International Journal of Research and Review
Volume 11; Issue: 5; May 2024
Website: www.ijrrjournal.com
Research Paper *E-ISSN: 2349-9788; P-ISSN: 2454-2237*

The Effect of Attachment Dimensions, Perceived Stress and Specific Perfectionism Dimensions on Emotional Overeating and Emotional Undereating

Hrisovalando Irini Mamo[1], Penelope Louka[2], Georgios Pilafas[3]

[1]Student, University of Derby (UK) at Mediterranean College campus, Athens, Greece
[2]Deputy Head of Academic Affairs (Learning, Teaching & Assessment), Mediterranean College, Greece
[3]Programme Leader 'BSc (Hons) Applied Psychology', University of Derby (UK) at Mediterranean College Campus, Athens, Greece

Corresponding Author: Hrisovalando Irini Mamo

DOI: https://doi.org/10.52403/ijrr.20240554

ABSTRACT

Emotional Eating (EE) encompasses the excessive consumption or deprivation of food as a response to negative emotions, known as emotional overeating (EO) and undereating (EU) respectively. Attachment appears to be associated with EE. Studies suggest that stress and perceived stress levels are linked to Emotional Dysregulation (ED) and EE. Research indicates that the relationship between difficulties in emotion regulation and perfectionism with symptoms of eating disorders (ED) is mediated by emotional eating and cognitive restraint regarding eating. The present study aims to explore whether different levels of attachment dimensions (anxiety, avoidance), perceived stress, and perfectionism (DA & CM) yield distinct categories of EE. The design of the present study is independent measures. Snowballing technique was employed for the facilitation of the study. 227 participants were included (Mage= 29.45, SD= 9.79). The study necessitates the utilization of four self-report instruments, specifically the Revised Adult Attachment Scale (RAAS), the Perceived Stress Scale (PSS), the Frost Multidimensional Perfectionism Scale (FMPS) with a particular focus on its DA and CM subscales, and the Salzburg Emotional Eating Scale (SEES). Factorial Independent Measures ANOVA was facilitated. The only statistically significant result yielded consist of the interaction effect between attachment avoidance levels and perceived stress levels on emotional eating scores. The results regarding the insignificant effect of attachment anxiety levels (high, low), attachment avoidance levels, perceived stress levels and perfectionism levels on EE appear to be contradictory considering previous research.

Keywords: Attachment Dimensions, Emotional Eating behaviours, Perfectionism, Perceived Stress

INTRODUCTION

The term "Emotional Eating" (EE) encompasses the excessive consumption or deprivation of food as a response to negative emotions, known as emotional overeating (EO) and undereating (EU) respectively. It has been proposed that common factors underlie both EO and EU (Herle et al., 2017) e.g. parenting styles, which are associated with attachment, perceived intensity of stress as well as perfectionism (Wang & Li, 2017). While numerous studies have established a correlation between eating disorders (ED) and attachment (e.g., Zachrisson &

Skårderud, 2010), the existing research linking EE and attachment is relatively limited (Emond et al., 2016; Mamo & Louka, 2022). Research in the field of EE is crucial for identifying risk factors and triggers, as well as establishing the association between EE and mental health issues. This knowledge serves as a foundation for formulating effective interventions, given the potential impact of EE on physical health, such as obesity (Dakanalis et al., 2023). Furthermore, EE is conceptualized as a maladaptive mechanism for regulating emotions (Brytek-Matera, 2021), emphasizing the necessity of investigating this phenomenon in order to develop appropriate interventions. In the present paper EE will be discussed considering attachment, perceived stress and perfectionism.

Emotional Eating

The Salzburg emotional eating scale examines effects of basic emotions, entailing also positive emotions, on overeating and undereating (Meule & Reichenberger, 2018). Findings align with Macht's model (2008), indicating increased eating during sadness, decreased eating during anger/anxiety and unchanged patterns of eating in happiness (Meule & Reichenberger, 2018). However, research also suggests that positive emotions may induce overeating, which is associated with more dysregulated eating (Bongers et al., 2013). The most prevalent theories of EE exhibit variations in their focal points and accentuations regarding (a) the capacity to perceive and interpret internal bodily sensation (interoception), (b) cognitive mechanisms that underpin decision-making and self-control, and (c) the acquisition of behaviours through experiences and environmental cues (learning processes) (Reichenberger et al., 2020).

Dysregulated interception appears to be associated with EE as well as attachment insecurity, since it is suggested that parental responsiveness/unresponsiveness of the infant ´s needs regarding food encompasses the conceptualization of interoceptive states and it is associated with alterations in brain structures responsible for interoceptive processes e.g. reduced insular volume (Oldroyd, Pasupathi & Wainryb, 2019). Furthermore, the restraint theory suggests that strict dieting rules can lead to overeating when deviated from, while emotional factors disrupt cognitive control (Herman & Polivy, 1980). Limited self-regulation theory proposes that chronic stress or negative affectivity deplete resources, reducing inhibitory control over emotional eating (Vohs & Heatherton, 2000). The affect regulation model (Booth, 1994) posits that the rewarding aspects of consuming appetizing food counteract negative emotions, reinforcing future engagement through negative reinforcement and hence operant conditioning. Repeated pairing of negative emotions and eating can further lead to classical conditioning, resulting in increased motivation to eat in the presence of negative emotions (Macht & Simons, 2011). The escape theory suggests that individuals with binge eating tendencies may engage in such behaviours to escape negative self-awareness triggered by unpleasant emotional states (Heatherton & Baumeister, 1991). Emotional eating can be understood also considering the role of dopaminergic circuits in eating and their reinforcing effects on experiences that elicit pleasure (Berridge, 2009). Yet, the abovementioned theories and research do not differentiate why certain individuals engage in undereating while others resort to overeating in response to negative emotions.

Attachment dimensions & EE

Attachment theory posits that the caregiver´s responsiveness and the quality of the caregiver-infant relationship have implications for the individual ´s interpersonal relationships and self-perception (Bowlby, 1973). A secure attachment style develops from a healthy relationship, while the caregiver ´s unresponsiveness to the infant ´s needs leads to insecure attachment styles (IAS) namely

dismissing, preoccupied, and fearful (Bartholomew & Horowitz, 1991). The Integrative Model of the Activation and Dynamics of the Attachment System (IMADAS) suggests that individuals with IAS and negative perceptions of others (dismissing, fearful) employ deactivating strategies, and those with positive perceptions (preoccupied) use hyperactivating strategies. These strategies entail the degree to which attachment related cues are avoided or searched for in times of perceived threat. Fearful attachment involves conflicting desires for closeness and distrust, possibly leading the attachment system to remain activated, even though the behavioural strategies employed indicate a tendency towards deactivation (Shaver & Mikulincer, 2002).

Attachment dimensions (anxiety, dependency, avoidance) are vital for the conceptualization of IAS (Brennan et al., 1998). High attachment anxiety (fearful, preoccupied) leads to strong inclination for merging and seeking proximity to others, emphasizing negative emotions, worrying and using hyperactivating strategies (Birnbaum et al., 1997; Mikulincer & Florian, 1995; Mikulincer & Orbach, 1995; Simpson et al., 1992). High attachment avoidance (dismissing, fearful) reduces reliance on others, relying on oneself, using deactivating strategies, suppressing stress and help-seeking and avoiding emotional stimuli (Fuendeling, 1998; Mikulincer & Orbach, 1995; Simpson et al., 1992). Hence, via this conceptualization fearful attachment, characterized by high anxiety and avoidance, combines both deactivating and hyperactivating strategies.

Stapleton and Mackay (2014) explore the predictive power of attachment styles on EE. They employ an alternative scoring method by Karlsson et al. (2000) using the Three Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985) to measure EE. Their results indicate that only preoccupied attachment style predicts EE. This finding may be influenced by the focus of the TFEQ scale, which primarily assesses disinhibited eating, a component associated with overeating in response to emotions. Additionally, the sample composition and inclusion criteria of the study, consisting of healthy and overweight individuals recruited from online platforms addressing weight-related concerns, might have shaped the reported findings where social support for managing overeating challenges is commonly sought.

