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Distress Tolerance and Loss of Control Eating: The Explanatory Power of Eating Expectancies in a Community Sample

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**DISTRESS TOLERANCE AND LOSS OF CONTROL EATING: THE
EXPLANATORY POWER OF EATING EXPECTANCIES IN A COMMUNITY
SAMPLE**

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Dissertação apresentada no Mestrado em Psicologia, área de especialização de Psicologia Clínica e da Saúde, Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto, orientada pela Professora Doutora **Eva Martins da Conceição** (FPCEUP).

AVISOS LEGAIS

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Resumo

A perda de controlo alimentar, operacionalizada como comer descontrolado, é um fenómeno prevalente em populações comunitárias e um preditor significativo de psicopatologia alimentar. Embora a tolerância ao sofrimento seja um fator de vulnerabilidade conhecido, os mecanismos psicológicos subjacentes permanecem pouco compreendidos em amostras não clínicas. Este estudo examinou se as expetativas de que comer alivia o afeto negativo explicam a relação entre tolerância ao sofrimento e comer descontrolado numa amostra comunitária portuguesa, e se estas variáveis diferem consoante o género. Participaram 390 adultos (71,7% mulheres; 18-30 anos) que completaram medidas de autorrelato: Distress Tolerance Scale, Three-Factor Eating Questionnaire-R21 – subescala de Comer Descontrolado e Eating Expectancy Inventory – subescala de Afeto Negativo. Foram utilizadas correlações de Pearson, testes de Kruskal-Wallis e Modelação de Equações Estruturais (SEM). Os resultados revelaram que a tolerância ao sofrimento correlacionou-se negativamente com o comer descontrolado e com as expetativas alimentares, enquanto estas explicavam positivamente o comer descontrolado. A SEM indicou que o efeito direto da tolerância ao sofrimento no comer descontrolado não foi significativo ($\beta = -.067, p = .202$), enquanto o efeito indireto através das expetativas alimentares foi significativo ($\beta = -.143, p < .001$), explicando 14,5% da variância do comer descontrolado. Não foram encontradas diferenças significativas entre géneros. Estes resultados sugerem que a relação entre a tolerância ao distress e a alimentação descontrolada é estatisticamente explicada pela expectativa de que comer ajuda a reduzir o afeto negativo. São discutidas as implicações para programas de prevenção e intervenção focados na cognição e inclusivos em termos de género.

Palavras-chave: Perda de controlo alimentar (PCA); Comer descontrolado; Expectativas alimentares; Tolerância ao sofrimento.

Abstract

Loss of control eating (LOCE), operationalized as uncontrolled eating, is a prevalent phenomenon in community populations and a significant predictor of eating psychopathology. Although distress tolerance is a known vulnerability factor, the underlying psychological mechanisms remain poorly understood in non-clinical samples. This study examined whether the expectation that eating alleviates negative affect explains the relationship between distress tolerance and uncontrolled eating in a Portuguese community sample, and whether these variables differ across gender identities. A total of 390 adults (71.7% female; aged 18–30) completed self-report measures: the Distress Tolerance Scale, the Three-Factor Eating Questionnaire-R21 – Uncontrolled Eating subscale, and the Eating Expectancy Inventory – Negative Affect subscale. Pearson correlations, Kruskal-Wallis tests, and Structural Equation Modeling (SEM) were used. Results revealed that distress tolerance was negatively correlated with both uncontrolled eating and eating expectancies, while eating expectancies positively explain uncontrolled eating. SEM indicated that the direct effect of distress tolerance on uncontrolled eating was not significant ($\beta = -.067, p = .202$), whereas the indirect effect through eating expectancies was significant ($\beta = -.143, p < .001$), accounting for 14.5% of the variance in uncontrolled eating. No significant differences across gender were found. These findings suggest that the relationship between distress tolerance and uncontrolled eating is statistically explained by the expectation that eating helps reduce negative affect. Implications for gender-inclusive, cognitively focused prevention and intervention programs are discussed.

Key-words: Loss of Control Eating (LOCE); Uncontrolled eating; Eating expectancies; Distress tolerance.

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Lista de Abreviaturas

LOCE - Loss of Control Eating

DTS - Distress Tolerance Scale

DTS_Total - Total Score of the Distress Tolerance Scale

TFEQ-R21 - Three-Factor Eating Questionnaire-R21

TFEQ_UE - Three-Factor Eating Questionnaire – Uncontrolled Eating

EEI - Eating Expectancy Inventory

EEI_NA - Eating Expectancy Inventory – Negative Affect Subscale

FPCEUP - Faculty of Psychology and Educational Sciences of the University of Porto

I – Introduction

Emerging Adulthood and Psychological Vulnerability

Emerging adulthood, according to Arnett (2007), is a distinct developmental stage within the life cycle, characterized by profound identity, social and professional changes, and can range between 18 and 29 years old. Currently, instead of being defined by the traditional centrality of marriage and immediate professional stability, this period is marked by instability and a relative absence of consolidated social structures, particularly in relational, professional, and residential domains (Arnett, 2007). Consequently, this reduced external structure may contribute to increased vulnerability in terms of mental health (Arnett, 2007). Responsibilities that were previously dealt within family structure gradually become the individual's responsibility, potentially generating feelings of uncertainty during this stage of development (Arnett, 2007).

Moreover, it is in this developmental stage when the entrance into higher education occurs (Colver & Longwell, 2013). University experience involves new responsibilities, increased academic demands, and, in many cases, leaving the parental home. Therefore, students begin to assume greater autonomy in managing their daily lives, including the organization of their eating habits (Harker et al., 2010).

Dysfunctional Eating Behaviors and Loss of Control Eating

Given the multiple structural and emotional changes that characterize emerging adulthood, this period may represent a particularly sensitive phase for the development of less adaptive emotional regulation strategies, such as dysfunctional eating behaviors, specifically binge eating (Goldschmidt et al., 2016; Hudson et al., 2007). Dysregulated eating behaviors have received increasing attention in scientific literature with authors hypothesizing it can act as a maladaptive emotion regulation strategy (Brytek-Matera, 2021; Lian et al., 2025; Prefit et al., 2019).

Between different dysfunctional eating patterns, binge eating stands out, having significant negative impacts across multiple areas of individual functioning, including academic and social performance, psychological well-being (Hilt et al., 2011). Filipova and Stoffel (2016) demonstrated that episodes of this behavior can be associated with reduced performance in daily tasks, alterations in sleep patterns and increased social isolation.

