, 2019). Plans that address the cognitive activations during both the first-choice phase and the subsequent indulgence can aid to curb society’s increasing rates of obesity. Furthermore, delineation of the stress factors and its understanding of prompting and further initiation of secondary stressors can precipitate governments, institutions, and health organizations to understand where they have to intervene, how they can intervene, and when they have to intervene (Cardel *et al.*, 2021). Thus, it provides a blueprint for designing global intervention program for this specific cohort.

### **Limitations and Future Research**

Via this detailed conceptual paper, we have elucidated the premise of stressful eating within Zoomers. It remains to be tested via quantitative data as to how Zers approach the decision-making process and how they reason their action from their perspective i.e., in their own words and as a mechanism for themselves. In this regard, research studies ought to be taken in varied settings and different countries to see if there is any difference between countries. Or, if Mannheim’s (1927/1952) generational cohort theory stands true for this purpose as well, as obesity being related to food intake can be affected by a particular country’s easily accessible produce and food, and difference in eating habits.

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Table I: pure impulse buying, and consumer obesity studies and cognitive construct extracted for pure impulse food consumption

Author(s), Year	Purpose	Methodology	Findings	Corresponding Cognitive Construct
Di Renzo et al., 2021	To analyse the relationship between eating habits, mental and emotional mood.	Quantitative, 602 participants	Certain moods cause over half of the participants food intake to increase on impulse leading to obesity	Decrease in striatal dopamine D2 receptor making pleasurable impulsiveness a susceptibility (Smith and Robbins, 2013; Wang et al., 2004).
Dominici et al., 2021	To explore the effects of situational factors for online food shopping.	Logit model	For the BMI categories, only obese respondents show a positive and significant statistical relationship with online grocery purchases	Decrease in striatal dopamine D2 receptor making pleasurable impulsiveness a susceptibility (Smith and Robbins, 2013; Wang et al., 2004).
Jebarajakirthy et al., 2021	To assesses the conditional value generated by the consumer's health orientation, impulsiveness and perceived time pressure.	433 OTG consumers, SEM modelling and (fsQCA)	Impulsiveness and time pressure are shown to increase the effects of value for money perceptions on OTG consumption intention	Decrease in striatal dopamine D2 receptor making pleasurable impulsiveness a susceptibility (Smith and Robbins, 2013; Wang et al., 2004).
Meilmann and Brunner, 2019	To indicate the need for and create an insightful understanding of the current factors contributing to consumer's obesity levels due to their snack choices	Systematic Literature Review	Environmental factors contribute to food consumption and the level of impulse followed through	Decrease in striatal dopamine D2 receptor making pleasurable impulsiveness a susceptibility (Smith and Robbins, 2013; Wang et al., 2004).
Sands et al., 2019	To understand the decisional elements and vice effects of food consumption	Self-administered online questionnaire	Greatest vice is impulsive action leading to weight gain and obesity. Virtue is opportunity for retailers to look into health-conscious consumers' needs	Decrease in striatal dopamine D2 receptor making pleasurable impulsiveness a susceptibility (Smith and Robbins, 2013; Wang et al., 2004).

Source: The current authors.

Table II: studies on theory of reasoned action and consumer obesity.

Author(s), Year	Purpose	Methodology	Findings	Corresponding Cognitive Construct
Cornil et al., 2021	To establish a relationship between food marketing responsiveness and obesity using theory of reasoned action	Quantitative – 73 women considered obese; 41 women considered lean according to BMI.	Already obese people were more responsiveness to impulse stimulating from food marketing which was reasoned as an essential act in terms of the attractiveness of the marketing campaigns.	Reduced Frontal Lobe Metabolism due to reduced D2 dopamine receptor (Volkow, 1993).
De Roost et al., 2016	To investigate implicit preferences using the affective priming paradigm and understand obese peoples' reasoned action	Self-reported affective rating scale of food portion	Obese participants demonstrated an implicit, but not an explicit preference for large food portions. This was followed by a reasoning of their implicit need.	Reduced Frontal Lobe Metabolism due to reduced D2 dopamine receptor (Volkow, 1993).
Goldstein et al., 2014	To examine whether the discrepancy between implicit and explicit attitudes towards chocolate could predict both lab-based and self-reported disinhibited eating of chocolate.	95 healthy weight/overweight female undergraduate students according to accepted overweight BMI.	Neither implicit nor explicit attitudes alone predicted disinhibited eating, absolute attitude discrepancy positively predicted chocolate consumption.  Impulsivity moderated this effect, such that discrepancy was less predictive of disinhibited eating for those who exhibited lower levels of impulsivity.	Reduced Frontal Lobe Metabolism due to reduced D2 dopamine receptor (Volkow, 1993).