Taube-Schiff et al. (2015) examine attachment styles and emotional eating in bariatric candidates using the Emotional Eating Scale (EES) to assess EE considering anger, anxiety, and depression, with greater scores in EES demonstrating greater EE behaviour. Their results reveal a positive direct effect of attachment anxiety on the EE-anger subscale, indicating that individuals with higher attachment anxiety are more prone to EE in response to anger. Conversely, attachment avoidance demonstrates a negative direct effect on the EE-stress subscale, suggesting that individuals with higher attachment avoidance are less inclined to engage in EE during stressful situations. However, it is important to note that the interpretation of the inverse relationship between attachment avoidance and the EE-stress subscale should consider the EES's emphasis on overeating as part of EE. Furthermore, the study's limitations, such as the absence of a control group, restrict the generalizability of the findings. Recent research by Nancarrow et al. (2018) indicates higher attachment anxiety and lower attachment avoidance among individuals on the bariatric surgery waiting list, implying a preoccupied attachment style, which may also be a bias within the population selected in the research of Taube-Schiff et al., (2015) that may influence EO in relation to EE-anger scores, rather than attachment anxiety alone.

A recent meta-analysis by Faber, Dube, and Knauper (2018) suggests that higher levels of attachment insecurity, specifically attachment anxiety and attachment avoidance, are associated with increased unhealthy eating behaviours. These

behaviours include bulimia, binge eating, dieting, EE and consumption of unhealthy food. Among the scales used in the studies analysed, the only ones corresponding to EE consist of the Emotional Eating Scale (EES) and the Eating Self-Efficacy Scale (ESES). For the EES the difficulties in interpreting the findings considering EU are already discussed above and the ESES investigates eating patterns in socials situations alongside EE (Lombardo et al., 2020). Hence it appears that scales employed in some studies do not address the EU dimension of EE, even though their findings are portraying to do so.

Perceived stress & EE

Studies suggest that stress and perceived stress levels are linked to Emotional Dysregulation (ED) and Emotional Eating (EE) (Hey & Williams, 2013; Shen et al., 2020). Notably, higher levels of perceived stress have been found to be associated with subsequent binge eating behaviour (Smith et al., 2021). Additional findings indicate a positive correlation between perceived stress and EE, with increases in one variable corresponding to increases in the other (Carpio-Arias et al., 2022; Ling & Zahry, 2021; Sims et al., 2008). However, it is important to consider the limitations of these studies, such as the failure to account for confounding variables, including anxiety disorders (Carpio-Arias et al., 2022; Ling & Zahry). Moreover, the use of scales that do not differentiate between specific emotional eating categories (emotional overeating and emotional undereating), limits our understanding of the factors contributing to the manifestation of EO over EU. As a result, these studies not only lack evidence for a causal relationship between perceived stress and emotional eating but also fail to demonstrate associations between EU, EO and perceived stress levels. Yet, a deeper understanding of the scales employed in the corresponding studies, the meaning of higher scores in scales and the findings unfold a more informed comprehension of the existing literature. In the research of Ling and colleagues (2021), who employed the EES, it is suggested that the higher the levels of perceived stress the higher the EE behaviours. Yet, due to the nature and scoring of the EES, higher scores indicate overeating behaviour and hence their results indicate that greater levels of stress are associated with overeating. The same applies for the results in the Sims and colleagues' study (2008) and the study of Caprio-Arias et al (2022), since the latter employ the emotional eater questionnaire which was designed for obesity (Garaulet et al., 2012). Hence, it appears that existing studies do not investigate emotional undereating behaviours in relation to perceived stress.

Neurohormonal studies suggest that chronic stress may induce alterations in appetite-regulating hormones, leading to overeating, while acute stress may suppress appetite (Ans et al., 2018; Dallman, 2010; Gold & Chrousos, 2002). From a biological perspective acute stress, as commonly observed, tends to elicit a state of heightened vigilance termed the "fight-and-flight response," which entails the activation of the sympathetic-adrenal-medullary system, subsequently leading to the release of catecholamines such as adrenaline and noradrenaline. Specifically, noradrenaline has been demonstrated to exert its influence on appetite suppression amidst acute stress. Further effects of catecholamines encompass elevation of blood pressure, augmentation of heart rate, and reduction in blood supply to the digestive system, kidneys, and dermal tissues (Batterham et al., 2003; Halford, 2001). Yet, the presence of deficient interoceptive awareness, alexithymia, attenuated functioning of the hypothalamic-pituitary-adrenal axis (HPA) and impaired regulation of emotions can collectively instigate stress-induced episodes of excessive eating (van Strien, 2018). Such factors are associated also with attachment insecurity (Oldroyd, Pasupathi, & Wainryb, 2019; Khodarahimi et al., 2016; McCormicka, McElwainb, & Telzera, 2019). Interoception pertains to an

individual's capacity to perceive and monitor internal bodily signals (Garfinkel et al., 2015). Hence, it is suggested that deficient interoceptive awareness may result in reduced ability to perceive and monitor internal bodily signals related to hunger and satiety. Research also explains the association between emotional eating and emotion dysregulation suggesting the possible regulatory role of emotional overeating (Trompeter et al., 2022). Hence, findings suggest that from a biological perspective the normative response to high perceived stress constitutes restriction of food intake but in the presence of certain factors high perceived stress is associated with emotional overeating. Thus, no information can be obtained regarding emotional undereating from such findings.

Perfectionism & EE

Perfectionism is conceptualized as a multidimensional construct entailing two primary dimensions: perfectionistic strivings and perfectionistic concerns. Perfectionistic strivings involve the establishment of ambitious goals and high standards as a means to pursue perfection. On the other hand, perfectionistic concerns pertain to an individual's self-esteem being contingent upon the degree to which their own self-imposed standards are met (Frost et al., 1993). The latter is associated with emotion-related distress in clinical and non-clinical cases (e.g., Limburg et al., 2017; Stoeber & Otto, 2006), with research demonstrating causal effects of the latter on negative affectivity, where high perfectionism is present (Hummel et al., 2023). It is suggested that perfectionism can entail hypervigilant monitoring for goal attainment and it can also foster behaviours like social isolation, anxiety regarding performance, low mood as well as procrastination (Shafran, Cooper & Fairburn, 2002). The association between perfectionism and procrastination is suggested to be mediated by fear of failure and ego depletion (Zhang, Bai & Yang, 2022). The fear of failure can also explain anxiety related to performance. Social isolation influenced by perfectionism can be viewed as a response to negative affectivity entailed in perfectionism and considering the IMADAS model, it can pose a deactivating strategy (Shaver & Mikulincer, 2002). Research indicates that the relationship between difficulties in emotion regulation and perfectionism with symptoms of eating disorders (ED) is mediated by emotional eating and cognitive restraint regarding eating. The researchers conclude that challenges in regulating emotions may play a more crucial role than perfectionism in elucidating the manifestation of ED symptoms. (Mohorić et al., 2022). Another study suggests that high levels of perfectionism explain a significant portion of the variance in eating disorder symptoms among individuals who have limited access to adaptive strategies for regulating emotions. However, among individuals with greater access to adaptive strategies, perfectionism does not appear to significantly contribute to eating disorder symptoms (Donahue et al., 2018). Hence, it appears that perfectionism entails negative affectivity and the presence of emotional regulation difficulties as well as limited access to adaptive strategies for regulating emotions contribute to disordered eating and potentially to emotional eating behaviours.