Moreover, these eating behaviors may lead to the maintenance of maladaptive behavioral eating cycles (Pratt, 2019). An occasional emotional response through eating can, over time, evolve into a more persistent behavioral pattern, potentially developing into a clinical eating disorder (Peterson et al., 2012; Stice et al., 2009).

Dysfunctional eating behaviors have significant repercussions for both physical and mental health. At the physical level, dysregulated eating patterns contribute to the development of obesity, metabolic and cardiovascular diseases, including diabetes and hypertension (Bankier et al., 2004; Crow et al., 2001; Isnard et al., 2003; Matos et al., 2002; Raevuori et al., 2015; Reilly et al., 2003; Serdula et al., 1993; World Health Organization, 2013; Zwaan, 2001). At the psychological level, these eating behaviors may result in anxiety (Isnard et al., 2003; Latner et al., 2007; Matos et al., 2002; Rosenbaum & White, 2015) and depressive symptoms (Araujo et al., 2010), difficulties in emotional regulation, and elevated levels of stress (Latner et al., 2007; Rosenbaum & White, 2015).

In this context, particular attention has been given to the phenomenon of Loss of Control Eating (LOCE), characterized such as “a feeling that one cannot stop eating or control what or how much one is eating” (American Psychiatric Association, 2022). This phenomenon of uncontrolled eating constitutes one of the most salient components of eating psychopathology (Bruzas et al., 2022; Latner et al., 2007) and has been identified as a relevant predictor of the severity of eating disorders (Conceição et al., 2022; Hilbert et al., 2013). The literature distinguishes two main types of binge eating episodes: objective binge eating, characterized by the consumption of an objectively large amount of food accompanied by a perceived loss of control, and subjective binge eating, in which the experience of loss of control occurs even when the quantity of food consumed is not considered objectively excessive (APA, 2014). Both types of episodes are associated with similar levels of psychological distress as well as lower quality of life (Jenkins, 2012; Latner et al., 2007).

There are studies that have shown that negative affect often precedes episodes of eating with loss of control and tends to decrease temporarily after such episodes occur (Berg et al., 2015; Burr, 2021; Burr et al., 2023a; Coêlho, 2022; Fischer et al., 2018; Freitas, 2021; Sitnikov, 2015; Smith et al., 2007). This pattern suggests that uncontrolled eating may serve an emotional regulation function. Furthermore, during the transition from adolescence to emerging adulthood, certain eating patterns may stabilize. Episodes of excessive eating without perceived loss of control tend to decrease over time without intervention (Goldschmidt et al., 2016). However, episodes characterized by perceived loss of control are more likely to persist and

become chronic (Goldschmidt et al., 2016). Thus, the presence of LOCE during emerging adulthood may be considered a potential early indicator of greater psychological vulnerability.

In the Portuguese context, studies conducted with community samples also demonstrated an association between LOCE and negative affect (Coêlho, 2022; Conceição et al., 2022; Medina, 2025). Therefore, even in non-clinical populations, there is a tendency to lean into uncontrolled eating behaviors as a strategy for emotional regulation (Favieri et al., 2021). Several theoretical models have sought to understand the psychological mechanisms that explain the relationship between negative affect and episodes of eating with loss of control (Mikhail, 2021). Among these theoretical frameworks, the Affect Regulation Model stands out (Gross, 2015).

The Affect Regulation Model in Eating Behavior

The Affect Regulation Model (Gross, 2015) suggests that certain eating behaviors may function as dysfunctional emotional regulation strategies. Within this theoretical framework, LOCE allows individuals to avoid or temporarily reduce intense negative emotional states by directing their attention toward the act of eating instead the underlying psychological distress (Pollert et al., 2013). This process produces momentary emotional relief, negatively reinforcing the uncontrolled eating behavior and contributing to the maintenance of a difficult to interrupt behavioral cycle. Over time, this pattern may become a habitual strategy for responding to aversive emotional states (Klatzkin et al., 2023).

Distress Tolerance as a Vulnerability Factor

Distress tolerance, “the capacity to experience and withstand negative psychological states”, has been identified as a relevant psychological factor in understanding dysregulated eating behaviors (Simons & Gaher, 2005).

According to the model proposed by Simons and Gaher (2005), this construct involves three interrelated processes: the capacity for emotional regulation in response to affective stress, the degree of emotional reactivity (the extent to which an individual’s attention becomes absorbed by distress), and the individual’s perception of their ability to tolerate and accept emotional suffering.

Individuals with low levels of distress tolerance tend to seek immediate strategies for relieving such distress (Simons and Gaher, 2005). In many cases, these strategies may take the form of compulsive behaviors, including uncontrolled eating patterns (Lavender et al., 2015).

In contrast, individuals with high distress tolerance tend not to resort to immediate responses to cope with emotional distress as suggested by the Functional Process Model (Sitnikov, 2015). Thus, when LOCE leads to a temporary reduction in negative affect/distress, a learning process occurs whereby the individual becomes more likely to engage in this behavior again whenever they experience aversive emotions, regardless of the long-term negative consequences (Sitnikov, 2015).

During emerging adulthood, experiences of failure or difficulties in academic, professional, or social domains may be interpreted as personal failures, contributing to the development of a negative and emotionally aversive self-perception (Sitnikov, 2015). As a way of coping with this distress, individuals may engage in a process of cognitive narrowing, focusing their attention on immediate and concrete stimuli, such as the taste of food. This process may divert attention from negative emotions which can lead to behavioral disinhibition, such as LOCE (Sitnikov, 2015). Thus, during emerging adulthood, the capacity to deal with emotions flexibly plays a fundamental role in preventing the development of psychological and behavioral disorders.

The inability to tolerate negative affect is one of the main predictors of LOCE (Coêlho, 2022). This association has been observed in individuals with low distress tolerance scale scores and high levels of stress, who, when experiencing a reduced perception of physiological hunger, interpret food consumption as a response to emotional needs (Coêlho, 2022). Cecchetto et al. (2021) observed this same phenomenon during the COVID-19 pandemic, a context marked by high levels of anxiety, stress, and reduced quality of life. During this period, there was a significant increase in eating behaviors associated with emotional regulation, particularly so-called “emotional snacking.”