Source: The current authors.

Table III: studies on consumer obesity and stress and cognitive construct extracted therein

Author(s), Year	Purpose	Methodology	Findings	Law of Effect and Derived Previous Cognitive Construct Themes Detected
Batat et al., 2019	To extend experiential pleasure of food leading to obesity	Literature Review	Three stages exist to experiential eating i.e., contemplation, connection and creation	Contemplation and connection is guided via insula to restore homeostatic balance that can be mapped to conditioned behaviour of law of effect (Hernstein, 1970; Jastreboff, 2013; Neuroscientifically, 2013)
Chen et al., 2018	To understand the brain systems, the deficiency of which may underlie problematic eating leading to obesity	Literature Review	People experience loss of control or inability to resist tempting/rewarding foods owing to cognitive imbalances which leads to their overindulgence and unhealthy habits	Reasoned conditioned behaviour brought out by the insula's function of restoring homeostatic balance in terms of taste and other survival needs (Neuroscientifically, 2013).
Finch et al., 2019	To synthesize data demonstrating attenuated stress responses, considering the endocrine, affective, and neural mechanisms for reinforcing stress-induced eating processes.	Literature review	Chronic stress exposure is associated with increased consumption of palatable food, greater abdominal fat, and dampened cortisol response to acute stress	Indulgence is due to derived (i) pure impulse (Smith and Robbins, 2013), (ii) reasoned action owing to lesser frontal lobe metabolism (Voklow, 1993) and (iii) reasoned conditioned behaviour to restore dopamine levels (Neuroscientifically, 2013; Jastreboff, 2013).
Luomala et al., 2018	To establish what factors, predispose some consumers to unconsciously fall for palatable food choices.	Qualitative and Experiment-based	Dieting consumers appear to have a more hedonic food-orientation, feel guiltier towards eating, struggle more with resistance of temptation	Indulgence is due to derived (i) pure impulse (Smith and Robbins, 2013), (ii) reasoned action owing to lesser frontal lobe metabolism (Voklow, 1993) and (iii) reasoned conditioned behaviour to restore dopamine levels (Neuroscientifically, 2013; Jastreboff, 2013)

Munichor and Friedlander, 2019	To address the findings of prior studies regarding hedonic food indulgence in sadness	Experimental studies conducted	Sadness leads to a greater sense of deservingness and enhanced food indulgence when people hold others rather than themselves responsible for their sadness	Indulgence is due to derived (i) pure impulse (Smith and Robbins, 2013), (ii) reasoned conditioned behaviour to restore dopamine levels (Neuroscientifically, 2013; Jastreboff, 2013)
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Source: The current authors.

