The Relationship Between Negative Urgency and Abnormal Eating Patterns: Mediator Role of Emotion Regulation Deficits and Moderator Role of Eating Expectancies

By

Elifnaz Ünsal

A Thesis Submitted to the
Graduate School of Social Sciences and Humanities in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

In

Clinical Psychology

Koç University

January, 2022

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Koç University

Graduate School of Social Sciences and Humanities

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Elifnaz Ünsal

and have found that it is complete and satisfactory in all respects, and that any and all revisions required by the final examining committee have been made.

Committee Members:

Assoc. Prof. Ayşe Altan Atalay (Advisor)

Assoc. Prof. Ceren Acartürk

Assoc. Prof. Dilek Sarıtaş Atalar

Date: _____

Abstract

Emotional eating and external eating are abnormal eating patterns that have been defined to explain individuals' overeating tendencies. One of the significant predictors of abnormal eating patterns is negative urgency (NU), the tendency to engage in rush actions in response to negative emotions. Although NU's relation to abnormal eating patterns is well established, the mechanism of this relationship still needs clarification. Previous research suggested that emotion regulation deficits (ERD) could be a mechanism to understand NU's relation to abnormal eating patterns and eating expectancies might further increase the risk for abnormal eating patterns when combined with other risk factors. The current study explored the direct and indirect associations between NU and abnormal eating patterns and the mediator role of ERD. Additionally, the moderator role of eating expectancies in the relationships between NU and abnormal eating patterns, and ERD and abnormal eating patterns were examined. The participants were 653 Turkish adults (536 women), whose ages ranged from 18 to 68 (M= 33.15, SD=12.63). The results revealed a significant and positive association of NU with both emotional eating and external eating. Moreover, mediation analyses results showed that ERD mediated the relationship between NU and emotional eating but did not mediate the relationship between NU and external eating. Furthermore, eating expectancies only moderated the relationship between NU and emotional eating. No significant moderator effect of eating expectancies was observed for external eating. Results emphasize the importance of targeting NU, ERD, and eating expectancies in the prevention or treatment of abnormal eating patterns.

Keywords: Negative urgency, emotion regulation deficits, emotional eating, external eating, eating expectancies

Özet

Duygusal yeme ve dışsal yeme, bireylerin aşırı yeme eğilimlerini açıklamak için tanımlanmış anormal yeme örüntüleridir. Anormal yeme kalıplarının önemli yordayıcılarından biri, olumsuz duygulara tepki olarak acele eylemlerde bulunma eğilimi anlamına gelen aciliyet hissidir (AH). Alanyazında AH'nin anormal yeme örüntüleri ile ilişkisi üzerine pek çok çalışma olmasına rağmen, bu ilişkinin mekanizmasının açıklığa kavuşturulması gerekmektedir. Önceki araştırmalar, duygu düzenleme güçlüklerinin (DDG), AH'nin anormal yeme örüntüleri ile ilişkisini anlamak için bir mekanizma olabileceğini ve yeme beklentilerinin, diğer risk faktörleriyle birleştiğinde anormal yeme örüntüleri riskini daha da artırabileceğini öne sürmüştür. Mevcut çalışma, AH ile anormal yeme örüntüleri arasındaki doğrudan ve dolaylı ilişkileri ve DDG'nin aracı rolünü araştırmıştır. Ek olarak, AH ile anormal yeme örüntüleri ve DDG ile anormal yeme örüntüleri arasındaki ilişkilerde yeme beklentilerinin düzenleyici değişken rolü incelenmiştir. Çalışmanın örneklemi, yaşları 18 ile 68 arasında değişen (*O*= 33.15, *SS*=12.63) 653 yetişkin Türk (536 kadın) katılımcıdan oluşmaktadır. Sonuçlar, AH'nin hem duygusal yeme hem de dışsal yeme ile anlamlı ve pozitif bir ilişkisi olduğunu ortaya koymuştur. Ayrıca aracılık analiz sonuçları, DDG'nin AH ile duygusal yeme arasındaki ilişkiye aracılık ettiğini ancak AH ile dışsal yeme arasındaki ilişkiye aracılık etmediğini göstermiştir. Yeme beklentilerinin yalnızca AH ile duygusal yeme arasındaki ilişkide önemli düzenleyici rolü oynadığı gözlemlenmiştir. Dışsal yeme için yeme beklentilerinin anlamlı bir düzenleyici etkisi saptanmamıştır. Sonuçlar, anormal yeme örüntülerinin önlenmesi veya tedavisinde AH, DDG ve yeme beklentilerini hedeflemenin önemini vurgulamaktadır.