Additionally, in this type of behavior, the role of food expectations stands out. When individuals expect that food consumption will reduce negative affect, an anticipation of emotional relief may occur, motivating uncontrolled eating behavior (Burr, 2021).

Food Expectancies and Cognition Related to Eating

Beyond the distress tolerance, a secondary but significant factor in understanding dysfunctional eating behavior concerns expectations associated with food consumption. Expectancy theory suggests that human behavior is often influenced by the anticipated consequences of an action rather than by its actual outcomes (Jones et al., 2001).

In the context of eating behavior, these expectations may develop through previous experiences, social learning processes, and modeling mechanisms (Fischer et al., 2018). When

individuals believe that food consumption may reduce negative emotional states, this expectation can increase the likelihood of using eating as an emotional regulation strategy (Fischer et al., 2018). For example, Smith et al. (2007) found that adolescent girls who held this belief were more likely to display uncontrolled eating symptoms three years later.

Studies conducted by Boerner et al. (2004) and Hayaki & Free (2016) demonstrated that the expectation that food consumption can reduce negative affect is one of the most robust predictors of binge eating. Thus, understanding dysregulated eating behavior benefits from an integrative approach that simultaneously considers emotional factors, such as the capacity to tolerate psychological distress, and cognitive factors, such as expectations associated with food consumption.

Distress Tolerance, Eating Expectancies and Loss of Control Eating

Recent research suggests that the relationship between distress tolerance and uncontrolled eating may be influenced by expectations associated with food consumption. Such studies conducted by Burr et al. (2020, 2022) show when expectations that eating can alleviate negative affect are particularly high, these beliefs can attenuate the protective effect of distress tolerance in individuals with high levels of distress tolerance, which have a lower probability of engaging in loss of control eating when expectations of emotional relief through food are low. In such cases, loss of control eating will emerge as a preferred strategy for coping with negative affect.

The presence of a positive feedback cycle contributes to the maintenance of the behavior: experiences of negative affect trigger episodes of uncontrolled eating, which produce temporary negative affect relief and consequently reinforce the expectation that eating constitutes an effective emotional regulation strategy (Klatzkin et al., 2023).

Gaps in the Literature and Relevance of the Study

Loss of control eating is a relatively widespread phenomenon in the general population and may represent an early development warning sign of eating-related psychopathology. Despite the growing scientific interest in this phenomenon, the understanding of the psychological mechanisms that explain this behavior in community populations remains limited.

Much of the existing research has focused on clinical samples, and studies exploring these processes in non-clinical populations remain scarce. Research on eating behaviors in

community samples is also important, such as the university environment, where these behaviors can often be undervalued, hence the importance of investigating them. Additionally, difficulties in regulating negative emotions adaptively are not exclusive to clinical populations (Burr, 2021). The aforementioned literature has demonstrated that difficulties in emotional regulation constitute a relevant vulnerability factor for the development of dysfunctional eating behaviors and are also present in community populations. Therefore, investigating these processes in community samples is particularly relevant from a preventive perspective, as dysregulated eating patterns may constitute early indicators of greater psychological vulnerability.

Another limitation is although dysfunctional eating behaviors affect individuals across gender identities, research has predominantly included female participants (Sobieska et al., 2025), with males and gender-diverse individuals remaining underrepresented in the literature (Nagata et al., 2020; Kukk & Akkermann, 2020). Much of the existing evidence regarding gender differences in eating psychopathology derives from studies examining diagnosed eating disorders and binge eating behaviors in clinical populations. In contrast, my study focuses on a community sample of emerging adults, characterized by significant developmental pressures (Arnett, 2007), and examines the emotional and cognitive mechanisms underlying uncontrolled eating, namely distress tolerance and eating expectancies. Therefore, examining whether distress tolerance, eating expectancies and uncontrolled eating differ across gender identities can contribute to a more comprehensive understanding of these phenomena.

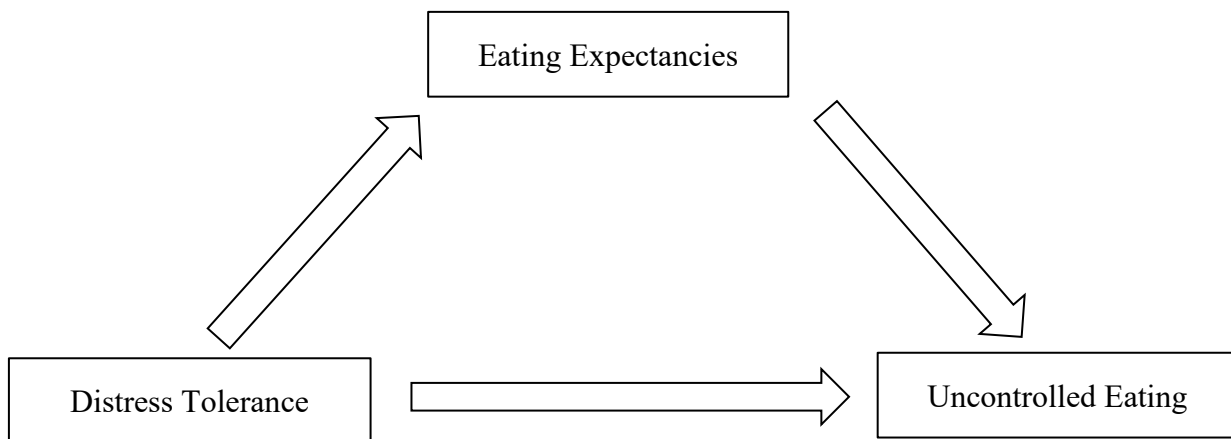
A better understanding of the psychological mechanisms underlying loss of control eating may contribute to the development of more targeted psychological interventions, particularly interventions focused on increasing distress tolerance and modifying dysfunctional eating expectancies, thereby promoting more adaptive emotional regulation strategies. Additionally, according to the World Health Organization (2025), obesity in 2022 affected approximately 16% of the global adult population, representing an important challenge for healthcare systems. Making this research even more relevant from a public health perspective, as dysfunctional eating patterns are frequently associated with the development of obesity and several chronic diseases.

II – Objective

The present study aims to analyze how Expectations that eating alleviates negative affect help explain the relationship between Distress Tolerance and Uncontrolled Eating, in a Portuguese community sample. Additionally, this study explores whether these constructs differ across gender identities.