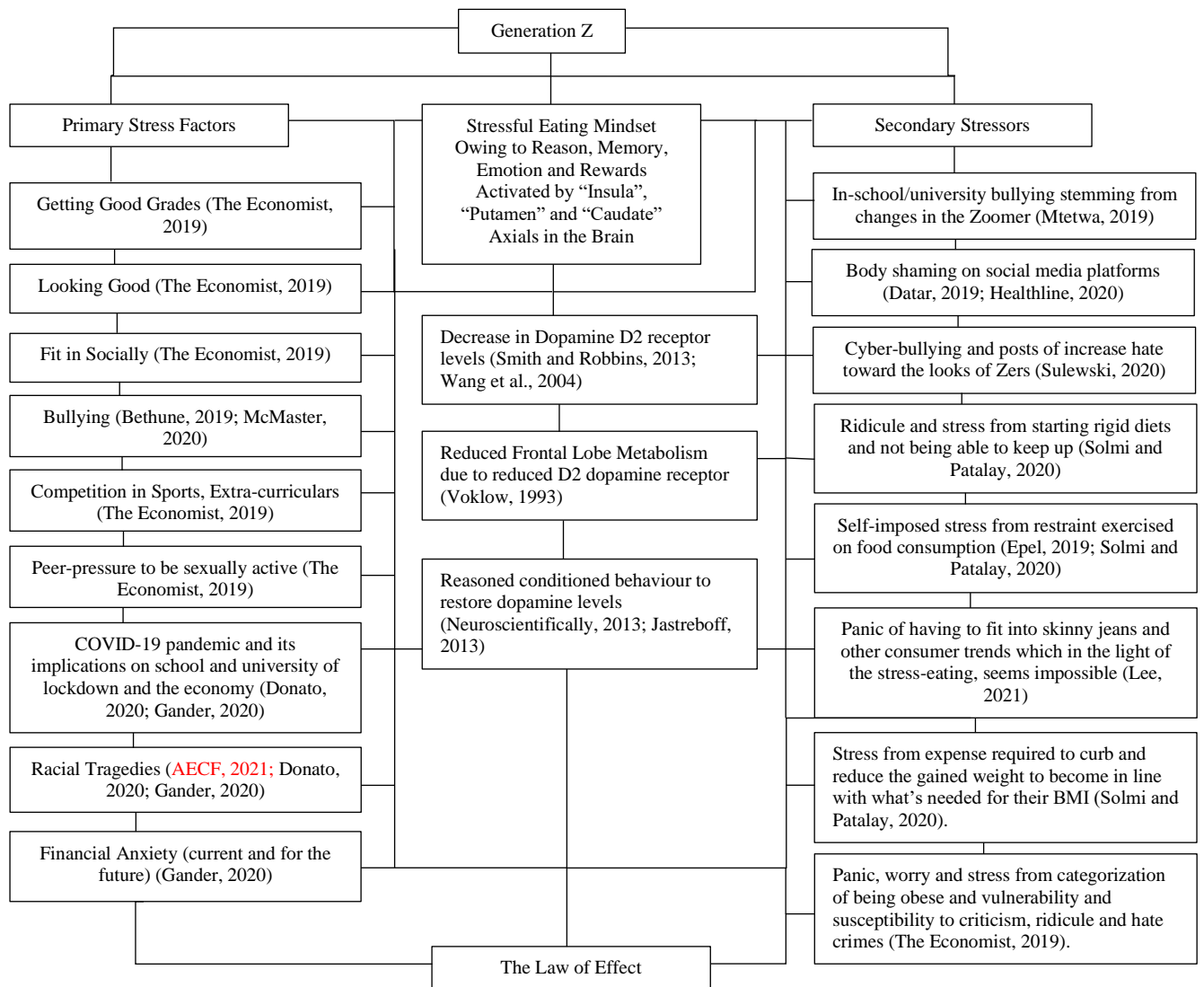


Figure 1: Demonstrates the conceptual framework of stressful eating among generation Z leading to obesity.