Maladaptive perfectionism has been suggested to have a positive association with perceived stress (Shafique, Gul & Raseed, 2017), IAS (Pishva & Besharata, 2011) and disordered eating (Merwin et al., 2022). It has been proposed that adaptive perfectionism indirectly influences EE through stress, while maladaptive perfectionism has both direct and indirect associations with EE through stress (Wang & Li, 2017). However, the role of the perfectionism in the distinct EE behaviours (EO & EU) employed is not investigated. Conversely, a more recent study suggests that only specific dimensions of perfectionism, namely Doubts about actions (DA) and Concern over Mistakes (CM), which are entailed in maladaptive

perfectionism as classified by Soenens et al. (2005), are linked to EE. Specifically, the study suggests that high levels of DA and CM are related to restricted eating, whereas lower levels are associated with emotional overeating (Brotóns & Giráldez, 2022). The non-significant associations between the Organization (O) subscale of the Multidimensional Perfectionism Scale (MPS) and EE are attributed to the association between O and positive achievement, striving, and work habits that indicate a characteristic of healthy perfectionism (Hawkins, Watt & Sinclair, 2006; Frost & Marten, 1990) and hence it is suggested that it is not related with disordered eating. However, recent study has revealed that both high adaptive and maladaptive perfectionism are linked to symptomatology of anorexia nervosa (Haynos et al., 2018). Moreover, the non-significant effect of the Parental Expectations (PE) subscale (measuring perceptions of demanding and critical parents) on EE (Brotóns & Giráldez, 2022) is attributed to the fact that PE appears to contribute the least variance to the overall perfectionism measure (Frost & Marten, 1990). Nevertheless, the scales employed in the study primarily focus on emotional overeating and concerns regarding weight, with no measurement of restricted eating, emotional undereating, or symptoms of anorexia nervosa. Consequently, the study's claim of high DA and CM being related to restricted eating lacks clarity due to the scales' scope of measurement.

Rationale & Hypotheses

The available literature suggests that attachment dimensions, EE, ED exhibit associations, and different levels of attachment anxiety and attachment avoidance lead to distinct patterns of eating behaviour (Beijers et al., 2021; Gander, Sevecke & Buchheim, 2015). Additionally, perceived stress and perfectionism demonstrate positive links with EE behaviour (Carpio-Arias et al., 2022; Wang & Li, 2017). Furthermore, attachment dimensions, perceived stress, and perfectionism are interconnected. However, the existing literature faces limitations: 1) the correlational nature of the studies prevents causal interpretations, 2) the utilization of scales yielding a single EE score overlooks the EE dimentions, 3) some studies misinterpret the employed scales, 4) limited study designs with a small number of participants investigating complex phenomena and unaccounted confounding variables, and 5) inconsistent findings regarding e.g. the relationship between high perceived stress and binge eating, anorexia nervosa, EE, and ED, as acute stress is also associated with restrictive eating behaviours. The present study aims to explore whether different levels of attachment dimensions (anxiety, avoidance), perceived stress, and perfectionism (DA & CM) yield distinct categories of EE. The present study also aims to address some limitations of the previous research by employing a design that demonstrates causal relationships between the investigated variables and by utilizing a scale that captures both the emotional undereating and overeating behaviours. The hypotheses of the present study consist of: there are sole main effects of the levels (high, low) of 1) attachment anxiety, 2) attachment avoidance, 3) perceived stress levels and 4) perfectionism dimensions (DA & CM) on EE as well as there are two-way, three-way and four-way main interactions between attachment anxiety levels, attachment avoidance levels, perceived stress levels and perfectionism dimension levels on EE.

MATERIALS & METHODS

Design

The design of the present study is independent measures. There are four independent variables (IVs): attachment anxiety with two levels (high and low), attachment avoidance with two levels (high and low), perceived stress with two levels (high and low) and perfectionism with two levels (high and low). The dependent variable consists of emotional eating scores

(DV). Hence, the IVs in this design constitute nominal variables whereas the DV is scale. The rationale for selecting this design stems from the research hypotheses of the study that aim to investigate the effects of the IVs on the DV as well as the effect of the interaction of IVs on the DV. Since there are multiple IVs and the participants are only allocated in one group of each IV, the most suitable design is independent measures (Maxwell, Delaney & Kelley, 2018).

Participants

Snowballing technique was employed for the facilitation of the study. G*power yielded that for the facilitation of the present study and for obtaining a power of 0.95, 210 participants were requested. 231 participants took part in the present research, of which 4 were excluded due to missing data. Hence, 227 participants (159 females and 69 males) were included with an age mean of 29.45 years old and standard deviation of 9.79 years. The criteria for inclusion in this study require that participants be of legal adult age and possess the ability to comprehend written English for the purpose of completing the questionnaire. The criteria for exclusion, in turn, encompass the presence of a mental health disorder diagnosis and the recent occurrence of a distressing major event within the past month, such as a break-up or personal illness, which results in experiencing psychological distress that is not characteristic of the individual's typical day-to-day existence or overall stress levels. The exclusion criteria aim to ensure that the answers provided by the participants will not be effected by the presence of a mental health disorder nor the occurrence of a life event. Considering demographics regarding education 18.08% of participants had a High School degree, 50.66% had a bachelor's degree, 27.33% has a Master's degree and 3.96% had a PhD. Considering demographics regarding relationship status 40.09% of the participants were single, 38.30% of the participants were in a committed relationship, 18.08% were married and 12.35% choose "other", suggesting an in-between state of single and committed relationship.

Materials

The present study necessitates the utilization of four self-report instruments, specifically the Revised Adult Attachment Scale (RAAS, Collins, 1996), the Perceived Stress Scale (PSS, Cohen et al., 1983), the Frost Multidimensional Perfectionism Scale (FMPS, Stober, 1998) with a particular focus on its DA and CM subscales, and the Salzburg Emotional Eating Scale (SEES, Meule, Reichenberger, Blechert, 2018). These measures are essential to the successful execution of the present research endeavour.

The RAAS encompasses three distinctive subcategories, with each section comprising a total of six items. The three subcategories, namely CLOSE, DEPEND, and ANXIETY, are designed to evaluate and quantify a person's proficiency in expressing intimacy and their ability to rely on others in times of need, along with their propensity for feeling apprehensive and insecure about being rejected or unloved respectively. In order to measure attachment avoidance, the items of close (e.g. I find it relatively easy to get close to people) and depend (e.g. I find it difficult to allow myself to depend on others) are computed collectively and reversed scoring in particular items is necessary. Anxiety is measured with 6 items (e.g. I often worry that other people don't really love me). RAAS is scored in a Likert scaling with 5 points yielding the degree of relatedness to each statements, ranging from not at all characteristic of me=1 to very characteristic of me=5. Hence, higher scores in the dimension of anxiety and avoidance yield greater insecurity about being rejected or unloved and ability to rely on others in times of need respectively. For the RAAS, studies have reported good construct validity and high internal consistency with Cronbach's alpha coefficients ranging from 0.77 to 0.89 for the anxiety subscale and

0.80 to 0.90 for the avoidance subscale (Fraley et al., 2000; Gillath et al., 2005).

The PPS constitutes a 10-item scale with questions (e.g. In the last month, how often have you been able to control irritations in your life?) investigating stress levels within the previous month employing a 5-point Likert Scaling ranging from never=0 to very often=4. Questions 4, 5, 7, and 8 require reversed scoring and the higher the overall score in the PSS the higher the perceived stress levels. The PSS has shown good construct validity and high internal consistency with Cronbach's alpha coefficients ranging from 0.78 to 0.91 in different studies (Cohen & Williamson, 1988; Lee, 2012).

The FMPS measures perfectionistic tendencies employing four sub-scales that assess multifaceted dimensions of perfectionism, namely: (1) the apprehension towards mistakes and uncertainty regarding actions, (2) the exaggerated distress regarding parental expectations and evaluations, (3) the imposition of excessively elevated personal standards, and (4) the preoccupation with precision, order, and organization. In the present study only the 13 items (e.g. If I fail at work/school, I am a failure as a person) regarding the apprehension towards mistakes and uncertainty regarding actions were employed. FMPS employs a 5-point Likert scaling ranging from strongly disagree=1 to strongly agree=5. Higher scores demonstrate higher perfectionism tendencies and more specifically for the subscales employed, greater concern over mistakes (CM) and doubts about actions (DA). For the FMPS subscales of DA and CM, construct validity and internal consistency has been reported to be good, with Cronbach's alpha coefficients of 0.78 and 0.84, respectively (Frost et al., 1990).

The SEES is self-report measure that indicates emotional eating behaviours (both overeating and undereating) in the presence of emotions that are clustered in 4 categories consisting of anger-related, sadness-related, happiness-related and stress-related emotions. It consists of 20 items in total e.g. When I feel optimistic… and entails a 5-point Likert scale to address the presented statements ranging from I eat much less than usual=1 to I eat much more than usual=5 with lower scores indicating emotional undereating and higher scores indicating emotional overeating. The SEES has also demonstrated good internal consistency, with a Cronbach's alpha coefficient of 0.94 as well as good construct validity (Meule et al., 2018).