The model hypothesized is schematically present in Figure 1.

Figure 1: *Relation between distress tolerance, uncontrolled eating and expectancies that eating alleviates negative affect*



To understand the aims of this study, the following research questions were developed:

Q1 - Do expectations that eating alleviates negative affect explain the relationship between distress tolerance and uncontrolled eating?

Q2 – Do distress tolerance, eating expectancies and uncontrolled eating differ across gender identities?

To answer Q1, this hypothesis was developed:

H1 - The relationship between distress tolerance and uncontrolled eating is explained by expectations that eating alleviates negative affect.

To answer Q2, the following hypothesis was developed:

H2 – No significant differences are expected across gender identities in distress tolerance, eating expectancies and uncontrolled eating.

III – Methods

Participants and study design

A total of 446 participants were recruited, however, 56 were excluded for not completing the primary study variables. Consequently, the final sample consists of 390 participants from the general community. Inclusion criteria required participants to be 18 years or older, and no exclusion criteria were applied. In order to recruit a sufficiently large and diverse sample, a snowball sampling strategy was used, in which participants were invited to complete the online questionnaire and share it with others who might be interested.

Furthermore, the data collection occurred entirely online through the platform Limesurvey and was shared via the University of Porto's Faculty of Psychology and Educational Sciences (FPCEUP) research portal, as well as through social media platforms such as Instagram, Facebook, WhatsApp, and LinkedIn. Participants were informed about the estimated duration of the survey, the voluntary nature of their participation, and their right to withdraw at any time. Also, anonymity and confidentiality were guaranteed. Before initiating the questionnaire, participants were presented with detailed information about the study's goals and provided informed consent. Then they completed a brief sociodemographic section followed by the psychometric instruments. Finally, this study adhered to ethical guidelines and received approval from the FPCEUP Ethics Committee (Ref.^a 2025-10-07b). Besides this, it was granted favorable clearance by the University of Porto's Data Protection Unit (PARECER A-150/2025).

Instruments

Sociodemographic questionnaire

Regarding sociodemographic information, participants provided data on age, gender, education level, nationality and employment status. They were also asked about their general mental health history, including any prior diagnoses of eating disorders.

Eating Expectancy Inventory – Negative Affect Subscale (EEI-NA)

The Eating Expectancy Inventory (EEI) was translated into Portuguese by Professor Eva Conceição's research team at the Faculty of Psychology and Education Sciences of the University of Porto (FPCEUP). Although the instrument is currently undergoing validation by the team, the Portuguese translation was employed in the present study. The EEI (Hohlstein et al., 1998) comprises five subscales: Eating Helps Manage Negative Affect, Eating is

Pleasurable and Useful as a Reward, Eating Leads to Feeling Out of Control, Eating Alleviates Boredom, and Eating Enhances Cognitive Competence.

For the purpose of this study, only the “Eating Helps Manage Negative Affect” subscale was used, due to its strong associations with binge eating behavior (Fischer et al., 2013). This subscale assesses the belief that eating is a way to navigate through negative emotions. Conversely, the “Reward Expectancy” subscale (EEI-R) was intentionally excluded to maintain theoretical parsimony and focus just on emotional regulation. While positive affect can trigger loss of control eating, this pathway is typically driven by high reward-based expectancies and hedonic hunger (Burr et al., 2023a), which represents a distinct motivational pattern from the distress-driven eating being investigated. By focusing exclusively on the EEI-NA, this study ensures a more precise examination of how eating is used as a maladaptive coping strategy for distress. The Eating Expectancy Inventory is a 34-item self-report measure, with responses rated on a 7-point Likert scale (from 1, “Completely disagree”, to 7, “Completely agree”), where higher scores reflect stronger expectations that eating alleviates negative affect.

The original measurement model for the EEI - Negative Affect subscale showed an unacceptable fit to the data ($\chi^2 (152) = 1244; p < .001; CFI = .809; TLI = .785; SRMR = .074; RMSEA = .137; 95\% CI [.130; .145]$). Analysis of the factor loadings indicated that Item 17 (“Não tenho uma sensação de segurança ou proteção ao comer”) demonstrated a low and non-significant association with the latent factor ($\beta = .121; p = .207$). Therefore, it was excluded from further analyses. The resulting modified version exhibited an improved fit, but a poor one ($\chi^2 (119) = 1018; p < .001; CFI = .836; TLI = .813; SRMR = .062; RMSEA = .141; 95\% CI [.133; .149]$). Although the *CFI*, *TLI* and *RMSEA* values remained outside the conventional ideal thresholds ($> .90$ and $< .08$, respectively) (Hu & Bentler, 1998; Schermelleh-Engel et al., 2003), the *SRMR* (.061) indicates acceptable residual fit, and the subscale showed excellent internal consistency ($\alpha = .945, \omega = .949$), supporting its inclusion in the final structural model, despite remaining misfit indicated by other indices.

Distress Tolerance Scale (DTS)

The Distress Tolerance Scale (Simons & Gaher, 2005) is a 15-item self-report measure that evaluates the perceived ability to tolerate emotional suffering. The Portuguese version, translated and validated by Lucena-Santos et al. (2013), was the one used in this study. Each item is rated on a 5-point Likert scale (from 1, “Strongly disagree”, to 5, “Strongly agree”), and higher total scores indicate higher distress tolerance. In the present study, rather than utilizing a simple composite score, the DTS was operationalized as a second-order latent construct

within the Structural Equation Modeling (SEM) framework. This hierarchical structure is composed of four first-order latent factors: Tolerance, Absorption, Appraisal and Regulation. This allows a more rigorous representation of the multidimensional nature of distress tolerance.

The DTS original model presented an acceptable fit to the data ($\chi^2(84) = 427$; $p < .001$; $CFI = .903$; $TLI = .879$; $SRMR = .053$; $RMSEA = .102$; 95% CI [.099; .112]). In this sample, Cronbach's α was .88 for the total score, with dimensions ranging from .84 to .89 (Regulation = .86; Tolerance = .88; Appraisal = .84; and Absorption = .89). Similarly, McDonald's ω coefficients were .88 for the total score and .83, .85, .85, and .85 for the respective dimensions.