Anahtar kelimeler: Aciliyet hissi, duygu düzenleme güçlüğü, duygusal yeme, dışsal yeme, yeme beklentileri

Dedication

To my parents for their endless support and love

Acknowledgments

First of all, I would like to express my sincere gratitude to my supervisor Assoc. Prof Ayşe Altan-Atalay for her guidance and support. Her patience and advice helped me greatly during my thesis process and kept me motivated.

I would also like to express my appreciation to my beloved parents. Without the love and emotional support that they have given me throughout my life, none of this would be possible.

Lastly, I would like to give my special thanks to my significant other and friends for their encouragement and continuous help. Their social support and faith in me incredibly encouraged me through this process.

Table of Contents

List of Tables

List of Figures

CHAPTER 1

INTRODUCTION

Emotional eating and external eating are abnormal eating patterns and are used to refer to the overeating tendencies of individuals (van Strien et al., 1995). Even though emotional eating and external eating are subclinical eating patterns, they still cause significant psychological disturbance (Shisslak et al., 1995) and are important predictors of eating disorders (Černelič-Bizjak & Guiné, 2021; Pinaquy et al., 2003). Moreover, the question of whether these two eating behaviors are separate constructs is still up for debate in the literature (Bongers & Jansen, 2016; Ouwens et al., 2009)

The contribution of negative urgency (NU), increased tendency to engage in rash action in response to distress, to abnormal eating patterns is well-documented (Booth et al., 2018; Racine et al., 2013). But a further explanation of this relationship's mechanism is still required. Therefore, the current study examines the mediator role of emotion regulation deficits (ERD) in the relationship between NU and abnormal eating patterns.

Moreover, eating expectancies were shown to increase the risk for abnormal eating patterns when combined with other risk factors (Fischer et al., 2012). Hence, the current study also addresses the moderator role of eating expectancies in the relationships among NU, ERD, and abnormal eating patterns.

1.1 Eating Disorders and Abnormal Eating Patterns

Eating disorders (EDs) such as anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED) are considered abnormal eating patterns that manifest as disordered attitudes and behaviors concerning food intake (American Psychological Association, 2013). Like eating disorders, abnormal eating patterns are also characterized by

several maladaptive attitudes and behaviors such as overeating unhealthy foods when experiencing negative feelings or after being exposed to food stimuli and are used to describe maladaptive eating behaviors (Brytek-Matera, 2021). However, unlike eating disorders, abnormal eating patterns do not require a specific diagnosis or do not represent a specific characteristic of an eating disorder and, can also be present in individuals who are healthy and have a normal weight (Brytek-Matera, 2021).

Emotional eating and external eating are two of the major abnormal eating patterns (van Strien et al., 1986). Briefly, while emotional eating refers to the increased tendency to eat in response to negative emotions such as sadness or rage, external eating refers to the increased tendency to eat in the presence of external food-related stimuli such as the smell of the food (Damiano & Paxton, 2020). Both eating patterns focus on different styles of unhealthy eating behaviors and they are thought to be antecedents of "overeating" behavior which was supposed to be one of the causes of obesity (Bruch, 1973; Kaplan & Kaplan, 1957; Schachter et al., 1968). Although overeating pattern is one of the characteristics of BN and BED (American Psychiatric Association, 2013), overeating by itself may not indicate the presence of an eating disorder. However, it may indicate that there is a disturbed eating pattern, that the individual is deprived of a healthy diet and that individual’s health is in danger. Therefore, in an era in which obesity rates and disordered eating habits are increasing, it is crucial to understand the mechanisms behind these abnormal eating patterns to improve the health of people.

1.2 Abnormal Eating Patterns: Prevalence and Gender Distribution

Several epidemiological investigations have been carried out to determine the prevalence of abnormal eating patterns (Herle et al., 2019; Laitinen et al., 2002). A study conducted with 3957 participants who are non-Western and low-income, identical and fraternal twins and singletons showed that emotional overeating is common, such that twenty

percent of the sample reported emotional overeating at least once (Herle et al., 2019). Similar results were also obtained by Laitinen et al. (2002) in a study done with 5150 subjects and it was found that more than twenty-five percent of both females and males engaged in emotional eating occasionally. Although the prevalence of external eating has been less studied, a study conducted with 596 young children has demonstrated that external eating was more prevalent among children compared to emotional eating (van Strien & Bazelier, 2007). Given the prevalence, it would not be incorrect to say that abnormal eating patterns are common. It can be claimed that, at least occasionally, both adults and children engage in eating behavior due to negative emotional experiences or external cues, rather than natural reasons.