The data collection process was facilitated online, employing Google Forms which appears to be a mean widely used in the post-covid research field (e.g., Ladas et al., 2020) and hence additional materials employed for the present study consist of Google Forms, with which the Information, Consent and debrief forms as well as the questionnaires were distributed. Moreover, a password-protected computer, where the data were processed and SPSS for the analysis of the data were used.

PROCEDURE

Initially, the study participants were issued invitations via e-mail to partake in the research as well as the Google Forms link leading to the questionnaires. The invitations were sent to students, who were encouraged to share the form with their social circle. These invitations, which also contained pertinent information about the study and the participants' confidentiality, anonymity, and right to withdraw from the research, were subsequently followed by a consent form, where they provided their consent to participate in the study. Afterwards, the participants completed a series of questionnaires, in the form provided, which included demographic questions (age, sex, relationship status and highest educational level achieved), the Revised Adult Attachment Scale, the perceived stress scale (PSS), the Frost Multidimensional Perfectionism Scale (FMPS), but only with the subscales of DA and CM, and the Salzburg Emotional Eating Scale (SEES). Finally, the participants were

presented with a debriefing form, which outlined the true purpose of the study, as well as their right to withdraw within two weeks from participation. The debriefing form included contact information for the researcher and supervisor in case participants wished to withdraw from the study or had further questions. The entire process of questionnaire completion and form reading took approximately 10-15 minutes. Participants were also asked, in case they were willing to, to distribute the link to individuals within their social circle. Lastly, participants were thanked for their participation in the present study.

RESULT

Data screening

Firstly, the independent variables (attachment anxiety, attachment avoidance, perceived stress and perfectionism) were converted from numerical to nominal employing median split in order to obtain high and low categories for each IV. The categories were formulated as following based on the medians: low attachment avoidance <35 (113 participants), high attachment avoidance ≥35 (114 participants), low attachment anxiety <18 (115 participants), high attachment anxiety≥18, (112 participants) low perfectionism <33 (111 participants), high perfectionism ≥33 (116 participants), low perceived stress<20 (105 participants) and high perceived stress ≥20 (122 participants). In order to assess normal distribution, histograms, z scores, skewness and kurtosis as well as tests of normality namely Shapiro-Wilk test and the Kolmogorov-Smirnov test were checked. While skewness and kurtosis for every group were between the values of -1.96 and 1.96, the z scores yielded one outlier, with a z score greater than 3, the normality tests yielded statistically significant results in the groups of low perfectionism, high perceived stress, low and high attachment avoidance as well as high attachment anxiety. Simultaneously, histograms indicated 7 more participants as deviating from normal distribution in their corresponding groups. For the participants with the deviating scores the following rule of replacing scores was followed: for those having greater scores than the rest of the category e.g., high attachment anxiety, the mean and the standard deviation of the category were obtained and their emotional eating scores was replaced with mean + 1 standard deviation, whereas for those having lower scores than the rest of the category, their scores were replaced with mean- 1 standard deviation. After facilitating these changes, z scores histograms and normality tests were obtained again and the values were in accordance with the parametric assumptions (-3<z scores>3, normality tests>0.05 p-value). Homogeneity of variance was checked employing Levene ´s test, which yielded no statistically significant result.

Descriptive Statistics

Factorial Independent Measures ANOVA was facilitated employing SPSS software to investigate the effect of high and low levels of attachment avoidance, attachment anxiety, perceived stress and perfectionism on emotional eating scores as well as the interaction effect between attachment avoidance levels and attachment anxiety levels, attachment avoidance levels and perceived stress levels, attachment avoidance levels and perfectionism levels, attachment anxiety levels and perceived stress levels, attachment anxiety levels and perfectionism levels, perceived stress levels and perfectionism levels on emotional eating scores. Additionally, investigations regarding three-way interaction effects between a)attachment anxiety levels, attachment avoidance levels and perceived stress levels, b) attachment anxiety levels, attachment avoidance levels and perfectionism levels, c) attachment anxiety levels, perceived stress levels and perfectionism levels, d) attachment avoidance levels, perceived stress levels and perfectionism levels on emotional eating scores as well as the four-way interaction effect between attachment anxiety,

attachment avoidance, perceived stress, and perfectionism on emotional eating scores were facilitated. The mean of emotional eating scores only for the statistically significant effects, specifically the interaction effect between perceived stress levels and attachment avoidance on emotional eating scores is shown in Table 1.

Table 1. Mean of emotional eating scores (with standard deviations) in the interaction between low and high avoidant attachment and high and low perceived stress categories.

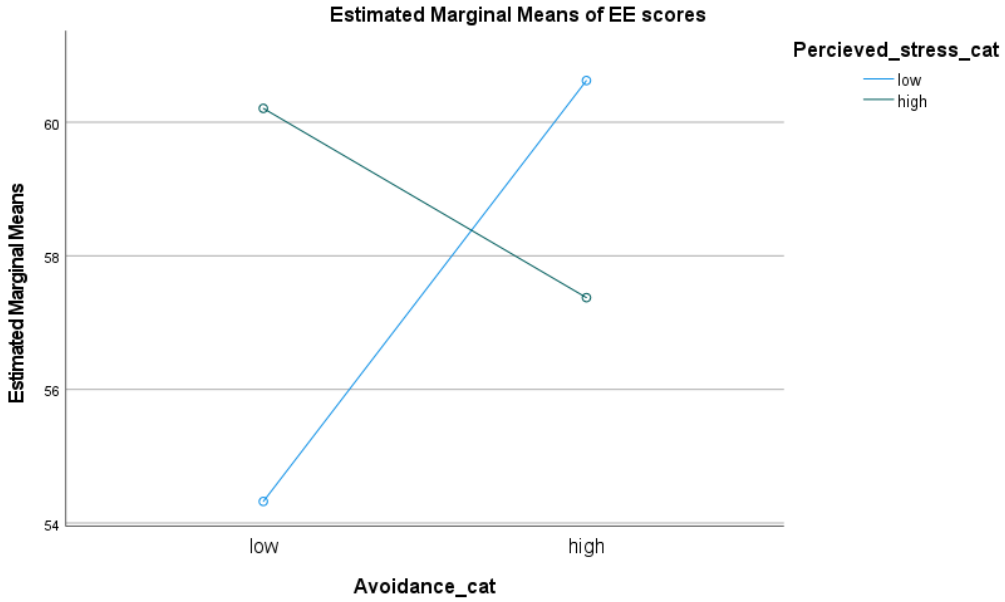
Avoidance	**Perceived stress**		
		Low	**High**
	Low	**M= 54.32, SD= 2.18**	**M= 60.21, SD= 1.95**
	High	**M= 60.63, SD= 1.75**	**M= 57.38, SD= 1.8**
M= mean score, SD= standard deviation			

Considering the table, it appears that individuals with low attachment avoidance levels eat more when having high perceived stress levels (m=60.208, std=1.947) compared to having low perceived stress levels (m=54.324, std=2.180). Moreover, it appears that individuals with high attachment avoidance eat less when having high perceived stress levels (m=57.375 std=1.797), compared to having low perceived stress levels (m=60.625 std=1.746). In order to further discuss these differences in the means, the p-value of significance regarding the interaction effect on emotional eating scores is needed as well as the effect size of the interaction.

STATISTICAL ANALYSIS

Data were analysed using a 2 (Attachment anxiety levels) x 2 (Attachment avoidance levels) x 2 (Perceived stress levels) x 2 (Perfectionism levels) Factorial Independent Measures ANOVA. Effect sizes were calculated, and power analysis were also conducted. The only statistically significant result yielded consist of the interaction effect between attachment avoidance levels and perceived stress levels on emotional eating scores, F (1,211) =5.630, p= .019, ω^2= -.02, η^2= .00075. In order to address the direction of the interaction effect Graph 1 needs to be interpreted as well.

Graph 1. The interaction effect between perceived stress levels and attachment avoidance levels on emotional eating scores.