Three-Factor Eating Questionnaire – R21 (TFEQ-R21)

The Three-Factor Eating Questionnaire self-assesses maladaptive eating behaviors. Specifically, for this study, only the “Uncontrolled Eating” subscale was used to measure the tendency to eat in response to negative emotions (Cappelleri et al., 2009). The Portuguese version was the one used in this study, translated and validated by Duarte et al. (2020). The questionnaire consists of 21 items, with 20 of them rated on a 4-point Likert scale (from 1, “Completely false”, to 4, “Completely true” on items from 1 to 16; from 1, “Almost never”, to 4, “Almost always”, item 17; from 1, “Not likely”, to 4, “Very likely”, item 18; from 1, “Never”, to 4, “At least once a week”, item 19; from 1, “Only at meals”, to 4 “Almost always”, item 20) and one final item ranging from 1 to 8 (from 1, “I eat whatever I want whenever I want”, to 8, “I constantly limit my eating consumption without ever giving in”). Higher scores indicate greater uncontrolled eating, which serves here as a proxy for loss of control eating (LOCE).

The TFEQ - Uncontrolled Eating subscale presented an unacceptable fit to the data ($\chi^2(27) = 211$; $p < .001$; $CFI = .859$; $TLI = .812$; $SRMR = .069$; $RMSEA = .136$; 95% CI [.119; .153]). Analysis of the factor loadings indicated that Item 20 (“Com que frequência sente fome?”) demonstrated a low and non-significant association with the latent factor ($\beta = .073$; $p = .053$). Therefore, it was excluded from further analyses. The resulting modified version exhibited an improved fit ($\chi^2(20) = 132$; $p < .001$; $CFI = .909$; $TLI = .872$; $SRMR = .045$; $RMSEA = .123$; 95% CI [.104; .144]). Although the $RMSEA$ value remained outside the conventional ideal thresholds ($< .08$) (Hu & Bentler, 1998; Schermelleh-Engel et al., 2003), it is important to note that $RMSEA$ is often penalized in models with small degrees of freedom (Shi et al., 2022). Nevertheless, the $SRMR = .045$ suggests a good residual fit, and the internal consistency remained excellent ($\alpha = .96$; $\omega = .96$), justifying the inclusion of this subscale in the final structural model.

Data treatment

All analyses were conducted using IBM SPSS Statistics software (version 30.0.0) and Jamovi (version 2.6.44) for Windows. Initial analyses include characterization of the sample, such as sociodemographic data and relevant clinical history, using descriptive statistics (i.e., frequencies and percentages). Preliminary analyses focused on the variables of interest, such as eating expectancies (EEI_NA), distress tolerance (DTS), and uncontrolled eating (TFEQ_UE), through descriptive statistics (measures of central tendency and dispersion), specifically means, standard deviations, minimums and maximums. Given that TFEQ-R21, EEI, and DTS do not have established cut-off points in the literature, mean values and standard deviations were used as reference indicators to interpret response patterns within the community sample. Percentiles were additionally calculated to allow for an alternative analysis of the data.

Initially, it was crucial to assess whether the sample followed a normal distribution or not. So, the Shapiro-Wilk test was conducted with the Lilliefors correction, given the sample size ($n = 390$). The test results indicated that none of the subscales followed a normal distribution. However, by examining the histograms and the skewness and kurtosis values, it was concluded that all variables could be assumed to follow a normal distribution. Skewness values ranged from $[-.213, .161]$, and kurtosis values ranged from $[-.685, -.529]$, indicating a symmetrical distribution with appropriate shapes for subsequent statistical analysis. Based on this evaluation, it was considered appropriate to conduct Pearson's correlation analysis between distress tolerance, uncontrolled eating and eating expectancies, to explore their interrelationships. Additionally, to compare the primary variables across gender groups (female, male and other), the Kruskal-Wallis test was employed. This non-parametric alternative to ANOVA was chosen due to the significant imbalance in group sizes, specifically the small sample size of the "Other" gender category ($n = 6$) (MacFarland & Yates, 2016). Moreover, to assess effect sizes classes for correlations, Cohen's effect size benchmarks were applied (i.e., small: $\geq .10$; medium: $\geq .30$; large: $\geq .50$) (Ellis, 2010).

The dimensionality of the psychometric instruments was assessed through Confirmatory Factor Analysis (CFA), with the Robust Weighted Least Squares (WLSMVS) estimator. Additionally, McDonald's ω was calculated to evaluate internal consistency, and values of greater or equal than .70 were considered satisfactory (Marôco, 2021).

Lastly, the hypothesized model (Figure 1) was tested using Structural Equation Modeling (SEM). The SEM model was estimated resorting to the *lavaan* package (Hu & Bentler, 1999) and a significance level of 5% ($\alpha = 0.05$) was applied for all analyses. Model fit was evaluated using the χ^2 statistic, the Comparative Fit Index (CFI), the Tucker–Lewis Index

(*TLI*), the Standardized Root Mean Square Residual (*SRMR*) and the Root Mean Square Error of Approximation (*RMSEA*) as goodness-of-fit indexes. Estimates of *CFI* and *TLI* above .90 and of *SRMR* and *RMSEA* below .08 considered satisfactory (Boomsma, 2000; Byrne, 2013; Hoyle, 1995, McDonald & Ho, 2002).

IV - Results

Sample characterization

The sample ($n = 446$) was mostly female, young, Portuguese, and primarily situated in the developmental stage of emerging adulthood, with 76.2% ($n = 340$) of participants aged between 18 and 30 years. Most participants were students and with higher education degree. With respect to mental health history, 24.9% ($n = 111$) of participants reported a psychiatric diagnosis, with the most identified conditions being depression, anxiety, eating disorders and attention-deficit hyperactivity disorder (ADHD). Regarding eating disorders, 9.6% ($n = 43$) of participants indicated a clinical diagnosis. Among these, anorexia nervosa was the most prevalent, followed by binge eating disorder and bulimia nervosa. The results are presented in Table 1.

Descriptive Statistics

Table 1 presents the descriptive statistics for the three main variables DTS_Total, TFEQ_UE, and EEI_NA, including means, standard deviations, minimums, maximums, and percentiles.