It is well-established that EDs are more common in women than in males, particularly for AN and BN (Santi Cano et al., 2022; Qian et al., 2021). However, it seems like the gender distribution of emotional eating and external eating is somewhat different from EDs. Several studies reported higher levels of emotional eating in females compared to males (Du et al., 2022; Rasouli et al., 2019; Thompson, 2015) and have not found gender differences in external eating (Burton et al., 2007; Cleobury & Tapper, 2013; Conner et al., 2004; Heaven et al., 2001). In contrast, it was reported that females were more likely to report higher levels of external eating compared to males (Ohara et al., 2014). Results of studies conducted with youngsters reported similar results such that more levels of emotional eating in girls (Harrist et al., 2013; Wardle et al., 1992) but differently, reported more levels of external eating in boys (Snoek et al., 2007; van Strien & Bazelier, 2007). Based on the findings, it might be claimed that, for the adult population, emotional eating is consistently seen more in women than men, but there is no sharp gender difference for external eating yet. In sum, abnormal eating patterns appear to be a risk factor for both females and males.

1.3 Abnormal Eating Patterns and Associated Health Issues

As mentioned above, abnormal eating patterns can be considered as problematic behaviors that may have some detrimental consequences on the mental and physical health of individuals. Findings from the literature have demonstrated that abnormal eating patterns are associated with EDs (Braet et al., 2008; Pinaquy et al., 2003; Waller & Osman, 1998). For example, it was found that emotional eating was one of the predictors of BED (Pinaquy et al., 2003) and bulimic eating attitudes and behaviors (Waller & Osman, 1998). Moreover, Braet et al. (2008) have found that both emotional eating and external eating were positively correlated with some of the established eating pathology indicators such as binging-purging episodes, body dissatisfaction, and drive for thinness. Thus, abnormal eating behaviors may appear as risk factors for possible eating pathology.

Abnormal eating patterns have been found to be associated with a variety of other mental disorders in addition to EDs (Houldcroft et al., 2014; Paans et al., 2018; Talbot et al., 2013). For example, in a study examining the eating patterns of participants diagnosed with major depressive disorder (MDD), it was reported that there was a positive relationship between MDD and emotional eating and external eating, and that these two eating patterns tended to increase as the severity of depressive symptoms increased (Paans et al., 2018). In addition to depressive symptoms, it was found that increased levels of emotional and external eating in preadolescents was associated with higher anxious symptoms, both general and social (Houldcroft et al., 2014). In another study examining the relationship between emotional eating and post-traumatic stress disorder (PTSD) by comparing participants diagnosed with PTSD and those who had not been diagnosed with any mental disorder throughout their lives, it was found that emotional eating was more common in the PTSD group than in the control group, and emotional eating tended to increase as the severity of PTSD symptoms increased (Talbot et al., 2013). In sum, although abnormal eating patterns are mostly associated with EDs and

ED-related symptoms, literature has shown that these patterns are also associated with different mental disorders.

In addition to associations with various mental disorders, abnormal eating patterns are also associated with increased body mass index (BMI) and weight gain as well (Frayn & Knäuper, 2017; Muharrani et al., 2018; Sung et al., 2009). For instance, in their review, Frayn and Knäuper (2017) concluded that emotional eating was linked to both gaining weight and reduced loss of weight. In addition, in their study conducted with Korean, same-sex, adult twins whose age are 30 or older and classified as normal weight and overweight based on their BMI scores, and their family members, Sung et al. (2009) found that emotional eating was positively associated with weight gain and higher BMI scores but did not find similar results for external eating. On the contrary, in a population consisting of female college students, external eating was found to be a more effective eating style in gaining weight compared to emotional eating (Muharrani et al., 2018). Finally, it is a well-known fact that high weight or high BMI is a major risk factor that increases the chance of diverse medical conditions such as heart disease and diabetes (Haffner, 2006). Therefore, it is likely that abnormal eating styles are associated with an increased risk for these medical health problems through weight gain. In sum, abnormal eating patterns are maladaptive eating styles that are associated with different disorders and symptoms that threaten the health of individuals. Therefore, an in-depth investigation of these patterns is required due to their influence on individuals' mental and physical health.

Considering the serious effects of abnormal eating habits on the health of individuals and their prevalence in the general population, it is quite important to investigate the mechanisms behind these maladaptive habits. Therefore, a sophisticated and inclusive model is required to explore the variables that contribute to abnormal eating patterns and explain the operation of the pathways between abnormal eating patterns and other factors. Hence, to

come up with a comprehensive understanding of abnormal eating patterns we are planning to focus on several aspects such as personality characteristics, trans-diagnostic risk factors, and eating-pathology-specific risk factors simultaneously.