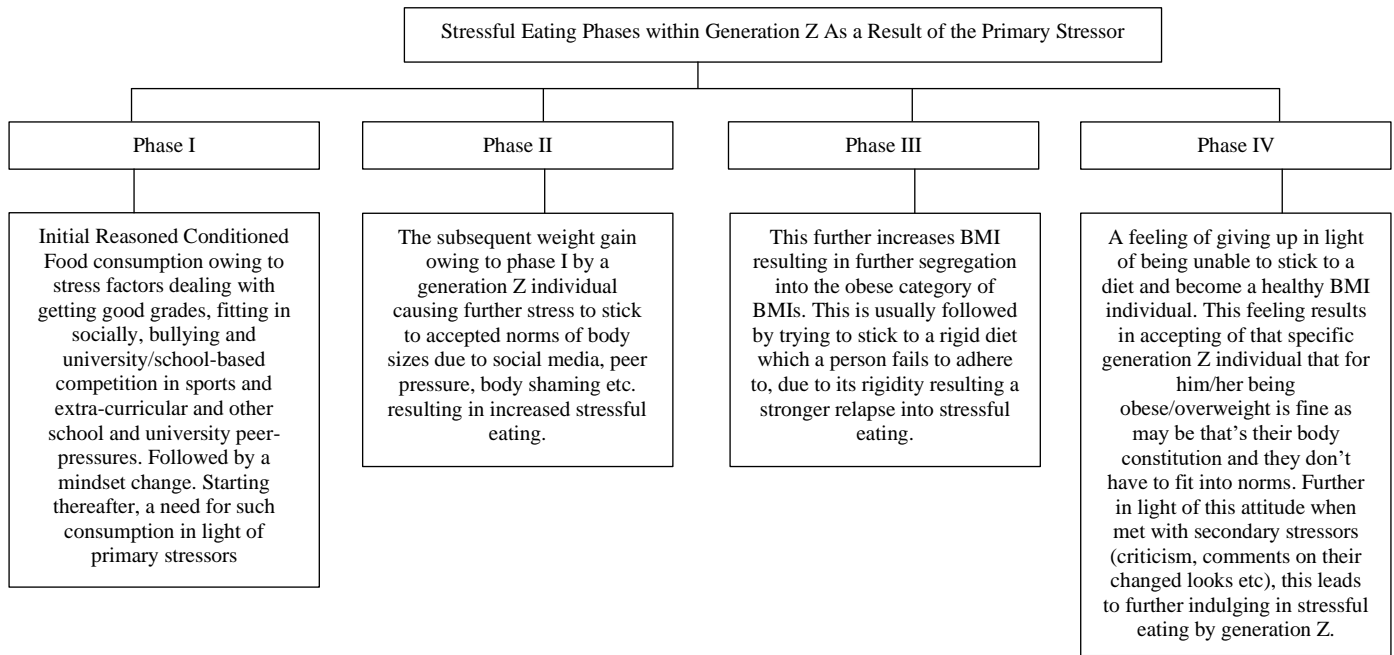


Figure 2: demonstrates the proposition of phases of stressful eating leading to obesity as a result of peer pressure as a primary stress factor and its consequential secondary stressors.