Table 1

Sociodemographic characteristics of the sample and descriptive statistics of the instruments

Sociodemographic and clinical variables		
Variable	<i>n</i>	%
Age		
18-30	340	76.2%
31-50	88	19.8%
>50	18	4.0%
Gender		
Female	320	71.7%

Male	120	26.9%
Other	6	1.3%
Level of education		
12 th grade or less	145	32.5%
Higher education degree	301	67.5%
Nationality		
Portuguese	421	94.4%
Others	25	5.6%
Professional situation		
Student	245	54.9%
Student-worker	87	19.5%
Unemployed	12	2.7%
Employed	100	22.4%
Retired	2	0.4%
Diagnosis of Psychiatric Illness		
Yes	111	24.9%
No	335	75.1%
Diagnoses of Eating Disorder		
Yes	43	9.6%
No	403	90.4%

Descriptive statistics of instruments					
	<i>M</i> (SD)	Min (Max)	P25	P50	P75
TFEQ_UE	2.41 (0.62)	1.00 (4.00)	2.00	2.44	2.89
DTS_Total	3.07 (0.84)	1.00 (5.00)	2.41	3.04	3.39
EEI_NA	3.32 (1.32)	1.00 (6.78)	2.78	3.39	4.28

Note: $n = 390$; *M* – Mean; SD – Standard Deviation; Min – Minimum; Max – Maximum; P – Percentile; TFEQ_UE (Uncontrolled Eating), DTS_Total (Total Score of the Distress Tolerance Scale), EEI_NA (Negative Affect).

Association between the variables under study

Pearson's correlation coefficients are presented in Table 2. This test revealed that all study variables were significantly associated in the expected directions. Distress Tolerance (DTS_Total) was negatively correlated with both Negative Affect (EEI_NA) and Uncontrolled Eating (TFEQ_UE), suggesting that lower distress tolerance is associated with higher eating expectations and uncontrolled eating. Conversely, Negative Affect (EEI_NA) showed a

significant positive correlation with Uncontrolled Eating (TFEQ_UE), providing preliminary support for the presented model where emotional states play a key role in eating behavior.

Table 2

Correlational matrix between uncontrolled eating, distress tolerance and eating expectancies

Variables	1	2	3
1. TFEQ_UE	---		
2. DTS_Total	-.211**	---	
3. EEI_NA	.314**	-.340**	---

Note: TFEQ_UE (Uncontrolled Eating), DTS_Total (Total Score of the Distress Tolerance Scale), EEI_NA (Negative Affect).

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

Bold – correlations with medium effect sizes.

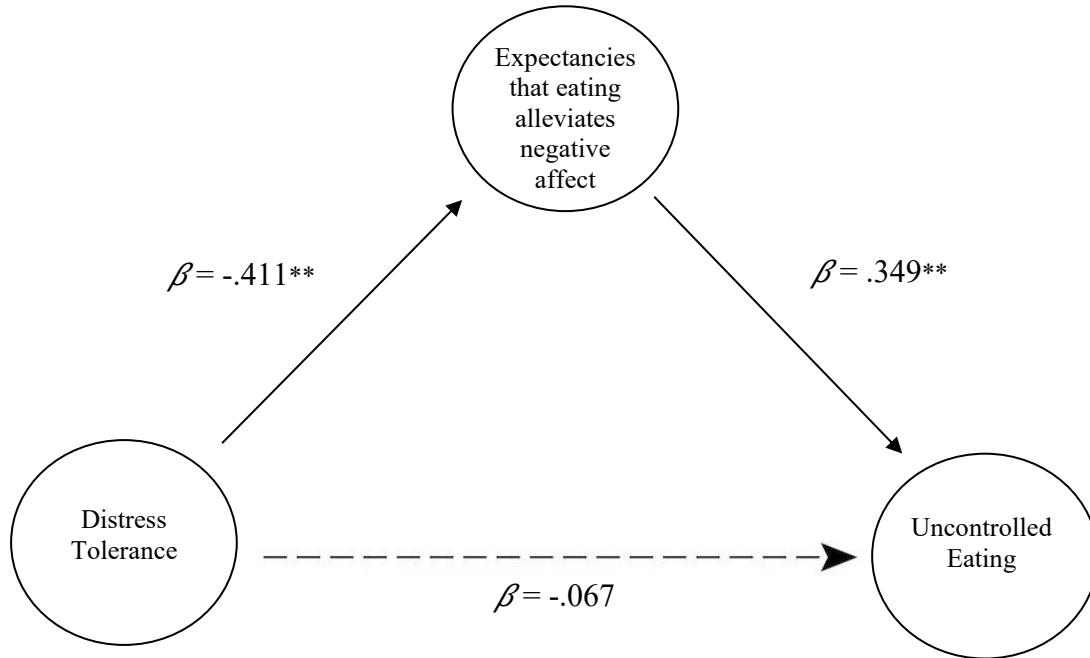
Effect of eating expectancies in the relation between distress tolerance and uncontrolled eating

The proposed model (Figure 2) presented a good fit to the data ($\chi^2 (772) = 3618$; $p < .001$; $CFI = 0.982$; $NFI = 0.978$; $TLI = 0.981$; $SRMR = 0.087$; $RMSEA = 0.097$; 95% CI = [0.094; 0.101]; $RMSEA p < .001$). The model accounted for 14.5% of the variance in uncontrolled eating (TFEQ_UE) and 16.9% of the variance in eating expectancies (EEI_NA).

Table 3 presents the estimated direct, indirect and total effects. Regarding the specific pathways within the model, the total effect of distress tolerance on uncontrolled eating was statistically significant, suggesting that, overall, lower levels of distress tolerance are associated with higher levels of uncontrolled eating. However, the direct effect was not statistically significant, indicating that this association is not direct. Instead, a significant indirect effect was observed through the expectations that eating alleviates negative affect, indicating that low distress tolerance is associated with uncontrolled eating only when there are increased expectations that eating alleviates negative affect.

Figure 2

Structural equation model describing the effect of eating expectancies in the relation between distress tolerance and uncontrolled eating



Note: For simplicity, only the relevant latent variables are shown in the figure. The latent variable “Distress Tolerance” was a second-order factor composed of four latent subscales from the DTS (tolerance, absorption, appraisal, and regulation), with each being defined by their respective indicators. The latent variable “Expectancies that eating alleviates negative affect” was defined by the indicators corresponding to the items of the EEI-Negative Affect subscale. The latent variable “Uncontrolled Eating” was defined by the indicators corresponding to the items of TFEQ-Uncontrolled Eating.

β – Standardized coefficient of the association between variables.