It appears that the lower the perceived stress and the higher the attachment avoidance the higher the emotional eating scores, whereas the higher the perceived stress and the higher the avoidance the lower the emotional eating scores. Also, the higher the perceived stress and the lower the attachment avoidance, the higher the emotional eating scores, whereas the lower the perceived stress and the lower the avoidance, the lower the emotional eating scores.

DISCUSSION

The results of the present study yield no main effect of the levels of attachment anxiety on EE behaviours, no main effect of levels of attachment avoidance on EE behaviours, no main effect of levels of perceived stress on EE behaviours and no main effect of specific perfectionism dimensions (DA & CM) on EE behaviours. Also, the results yield no main two-way, three-way and four-way interactions between levels of attachment anxiety, levels of attachment avoidance, levels of perceived stress and levels of specific perfectionism dimension on EE behaviours, with the exception of a main interaction between levels of avoidance and levels of perceived stress on EE. More specifically, the data suggests that low perceived stress and high attachment avoidance group demonstrate higher scores of EE and hence EO, whereas high perceived stress and high avoidance group demonstrates lower scores of EE and hence EU. Furthermore, high perceived stress and low avoidance group demonstrates higher scores of EE and hence EO, while low perceived stress and low avoidance levels are associated with lower scores of EE.

Attachment & EE

The results regarding the insignificant effect of attachment anxiety levels (high, low) and attachment avoidance levels (high, low) appear to be contradictory considering previous research, the existing bibliography and theoretical conceptualization (Emond et al., 2016; Faber, Dube & Knauper, 2018; Herle et al., 2017; Shaver & Mikulincer, 2002; Stapleton & Mackay, 2014; Taube-Schiff et al., 2015). However, a deeper understanding of the scales and designs employed in the corresponding studies as well as the way their findings were interpreted can aid the comprehension of this inconsistency. In Taube-Schiff et al. (2015) and Stapleton and Mackay (2014) studies only bariatric candidates were employed. However, employing such participants can entailed confounding variables since another study suggested the prevalence of high attachment anxiety and low attachment avoidance, and thus preoccupied attachment style, in such groups (Nancarrow et al., 2018). Hence, their results suggesting that high attachment anxiety (preoccupied & fearful) is associated with EE may not in fact convey findings regarding high attachment anxiety but for preoccupied attachment in specific. Also, the misinterpretation of their findings due to the lack of acknowledging the focus of the scale employed hinders the understanding of the relationship between attachment avoidance and EE. In EES scoring, it is suggested that higher scores demonstrate greater EE behaviours. Yet, this end of the scale is associated with overeating behaviours and thus their findings demonstrate and inversely proportional between attachment avoidance and EE. Nevertheless, they provide enlightening findings regarding the potential employment of EE as a coping mechanism for specific emotions, which in their case constitutes the finding that attachment anxiety demonstrates a significant result in anger-induced overeating. The employment of scales that measure EE while acknowledging only the EO dimension or that simultaneously measure other factors such eating patterns in socials situations and provide a collective EE score, hinders the understanding of EE dimensions and induces a difficulty in the interpretation of such findings considering the

conceptualization of the reasons underlying the two distinct EE behaviours.

Simultaneously, in order to address the EE behaviours as a mean of coping with emotions in relation to attachment dimensions the consideration of coping strategies employed according to the attachment system is essential. As the IMADAS states (Shaver & Mikulincer, 2002) highly avoidant individuals tend to employ deactivating strategies in the presence of perceived threat, meaning the avoidance of attachment related cues, whereas individuals high in attachment anxiety (preoccupied) tend to employ hyperactivating strategies. Even though the fearful attachment is high in attachment anxiety as well and entails conflicting desires for closeness and distrust, due to the simultaneous high attachment avoidance, their behavioural strategies are suggested to indicate a tendency towards deactivating strategies, although their attachment system may remain activated. Hence, in the high anxiety dimension preoccupied and fearful attachments are entailed, with the first engaging in hyperactivating strategies and the latter engaging in deactivating strategies in the presence of threat. Thus, since there could be different attachment-related activating strategies employed in the high attachment anxiety group which could also be interpreted in EE behaviours and scores, resulting in a non-significant effect of attachment anxiety levels on EE behaviours. Yet, in this case it would be expected that attachment avoidance levels would have a statistically significant effect on EE behaviours and reduced food intake in the presence of negative emotions (Han & Kahn, 2017), which is also not supported by the present findings. The explanation for this may lie to the association between attachment avoidance and emotional cut-off as well as the mediatory role that emotional cutoff is suggested to play in the relationship between attachment avoidance and eating behaviours. The concept of "emotional cutoff" refers to a psychological state characterized by the overregulation of emotions and difficulties in both experiencing and expressing emotions. In the context of eating behaviours, it is suggested that individuals with a tendency towards emotional cutoff may be more prone to engage in restricted eating patterns (Han & Kahn, 2017). Hence, since in high avoidance emotion is overregulated, it might be the case that the degree in which emotions are experienced plays a role in the activation of the attachment system and consequently in the employment of deactivating strategies and thus EE behaviours. This is a concept that can also be supported by the only significant interaction found in the present study which suggests that there is a main interaction between the level of perceived stress and level of attachment avoidance on EE scores.

Perceived stress

The results suggest that there is no significant effect of perceived stress levels on EE behaviours, which appears to be in contradiction with previous literature as well (Ans et al., 2018; Carpio-Arias et al., 2022; Dallman, 2010; Gold & Chrousos, 2002 Ling & Zahry, 2021; Sims et al., 2008; Smith et al., 2021). Yet, a deeper understanding of the scales, samples and findings of such findings can provide with reasons to explain the presented inconsistencies. The study of Smith et al., 2021 yeilds that higher levels of perceived stress are associated with subsequent overconsumption of food. However, this study is facilitated in patients diagnosed with Binge Eating Disorder (BED) with the corresponding theory (Escape theory) suggesting that in BED individuals may engage in such behaviours to escape negative self-awareness triggered by unpleasant emotional states (Heatherton & Baumeister, 1991). In the studies of Carpio-Arias et al., 2022 and Ling & Zahry, 2021 it is also suggested that high levels of perceived stress are associated with EO. However, exclusion of individuals with anxiety disorders is not mentioned, which could be a confounding variable since

chronic stress appears to be associated with EO behaviours according to neurohormonal studies (Ans et al., 2018; Dallman, 2010; Gold & Chrousos, 2002). Moreover, in the study of Smith et al., 2008 it appears that the mean BMI is 31, which is considered to fall under the overweight/obese spectrum and thus the sample does not constitute a representative sample. Neurohormonal studies indicate that in cases of high stress, appetite is restricted, whereas in cases of chronic stress EO is induced (Ans et al., 2018; Dallman, 2010; Gold & Chrousos, 2002). Yet, this conceptualization fails to acknowledge non-biological factors that may alter the response to perceived stress and subsequently eating behaviours.

Perfectionism

The results of the study suggest that there is no significant difference between the high and low groups of specific perfectionism dimensions regarding EE behaviours. The specific perfectionism dimensions considered are Doubts about Actions and Concerns over mistakes, which are suggested to constitute maladaptive elements of perfectionism (Soenens et al., 2005). Yet, the multidimensional scale of perfectionism (Frost et al., 1993) entails other dimensions as well, which constitute adaptive aspects of perfectionism. The selection of only two dimensions of the scale for the conduction of the study was facilitated following the suggestion of Bernabéu-Brotóns and Marchena-Giráldez (2022), whose findings indicate that higher levels of these dimensions of perfectionism are related to restricted eating whereas lower levels of these dimensions are related to overeating behaviours. In order to comprehend the insignificant effect of perfectionism dimensions on EE in the present study two aspects should be considered: the scales employed in the original study of Bernabéu-Brotóns and collegues (2022) and the corresponding meaning of the scores yielded by such scales as well as the possible effect of merely employing two subscales of the original perfectionism scale in the study ´s findings.