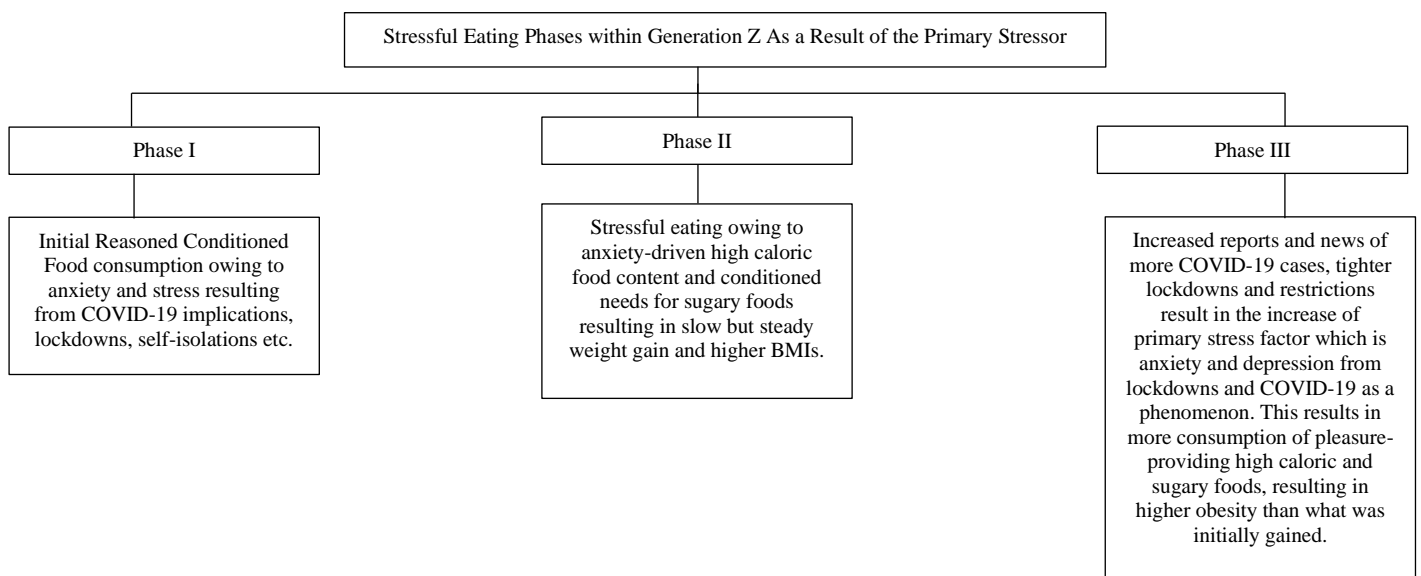


Figure 3: demonstrates the proposition of phases of stressful eating leading to obesity as a result of the COVID-19 implications as a primary stressor and its secondary stress effects.