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

Table 3

Path Analysis: Direct, Indirect and Total Effects

Path	β	SE	<i>z</i>	<i>p</i> - value	95% CI
Direct Effect (X $\Rightarrow$ Y)					
DTS_Total $\Rightarrow$ TFEQ_UE	-.067	.065	-1.274	.202	[-.169; .035]
Indirect Effects (X $\Rightarrow$ M $\Rightarrow$ Y)					
DTS_Total $\Rightarrow$ EEI_NA $\Rightarrow$ TFEQ_UE	-.143	.031	-5.768	<.001	[-.189; -.097]
Total Effects					
Total	-.210	.064	-4.085	<.001	[-.307; -.113]

Note: β – Standardized coefficient; SE – Standard Error; z – Structural disturbances; CI – Confidence Interval; TFEQ_UE (Total Score of Loss of control eating), DTS_Total (Total Score of the Distress Tolerance Scale), EEI_NA (Negative Affect).

Comparative analysis by gender

To verify the potential existence of variations in uncontrolled eating, eating expectancies and distress tolerance based on gender, mean comparison analyses were conducted. As shown in Table 4, mean scores for uncontrolled eating remained consistent across all three gender categories, with only marginal variations observed. These findings imply that the psychological mechanisms linking distress tolerance and eating expectancies to uncontrolled eating behave consistently across the spectrum of gender identities.

A Kruskal-Wallis test was conducted to examine potential differences in Distress Tolerance, Eating Expectancies, and Uncontrolled Eating across gender identities (Male, Female, and Other). The analysis indicated that there was no statistically significant difference in gender across the groups for any of the variables: Distress Tolerance, $\chi^2(2) = .59, p = .746$, Eating Expectancies, $\chi^2(2) = .85, p = .655$, and Uncontrolled Eating, $\chi^2(2) = .95, p = .622$. These findings indicate that expectations that eating alleviates negative affect underlying the relationship between distress tolerance and uncontrolled eating are invariant across gender identities within the current sample.

Table 4

Means and Standard Deviations for TFEQ_UE, EEI_NA and DTS_Total by Gender

	Gender	<i>n</i>	<i>M</i>	<i>SD</i>
TFEQ_UE	Female	263	2.40	0.64
	Male	101	2.44	0.55
	Other	6	2.61	0.52
EEI_NA	Female	266	3.37	1.34
	Male	107	3.21	1.27
	Other	6	3.25	0.99
DTS_Total	Female	274	3.09	0.87
	Male	110	3.04	0.79
	Other	6	2.85	0.72

Note: $n = 390$; M – Mean; SD – Standard Deviation; TFEQ_UE (Uncontrolled Eating); DTS_Total (Total Score of the Distress Tolerance Scale); EEI_NA (Negative Affect).

V – Discussion

Summary of Results and Hypothesis Testing

The present study aimed to examine whether eating expectancies, specifically the belief that eating alleviates negative affect, explain the relationship between distress tolerance and uncontrolled eating in a Portuguese community sample, and if these variables differ across gender identities. The findings provide important insights into the psychological mechanisms underlying this dysfunctional eating behavior during emerging adulthood.

The results provide empirical support for H1 (“The relationship between distress tolerance and uncontrolled eating is explained by expectations that eating alleviates negative affect”) through the observation that the impact of distress tolerance on loss of control eating is no longer statistically significant ($\beta = -.067$; $p = .202$) when the explanatory role of eating expectancies is considered. Therefore, the data reveals that the relationship between distress tolerance and uncontrolled eating is statistically explained by the expectation that eating helps reduce negative affect. These findings suggest that difficulties in tolerating distress do not directly associate with uncontrolled eating, rather it operates through this specific cognitive belief (eating expectancies).

The findings also support H2 (“No significant differences are expected across gender identities in distress tolerance, eating expectancies and uncontrolled eating”). No statistically significant differences were found across gender identities in distress tolerance, eating expectancies, or uncontrolled eating, suggesting that the psychological mechanisms under study operate consistently regardless of gender.

Integration with Literature

These findings contribute to refining existing theoretical frameworks, particularly the Affect Regulation Model. Although this model posits that individuals engage in maladaptive eating behaviors to manage negative emotional states (Gross, 2015), the results of my study indicate that emotional vulnerability alone may be insufficient to explain uncontrolled eating. Instead, it suggests that the expectation that eating will alleviate distress is a necessary cognitive mechanism through which emotional vulnerability is translated into such behavior.

Adding to the studies of Burr et al. (2020), Fernández et al. (2024), Novais (2020), Romano et al. (2025), and Silva (2024) that uncontrolled eating is a strategy to manage negative affect, I found through correlational analyses that lower levels of distress tolerance are significantly associated with higher levels of uncontrolled eating, supporting the view that the

inability to tolerate aversive states is a central predictor of uncontrolled eating (Anestis et al., 2007). However, a key divergence was found: difficulty in tolerating distress, in isolation, does not directly associate with uncontrolled eating. This absence of a direct pathway suggests that the relationship is not merely mechanical or purely biological, rather, this vulnerability appears to require a specific cognitive component to translate into dysfunctional behavior, such as the expectation that eating will alleviate negative affect. This is consistent with the findings of Burr et al. (2023b), Burr et al. (2025), Kauffman et al. (2022), Mikhail (2021), and Staples & Rancourt (2022), who identify eating expectations as one of the most robust predictors of uncontrolled eating.

Furthermore, these results also provide empirical support for the Functional Process Model (Sitnikov, 2015), confirming that individuals with low distress tolerance are more likely to resort to maladaptive eating behaviors, such as uncontrolled eating, maintained by negative reinforcement when they anticipate relief. In the Portuguese context, these findings add to the work of Coêlho (2022) and Conceição et al. (2022), showing that even in non-clinical populations, uncontrolled eating does not stem solely from the pressure of negative affect, but rather from the cognitive appraisal that food constitutes an effective tool for momentary emotional relief. Individuals with low distress tolerance may be particularly prone to developing and relying on these beliefs, thereby increasing the likelihood of engaging in uncontrolled eating when faced with aversive emotional states.

Other aspect is that historically, research in eating psychopathology has predominantly focused on female samples, often framing uncontrolled eating as a predominantly female phenomenon (Breton et al., 2023; Brown et al., 2020; Culbert et al., 2021; Räisänen & Hunt, 2014). However, these variables remain invariant across gender identities within this Portuguese community sample.