Firstly, considering the scales it appears that the scales employed in the study of Bernabéu-Brotóns and collegues (2022) consist of The Emotional Eater Questionnaire (EEQ) and the Binge Eating Scale (BES). The emotional eater questionnaire was designed for obesity (Garaulet et al., 2012) and the scoring method of the scale suggests that higher scores indicate greater emotional eating behaviour with examples of the scale items being e.g., ¨Is it difficult for you to stop eating sweet things, especially chocolate? ¨. Likewise, the Binge eating scale explores overeating tendencies. Hence, the results of the study do not correspond to undereating behaviours, rather than aspects of behavioural control regarding eating behaviours and the overeating aspect of EE. Therefore, the insignificant effect of the specific perfectionism dimensions (CM and DA) on EE in the present study that contradicts the findings of Bernabéu-Brotóns and colleagues (2022) may be attributed to the different focus of the scales employed in relation to eating behaviours, suggesting that emotional eating is not dependent on these specific perfectionism dimensions.

Secondly, the employment of merely two subscales of the perfectionism scale might be associated with the non-significant effect. It is suggested that there are distinct clusters considering perfectionism that include low perfectionism, maladaptive perfectionism, and adaptive perfectionism (Rice & Ashby, 2007). Furthermore, there have been observations of composite groups exhibiting heightened manifestations of both adaptive and maladaptive perfectionism (Gaudreau & Thompson, 2010). A meticulous examination of the clinical associations related to these subsets has revealed that individuals exclusively characterized by maladaptive perfectionism exhibit the most detrimental outcomes, while those exclusively characterized by adaptive perfectionism display the most favourable

outcomes (Stoeber and Otto, 2006). Therefore, it can be argued that the consideration of only two subscales that are entailed in the maladaptive aspect of perfectionism without considering the entirety of perfectionism may hinder the results of the study, since there might be differences between individuals having more maladaptive perfectionistic tendencies and others having mixed (adaptive and maladaptive) perfectionistic tendencies that might lead to different patterns of eating behaviours.

Strengths & Limitations

The present study is not without limitations, and this could be argued to be reflected partially by the small effect size. The small effect size yielded in the present study considering the only significant interaction effect between attachment avoidance and perceived stress on EE behaviours (ω^2= -0.02, η^2= 0.00075), suggesting the non-generalizability of this interaction effect to the general population. The small size effect may yield the insufficient statistical power as well as the complexity of the variables explored. Although in the present study a power of 0.95 was obtained, there were discrepancies in the number of participants in each group, which was probably magnified by the employment 4 independent variables that complicated the formation of equal groups in numbers. Apart from increasing the complexity of the design, the employment of 4 independent variables might also increase the possibility of Tyle II error, in which there is a decreased likelihood of identifying meaningful effects. Yet, the present research addresses a gap in literature, investigating causality in the relationships between attachment dimensions, perceived stress and specific perfectionism dimensions and EE behaviours, acknowledging both overeating and undereating behaviours.

Future research

The need of further research is apparent for the conceptualization of emotional undereating and emotional overeating behaviours is needed in order to comprehend the reasons leading some individuals to employ overeating behaviours whereas others to employ undereating behaviours in response to their negative emotions. However, such attempts should be made by employing scales that address both overeating and undereating aspects of EE, with caution regarding the characteristics of the population selected to employ as a sample. Research associating perfectionism and EE behaviours can be facilitated, while distinguishing between perfectionism aspects (low, maladaptive, adaptive and mixed) so to investigate if different aspects of perfectionism lead to distinct EE behaviours. Simultaneously, research is needed to investigate if there is a causal relationship between attachment styles and EE behaviours. For the allocation of individuals within attachment groups the employment of attachment interviews could be beneficial. Lastly, research can be also conducted considering the theorization of EE as a coping mechanism, demonstrating associations between coping styles and the two EE behaviours.

CONCLUSION

In conclusion, it appears that investigating the reasons leading to the two EE behaviours needs further research in order for the phenomenon to be conceptualized. The interaction effect between attachment avoidance and perceived stress on EE was the only effect indicated in the present study, with however a small effect size. Future research can draw upon the study ´s design, rationale and limitations in order to promote a deeper understanding of the complex phenomenon of EE, the relationship that it shares with the attachment system, stress levels and perfectionism aspects.

Declaration by Authors

Acknowledgement: None
Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Ans, A. H., Anjum, I., Satija, V., Inayat, A., Asghar, Z., Akram, I., & Shrestha, B. (2018). Neurohormonal Regulation of Appetite and its Relationship with Stress: A Mini Literature Review. *Cureus*, 10(7), e3032. doi: 10.7759/cureus.3032
2. Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61(2), 226–244. https://doi.org/10.1037/0022-3514.61.2.226
3. Batterham, R. L., Cohen, M. A., Ellis, S. M., Le Roux, C. W., Withers, D. J., Frost, G. S., Ghatei, M. A., & Bloom, S. R. (2003). Inhibition of food intake in obese subjects by peptide YY3-36. *New England Journal of Medicine*, 349(10), 941-948. doi: 10.1056/NEJMoa030204
4. Beijers, R., Miragall, M., van den Berg, Y., Konttinen, H. & van Strien, T. (2021). Parent-Infant Attachment Insecurity and Emotional Eating in Adolescence: Mediation through Emotion Suppression and Alexithymia. *Nutrients*, 13(5), 1662. doi: 10.3390/nu13051662.
5. Bernabéu-Brotóns, E., & Marchena-Giráldez, C. (2022). Emotional Eating and Perfectionism as Predictors of Symptoms of Binge Eating Disorder: The Role of Perfectionism as a Mediator between Emotional Eating and Body Mass Index. *Nutrients*, 14(16), 3361. doi: 10.3390/nu14163361
6. Berridge, K. C., Robinson, T. E., & Aldridge, J. W. (2009). Dissecting components of reward: 'Liking', 'wanting', and learning. *Current Opinion in Pharmacology*, 9(1), 65-73. https://doi.org/10.1016/j.coph.2008.12.014
7. Birnbaum, G. E., Orr, I., Florian, V., et al. (1997). When marriage breaks up-Does attachment style contribute to coping and mental health? *Journal of Social and Personal Relationships*, 14(5), 699-702. https://doi.org/10.1177/0265407597145008
8. Booth, C. L. (1994). Predicting social adjustment in middle childhood: the role of preschool attachment security and maternal style. *Social Development*, 3(3), 189–204. doi:10.1111/j.1467-9507. 1994.tb00040.x
9. Bongers, P., Jansen, A., Havermans, R., Roefs, A., & Nederkoorn, C. (2013). Happy eating: The underestimated role of overeating in a positive mood. *Appetite*, 67, 74-80. https://doi.org/10.1016/j.appet.2013.03.017
10. Bowlby, J. (1973). *Attachment and loss. Vol. 2: Separation: anxiety and anger*. New York, NY: Basic Books.
11. Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998*). Self-report measurement of adult attachment: An integrative overview*. In J. A. Simpson & W. S. Rholes (Eds.), Attachment theory and close relationships (pp. 46–76). The Guilford Press.
12. Brytek-Matera, A., Obeid, S., Akel, M., & Hallit, S. (2021). How Does Food Addiction Relate to Obesity? Patterns of Psychological Distress, Eating Behaviors and Physical Activity in a Sample of Lebanese Adults: The MATEO Study. *International Journal of Environmental Research and Public Health*, 18(20), Article 10979. https://doi.org/10.3390/ijerph182010979
13. Carpio-Arias, T. V., Solís Manzano, A. M., Sandoval, V., Vinueza-Veloz, A. F., Rodríguez Betancourt, A., Betancourt Ortíz, S. L., & Vinueza-Veloz, M. F. (2022). Relationship between perceived stress and emotional eating: A cross-sectional study. *Clinical Nutrition ESPEN*, 49, 314-318. https://doi.org/10.1016/j.clnesp.2022.03.030
14. Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. *Journal of Health and Social Behavior*, 24(4), 385-396.
15. Cohen, S., & Williamson, G. (1988). *Perceived stress in a probability sample of the United States.* In S. Spacapam & S. Oskamp (Eds.), The Social Psychology of Health (pp. 31-67). Newbury Park, CA: Sage.
16. Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology*, 71, 810-832.
17. Dakanalis, A., Mentzelou, M., Papadopoulou, S. K., Papandreou, D., Spanoudaki, M., Vasios, G. K., Pavlidou, E., Mantzorou, M., & Giaginis, C. (2023). The Association of Emotional Eating with Overweight/Obesity, Depression,