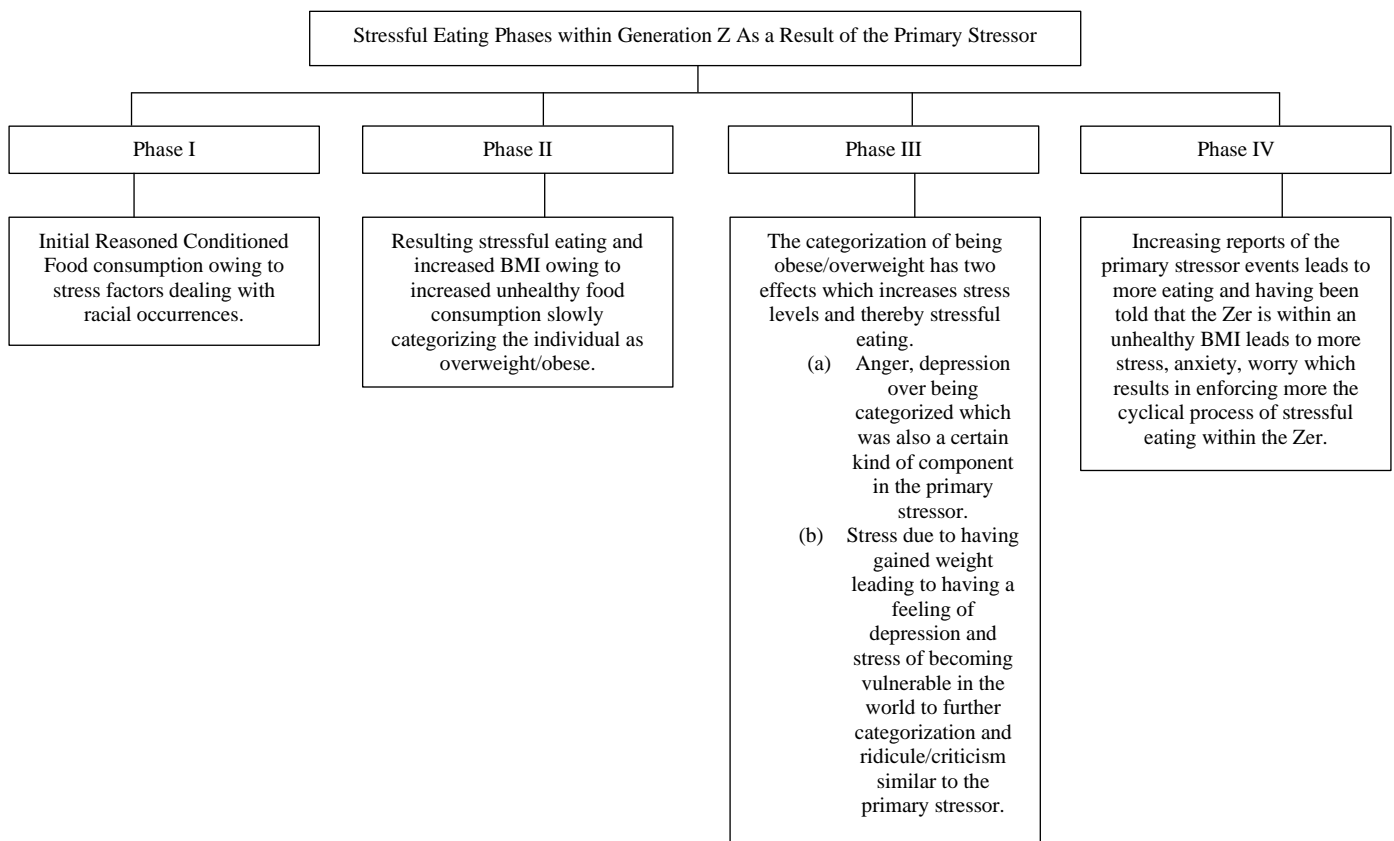


Figure 4: demonstrates the proposition of phases of stressful eating leading to obesity caused by worldly occurrences and its obsession and resulting secondary stressors instating the cyclical stressful eating pattern in this cohort

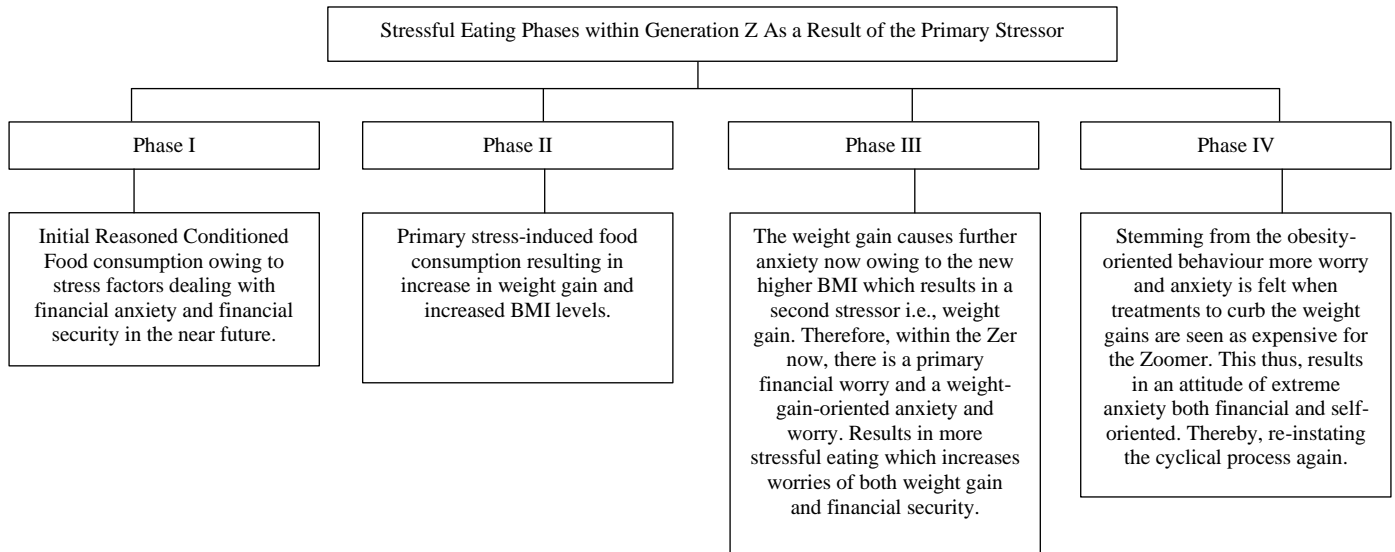


Figure 5: demonstrates the proposition of phases of stressful eating leading to obesity as a result of financial anxiety as a primary stressor and its implications as a secondary stressor.