The lack of divergence found between males, females, and other gender identities suggests the use of food as an emotion regulation mechanism, manifested as uncontrolled eating, is a gender-neutral phenomenon in emerging adulthood. This discovery can be explained by the developmental pressures characteristic of this stage of life, such as academic stress, professional instability and the search for identity, which appears to tax emotional regulatory resources regardless of gender (Ng et al., 2024). When faced with an inability to tolerate distress, subjects in the sample seem equally prone to developing the cognitive belief that eating alleviates negative affect.

The tested variables remained consistent across the entire sample, regarding gender, reinforcing the idea that eating expectancies serve as universal cognitive link through which

low distress tolerance translates into uncontrolled eating. Consequently, this study contributes to a more inclusive understanding of eating behaviors, suggesting that clinical focus should shift from gender-specific assumptions to a more functional analysis of how individuals, regardless of gender, cognitively appraise the role of food in affect regulation.

Study Limitations

Despite the contributions presented, this study is subject to limitations that must be considered when interpreting the results. Firstly, the methodology relied exclusively on self-report measures, which may introduce biases such as social desirability or subjective inaccuracies. Moreover, the extensive duration of the data collection questionnaire may have compromised participant engagement. Another limitation is the use of online self-report data collection, which may have introduced self-selection bias, seeing that individuals with a greater interest in psychological topics or eating behaviors may have been more likely to participate in the study. Additionally, the online format limited the possibility of clarifying participant doubts during questionnaire completion, potentially influencing response accuracy.

The use of a convenience sample, composed mostly of females (71.7%) and university students, limits the generalization of the results to the general population. Additionally, significant imbalance across gender categories, particularly the very small representation of individuals identifying as “Other” ($n = 6$), limits statistical power of the gender comparisons and warrants caution when interpreting the findings related to H2. Finally, the cross-sectional design of the study precludes the establishment of strict causal relationships. Although the internal consistency indices were excellent, it should be noted that some fit indices (such as the *RMSEA*) for the *EEI_NA* and *TFEQ_UE* scales fell below ideal thresholds. This suggests that results warrant cautious interpretation, particularly given the lack of prior validation of the *EEI* in the Portuguese population.

Theoretical and Practical Implications

It is important to note that screening tools were used instead of clinical diagnostic instruments, therefore, the findings should not be extrapolated to formal clinical conditions without proper validation. The results suggest psychological interventions benefits from focusing on increasing distress tolerance and restructuring dysfunctional eating expectations.

Thus, within the scope of clinical intervention, the implementation of cognitive-behavioral strategies aimed at deconstructing the belief that eating alleviates negative affect may prove crucial in preventing the transition from occasional uncontrolled eating to severe

and chronic eating disorders. Simultaneously, it is fundamental to promote psychological flexibility and emotional regulation skills, offering individuals adaptive alternatives for dealing with aversive emotional states without resorting to food as a strategy.

The results of this dissertation are also important in university settings. Since emerging adulthood is characterized by increased emotional instability and autonomy in lifestyle behaviors, universities may represent an important context for early identification of maladaptive coping strategies such as uncontrolled eating. So, psychoeducational interventions focused on emotional literacy, distress management and adaptive coping mechanisms may help reduce the reliance on food as a form of emotional regulation. Furthermore, promoting awareness regarding eating expectancies may contribute to reducing stigma associated with dysfunctional eating behaviors in non-clinical populations.

Additionally, the finding that these mechanisms operate consistently across gender identities suggests that prevention and intervention programs should be designed to be gender-inclusive, rather than targeting exclusively female populations as has been traditionally the case. Also, is important to note that contemporary sociocultural changes may contribute to a reduction in traditional gender differences regarding emotional expression and coping strategies. Therefore, uncontrolled eating may no longer be a predominantly female-associated behavior, especially within community samples of emerging adults exposed to similar developmental stressors and emotional demands.

The relevance of these findings is amplified by the sample profile, as emerging adulthood is a phase marked by instability and high expectations for personal fulfillment. Finally, the model explained 14.5% of the variance in uncontrolled eating, representing a medium effect size, indicating that additional factors are likely involved in the development of this behavior. Moreover, this is a prevalent phenomenon worthy of clinical attention in community populations.

Future Directions

Future research should adopt longitudinal designs to observe the stabilization of these cycles of uncontrolled eating over time and establish causal relationships between the variables. It would also be pertinent to investigate whether the same pathways and relationships observed in this community sample are verified in clinical populations, particularly individuals diagnosed with Binge Eating Disorder (BED) or Bulimia Nervosa. Additionally, future studies could explore the efficacy of interventions specifically targeting eating expectancies as a way to mitigate the impact of low distress tolerance on eating behaviors. Research should also replicate

these findings with more balanced gender samples, including larger representation of males and gender-diverse individuals, to further examine the gender-invariance of these psychological mechanisms and strengthen the generalizability of the current conclusions.

In summary, the present research contributes to a growing body of evidence suggesting that uncontrolled eating is a complex process, driven by the intersection of distress tolerance and expectations that eating alleviates negative affect. By highlighting the explanatory role that expectations play, this investigation enhances the theoretical understanding of eating behaviors and points toward clear paths for more effective prevention and intervention strategies.

VI – Conclusion

The present dissertation highlights the central role of cognitive processes in the development of dysfunctional eating patterns and suggests that distress tolerance alone is insufficient to explain such behaviors. The expectations that eating reduces negative affect explains how lower distress tolerance can lead to uncontrolled eating. From a clinical perspective, these results stress the importance of targeting not only emotional regulation capacities but also maladaptive eating-related beliefs in intervention programs. This is particularly relevant in preventing the consolidation of uncontrolled eating into more severe and chronic eating disorders.

Also, it was shown that the use of food as an emotion regulation mechanism can be a cross-gender phenomenon in emerging adulthood. Providing a deeper understanding of the phenomenon by disentangling gender association and paying more attention to the developmental challenges associated with this stage of life, experienced through all genders.

By focusing on a community sample in emerging adulthood, this study also reinforces the relevance of early, preventive approaches, emphasizing that these mechanisms are present beyond clinical populations. Overall, the findings support a more integrative view of eating behavior, in which emotional and cognitive processes interact to shape maladaptive outcomes.

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