Anxiety/Stress, and Dietary Patterns: A Review of the Current Clinical Evidence. *Nutrients*, 15(5), Article 1173. https://doi.org/10.3390/nu15051173

18. Dallman, M. F. (2010). Stress-induced obesity and the emotional nervous system. *Trends in Endocrinology & Metabolism*, 21(3), 159-165. doi: 10.1016/j.tem.2009.10.004
19. Donahue, S., Schwien, M., & LaVallee, D. (2019). Educating Emergency Department Staff on the Identification and Treatment of Human Trafficking Victims. *Journal of Emergency Nursing*, 45(1), 16-23. doi: 10.1016/j.jen.2018.03.021
20. Emond, M., Ten Eycke, K., Kosmerly, S., Lafrance Robinson, A., Stillar, A., & Van Blyderveen, S. (2016). The effect of academic stress and attachment stress on stress-eaters and stress-undereaters. *Appetite*, 100, 210-215. https://doi.org/10.1016/j.appet.2016.01.035
21. Faber, A., Dubé, L., & Knäuper, B. (2018). Attachment and eating: A meta-analytic review of the relevance of attachment for unhealthy and healthy eating behaviors in the general population. *Appetite*, 123, 410-438. https://doi.org/10.1016/j.appet.2017.10.043
22. Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350-365.
23. Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences*, 14(1), 119-126. doi: 10.1016/0191-8869(93)90181-2.
24. Fuendeling, J. M. (1998). Affect regulation as a stylistic process within adult attachment. *Journal of Social and Personal Relationships*, 15(3), 291–322. https://doi.org/10.1177/0265407598153001
25. Gander, M., Sevecke, K., & Buchheim, A. (2015). Eating disorders in adolescence: Attachment issues from a developmental perspective. *Frontiers in Psychology*, 6, 1136. doi: 10.3389/fpsyg.2015.01136
26. Garaulet, M., Canteras, M., Morales, E., López-Guimera, G., Sánchez-Carracedo, D., & Corbalán-Tutau, M. D. (2012). Validation of a questionnaire on emotional eating for use in cases of obesity: The Emotional Eater Questionnaire (EEQ). *Nutrición Hospitalaria*, 27(2), 645-651. doi: 10.1590/S0212-16112012000200043
27. Garfinkel, S. N., Seth, A. K., Barrett, A. B., Suzuki, K., & Critchley, H. D. (2015). Knowing your own heart: Distinguishing interoceptive accuracy from interoceptive awareness. *Biological Psychology*, 104, 65-74. doi: 10.1016/j.biopsycho.2014.11.004
28. Gaudreau, P., & Thompson, A. (2010). Testing a 2×2 model of dispositional perfectionism. *Personality and Individual Differences*, 48(5), 532–537. https://doi.org/10.1016/j.paid.2009.11.031
29. Gillath, O., Shaver, P. R., Mikulincer, M., Nitzberg, R. E., Erez, A., & van IJzendoorn, M. H. (2005). Attachment, caregiving, and volunteering: Placing volunteerism in an attachment-theoretical framework. *Personal Relationships*, 12(4), 425-446. https://doi.org/10.1111/j.1475-6811.2005.00124.x
30. Gold, P. W., & Chrousos, G. P. (2002). Organization of the stress system and its dysregulation in melancholic and atypical depression: high vs low CRH/NE states. *Molecular Psychiatry*, 7(3), 254-275. doi: 10.1038/sj.mp.4001032
31. Han, S., & Kahn, J. H. (2017). Attachment, emotion regulation difficulties, and disordered eating among college women and men. *The Counseling Psychologist*, 45(8), 1066-1090. https://doi.org/10.1177/0011000017744884
32. Hawkins, C. C., Watt, H. M. G., & Sinclair, K. E. (2006). Psychometric Properties of the Frost Multidimensional Perfectionism Scale With Australian Adolescent Girls: Clarification of Multidimensionality and Perfectionist Typology. *Educational and Psychological Measurement*, 66(6), 1001–1022. https://doi.org/10.1177/0013164405285909
33. Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. Psychological Bulletin, 110(1), 86–108. https://doi.org/10.1037/0033-2909.110.1.86
34. Herle, M., Fildes, A., Steinsbekk, S., & Wichstrøm, L. (2017). Emotional over- and under-eating in early childhood are learned not inherited. *Scientific Reports*, 7, 9092. https://doi.org/10.1038/s41598-017-09519-0

35. Herman, C. P., & Polivy, J. (1980). Restrained eating. Philadelphia, PA: Saunders.
36. Hummel, J., Cludius, B., Woud, M. L., Holdenrieder, J., Mende, N., Huber, V., Limburg, K., & Takano, K. (2023). The causal relationship between perfectionism and negative affect: Two experimental studies. *Personality and Individual Differences*, 200, 111895. doi: 10.1016/j.paid.2022.111895.
37. Karlsson, J., Persson, L. O., Sjöström, L., & Sullivan, M. (2000). Psychometric properties and factor structure of the Three-Factor Eating Questionnaire (TFEQ) in obese men and women: Results from the Swedish Obese Subjects (SOS) study. *International Journal of Obesity and Related Metabolic Disorders*, 24(12), 1715-1725. https://doi.org/10.1038/sj.ijo.0801442
38. Khodarahimi, S., Hashim, I. H. M., & Mohd-Zaharim, N. (2016). Attachment styles, perceived stress and social support in a Malaysian young adults sample. *Psychologica Belgica*, 56(1), 65-79. doi: 10.5334/pb.320
39. Ladas, V., Mamo, H. I., Mamidi, A., Mirasgendi, E., Korovesi, D., Afentouli, P., & Louka, P. (2020). The effect of interactive storytelling with emotionally charged and neutral word-quests in working memory: An experimental approach. *Dialogues in Clinical Neuroscience & Mental Health*, 3(4), 203-210.
40. Lee, E.-H. (2012). Review of the psychometric evidence of the perceived stress scale. *Asian Nursing Research*, 6(4), 121-127. https://doi.org/10.1016/j.anr.2012.08.004
41. Limburg, K., Watson, H. J., Hagger, M. S., & Egan, S. J. (2017). The Relationship Between Perfectionism and Psychopathology: A Meta-Analysis. *Journal of Clinical Psychology*, 73(10), 1301-1326. doi: 10.1002/jclp.22435.
42. Ling, J., & Zahry, N. R. (2021). Relationships among perceived stress, emotional eating, and dietary intake in college students: Eating self-regulation as a mediator. *Appetite*, 163, 105215. https://doi.org/10.1016/j.appet.2021.105215
43. Lombardo, G., Vena, F., Negri, P., Pagano, S., Barilotti, C., Paglia, L., Colombo, S., Orso, M., & Cianetti, S. (2020). Worldwide prevalence of malocclusion in the different stages of dentition: A systematic review and meta-analysis. *European Journal of Paediatric Dentistry*, 21(2), 115-122. https://doi.org/10.23804/ejpd.2020.21.02.05
44. Macht, M. (2008). How emotions affect eating: A five-way model. *Appetite*, 50(1), 1-11. https://doi.org/10.1016/j.appet.2007.07.002
45. Macht, M., & Simons, G. (2010). Emotional Eating. *Emotion Regulation and Well-Being*, 281–295. doi:10.1007/978-1-4419-6953-8_17
46. Mamo, H. I., & Louka, P. (2022). The experience of emotional eating in individuals with insecure attachment style: An Interpretative Phenomenological Analysis (IPA) approach. *Dialogues in Clinical Neuroscience and Mental Health*, 5(1), Article 219. https://doi.org/10.26386/obrela.v5i1.219
47. Maxwell, S. E., Delaney, H. D., & Kelley, K. (2017). *Designing Experiments and Analyzing Data: A Model Comparison Perspective* (3rd ed.). Routledge. https://doi.org/10.4324/9781315642956
48. McCormick, E. M., McElwain, N. L., & Telzer, E. H. (2019). Alterations in adolescent dopaminergic systems as a function of early mother-toddler attachment: A prospective longitudinal examination. *International Journal of Developmental Neuroscience*, 78, 122-129. doi: 10.1016/j.ijdevneu.2019.06.010
49. Meule, A., Reichenberger, J., & Blechert, J. (2018). Development and preliminary validation of the Salzburg Stress Eating Scale. *Appetite*, 120, 442-448. https://doi.org/10.1016/j.appet.2017.10.003
50. Mikulincer, M., & Florian, V. (1995). Appraisal of and coping with a real-life stressful situation: The contribution of attachment styles. *Personality and Social Psychology Bulletin*, 21(4), 406–414. https://doi.org/10.1177/0146167295214011
51. Mikulincer, M., & Orbach, I. (1995). Attachment styles and repressive defensiveness: The accessibility and architecture of affective memories. *Journal of Personality and Social Psychology*, 68(5), 917–925. https://doi.org/10.1037/0022-3514.68.5.917
52. Mikulincer, M., & Shaver, P. R. (2003). The Attachment Behavioral System In Adulthood: Activation, Psychodynamics, And Interpersonal Processes. *Advances in*