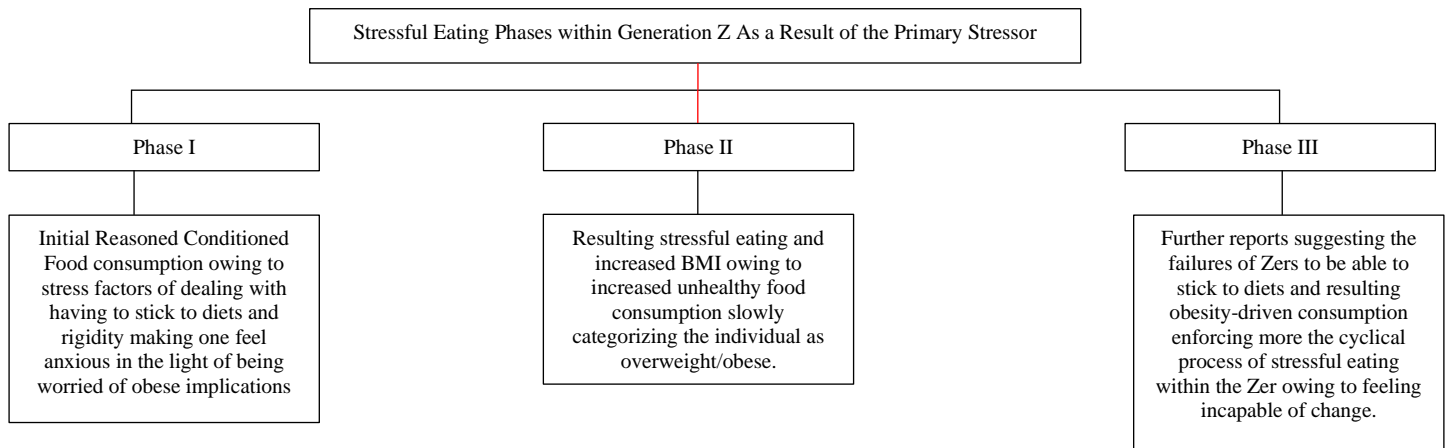


Figure 6: demonstrates the proposition of phases of stressful eating leading to obesity as a result of dieting as a habit and its primary, as well as secondary stressor effects.

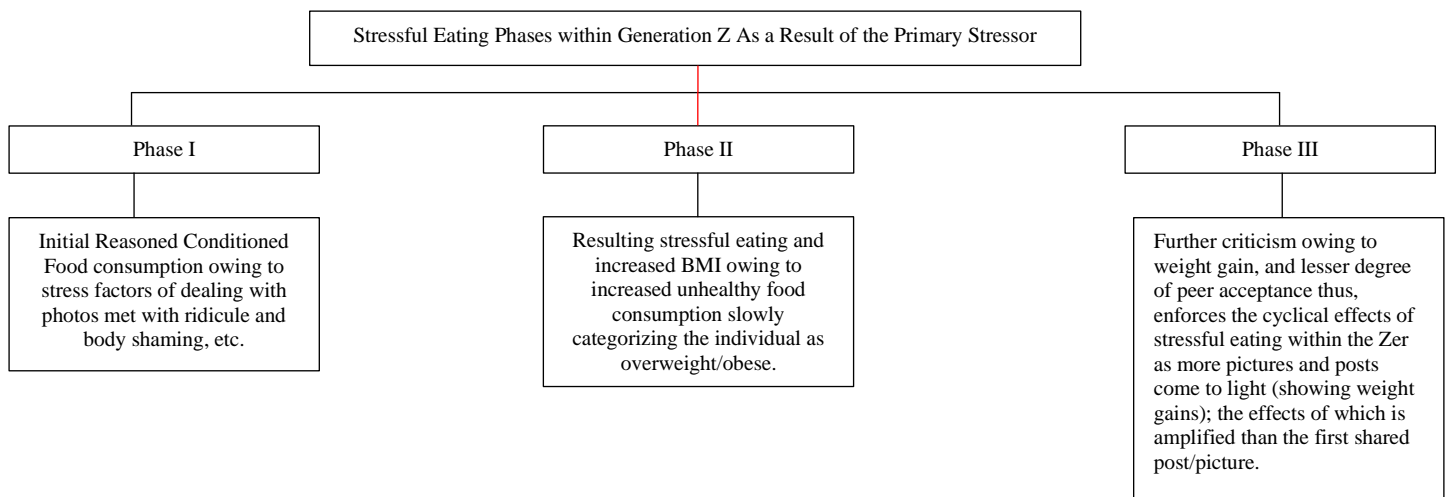


Figure 7: demonstrates the proposition of phases of stressful eating leading to obesity as a result of social media, albeit secondary stressors, transforming to primary stressors.