Experimental Social Psychology, 53–152. doi:10.1016/s0065-2601(03)01002-5

53. Mohorić, T., Pokrajac-Bulian, A., Anić, P., Kukić, M., & Mohović, P. (2022). Emotion regulation, perfectionism, and eating disorder symptoms in adolescents: the mediating role of cognitive eating patterns. *Current Psychology*. Advance online publication. https://doi.org/10.1007/s12144-022-03824-2
54. Nancarrow, A., Hollywood, A., Ogden, J., & Hashemi, M. (2018). The role of attachment in body weight and weight loss in bariatric patients. *Obesity Surgery*, 28(2), 410-414. https://doi.org/10.1007/s11695-017-2796-1
55. Oldroyd, K., Pasupathi, M., & Wainryb, C. (2019). Social antecedents to the development of interoception: Attachment-related processes are associated with interoception. *Frontiers in Psychology*, 10, Article 712. https://doi.org/10.3389/fpsyg.2019.00712
56. Pishva, N., & Besharat, M. A. (2011). Relationship Attachment Styles with Positive and Negative Perfectionism. *Procedia - Social and Behavioral Sciences*, 30, 402-406. doi: 10.1016/j.sbspro.2011.10.079
57. Reichenberger, J., Schnepper, R., Arend, A-K., & Blechert, J. (2020). Emotional eating in healthy individuals and patients with an eating disorder: Evidence from psychometric, experimental, and naturalistic studies. *Proceedings of the Nutrition Society*, 79(3), 290-299. https://doi.org/10.1017/S0029665120007004
58. Rice, K. G., & Ashby, J. S. (2007). An efficient method for classifying perfectionists. *Journal of Counseling Psychology*, 54(1), 72–85. https://doi.org/10.1037/0022-0167.54.1.72
59. Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology*, 62(3), 434–446. https://doi.org/10.1037/0022-3514.62.3.434
60. Sims, D. W., Southall, E. J., Humphries, N. E., Hays, G. C., Bradshaw, C. J. A., Pitchford, J. W., James, A., Ahmed, M. Z., Brierley, A. S., Hindell, M. A., Morritt, D., Musyl, M. K., Righton, D., Shepard, E. L. C., Wearmouth, V. J., Wilson, R. P., Witt, M. J., & Metcalfe, J. D. (2008). Scaling laws of marine predator search behaviour. *Nature*, 451, 1098–1102. https://doi.org/10.1038/nature06518
61. Shafique, N., Gul, S., & Raseed, S. (2017). Perfectionism and perceived stress: The role of fear of negative evaluation. *International Journal of Mental Health*, 46(4), 312–326. https://doi.org/10.1080/00207411.2017.1345046
62. Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: A cognitive-behavioural analysis. *Behaviour Research and Therapy*, 40(7), 773-791. doi: 10.1016/s0005-7967(01)00059-6.
63. Shaver, P. R., & Mikulincer, M. (2002). Attachment-related psychodynamics. *Attachment & Human Development*, 4(2), 133–161. https://doi.org/10.1080/14616730210154171
64. Shen, W., Long, L. M., Shih, C.-H., & Ludy, M.-J. (2020). A Humanities-Based Explanation for the Effects of Emotional Eating and Perceived Stress on Food Choice Motives during the COVID-19 Pandemic. *Nutrients*, 12(9), 2712. https://doi.org/10.3390/nu12092712
65. Smith, K. R., Jansen, E., Thapaliya, G., Aghababian, A. H., Chen, L., Sadler, J. R., & Carnell, S. (2021). The influence of COVID-19-related stress on food motivation. *Appetite*, 163, 105233. https://doi.org/10.1016/j.appet.2021.105233
66. Soenens, B., Elliot, A. J., Goossens, L., Vansteenkiste, M., Luyten, P., & Duriez, B. (2005). The intergenerational transmission of perfectionism: Parents' psychological control as an intervening variable. *J Fam Psychol*, 19(3), 358-366. doi: 10.1037/0893-3200.19.3.358
67. Stapleton, P., & Mackay, E. (2014). Psychological determinants of emotional eating: The role of attachment, psychopathological symptom distress, love attitudes, and perceived hunger. *Current Research in Psychology*, 5(2), 77-88. https://doi.org/10.3844/crpsp.2014.77.88
68. Stöber, J. (1998). The Frost Multidimensional Perfectionism Scale revisited: More perfect with four (instead of six) dimensions. *Personality and Individual Differences*, 24(4), 481–491.

https://doi.org/10.1016/S0191-8869(97)00207-9
69. Stoeber, J., & Otto, K. (2006). Positive Conceptions of Perfectionism: Approaches, Evidence, Challenges. *Personality and Social Psychology Review*, 10(4), 295–319. https://doi.org/10.1207/s15327957pspr1004_2
70. Stunkard, A. J., & Messick, S. (1985). The three-factor eating questionnaire to measure dietary restraint, disinhibition, and hunger. *Journal of Psychosomatic Research*, 29(1), 71-83. https://doi.org/10.1016/0022-3999(85)90010-8
71. Taube-Schiff, M., Van Exan, J., Tanaka, R., Wnuk, S., Hawa, R., & Sockalingam, S. (2015). Attachment style and emotional eating in bariatric surgery candidates: The mediating role of difficulties in emotion regulation. *Eating Behaviors*, 18, 36-40. https://doi.org/10.1016/j.eatbeh.2015.03.011
72. Trompeter, N., Bussey, K., Forbes, M. K., Hay, P., Goldstein, M., Thornton, C., Basten, C., Heruc, G., Roberts, M., Byrne, S., Griffiths, S., Lonergan, A., & Mitchison, D. (2022). Emotion Dysregulation and Eating Disorder Symptoms: Examining Distinct Associations and Interactions in Adolescents. *Research in Child and Adolescent Psychopathology*, 50(5), 683-694. doi: 10.1007/s10802-022-00898-1.
73. van Strien, T. (2018). Causes of emotional eating and matched treatment of obesity. *Current Diabetes Reports*, 18(6), 35. doi: 10.1007/s11892-018-1000-x
74. Vohs, K. D., & Heatherton, T. F. (2000). Self-regulatory failure: A resource-depletion approach. *Psychological Science*, 11(3), 249-254. https://doi.org/10.1111/1467-9280.00250
75. Wang, H., & Li, J. (2017). Positive perfectionism, negative perfectionism, and emotional eating: The mediating role of stress. *Eating Behaviors*, 26, 45-49. https://doi.org/10.1016/j.eatbeh.2016.12.012
76. Zachrisson, H. D., & Skårderud, F. (2010). Feelings of insecurity: Review of attachment and eating disorders. *European Eating Disorders Review*, 18(2), 97–106. doi:10.1002/erv.999
77. Zhang, Y., Bai, X., & Yang, W. (2022). The Chain Mediating Effect of Negative Perfectionism on Procrastination: An Ego Depletion Perspective. *International Journal of Environmental Research and Public Health*, 19(15), 9355. https://doi.org/10.3390/ijerph19159355

How to cite this article: Hrisovalando Irini Mamo, Penelope Louka, Georgios Pilafas. The effect of attachment dimensions, perceived stress and specific perfectionism dimensions on emotional overeating and emotional undereating. *International Journal of Research and Review*. 2024; 11(5): 456-474. DOI: *https://doi.org/10.52403/ijrr.20240554*

******