In that regard, our goal is to examine the relationship between negative urgency (NU), a personality characteristic that is known to play a major role in dysregulated eating and abnormal eating behaviors, such as emotional eating and external eating (Pike, 2013; Racine et al., 2013). Additionally, we intend to examine the role of emotion regulation deficits (ERD), a trans-diagnostic risk factor linked to disordered eating, to grasp the mechanism of the relationship between NU and abnormal eating patterns (Racine & Horvath, 2018). Finally, we aim to investigate the impact of eating expectations, which are eating-pathology-specific risk factors found to be associated with eating disorder symptoms (Bohon et al., 2009). Through this complex model, we aim to identify the risk factors that are associated with abnormal eating patterns and points that might need to be intervened for prevention or treatment. We also aim to explore the common and different aspects between emotional eating and external eating to contribute to a long-standing debate in the literature on whether emotional and external eating are separate structures.

1.4 Abnormal Eating Patterns: Emotional Eating and External Eating

Former models on emotion and eating relationships aimed to understand the psychological factors underlying obese individuals' overeating tendencies (Kaplan & Kaplan, 1957; Bruch, 1973; Schachter et al., 1968). According to psychosomatic theories (Bruch, 1973; Kaplan & Kaplan, 1957) obese people engage in overeating in the face of undesirable emotions such as anxiety. Kaplan and Kaplan (1957) explained this overeating as the confusion of actual hunger/satiety states with internal arousal states such as emotional tension (Canetti et al., 2002). Bruch (1973), alternatively, attributed overeating of obese individuals in response to uncomfortable feelings to “faulty hunger awareness” and, suggested that obese

people are struggling with the recognition of hunger and discrimination of hunger from other uncomfortable feelings due to faulty learning of processes related to the gratification of somatic and nutritional needs (Canetti et al., 2002). Essentially, both theories emphasized that overeating occurs in response to emotional distress (Canetti et al., 2002). This eating pattern is referred to as "emotional eating" and it corresponds to the tendency to eat following experiencing negative emotions like anxiety, anger, etc. (Kaplan & Kaplan, 1957; Bruch, 1973).

On the other hand, internal-external theory, which is also aimed at explaining the overeating tendencies in obese individuals, suggests that even though normal-weight individuals can suppress their eating in the face of physiological fear and anxiety symptoms, this process is problematic in obese individuals since they cannot suppress their eating due to their lack of sensitivity to internal states (Schachter et al., 1968). Thus, regardless of actual hunger, initiation and termination of eating in obese individuals depend on external cues (Schachter et al., 1968). This pattern is named "external eating", which refers to a heightened inclination to eat in the presence of food-related stimuli such as smell or the appearance of food. (Schachter et al., 1968).

Several studies reported a strong positive correlation between emotional eating and external eating (Nagl et al., 2016; Ouwens et al., 2009; van Strien et al., 1995). The strong association between these constructs led to debates about whether emotional eating and external eating are the same constructs. Regarding the theories behind emotional and external eating, although they may seem like two competing theories on the surface, psychosomatic theories (Kaplan & Kaplan, 1957; Bruch, 1973) and internal-external theory (Schachter et al., 1968) share some common assumptions concerning the etiology of abnormal eating patterns (van Strien et al., 1995). Notably, van Strien et al. (1995) pointed out some common aspects of theories and emphasized three common presumptions: Firstly, unlike the restrained

hypothesis, which attributes the reason for overeating to dieting and assumes that individuals engage in overeating after a dieting episode (Herman & Polivy, 1980), both psychosomatic theories and internal-external theory postulate that these eating patterns are not caused by dieting but preceded it. In other words, a temporal sequence is in question and overeating does not occur as a result of excessive restriction of eating, but rather occurs before the restriction of eating (van Strien et al., 1995). Secondly, both theories suggest that overeating occurs due to an erroneous perception of internal states prior to eating, that is, individuals overeat when they misperceive their physiological reactions such as emotions and hunger (van Strien et al., 1995). Lastly, a robust correlation between emotional eating and external eating is assumed by both theories (van Strien et al., 1995). Moreover, Heatherton and Baumeister (1991) asserted that both emotional and external eating conjointly occur following the attempt to escape from undesirable emotional states. In a sense, the escape theory of eating integrated psychosomatic theory and externality theory, which are considered rivals (Heatherton & Baumeister, 1991).

As well as studies focusing on the intersections of theories behind abnormal eating patterns, a study conducted to test the construct and discriminative validity of the external eating subscale of the Dutch Eating Behavior Questionnaire (DEBQ; van Strien et al., 1986) found that increased food intake was related to being exposed to food-related cue but, this case was not specific to eating style such that external eaters and emotional eaters did not differ significantly in their food consumption (Jansen et al., 2010). It was claimed that the external eating subscale lacks discriminative validity and, that emotional and external eating might not be separate constructs that reflect different aspects of overeating (Jansen et al., 2010). A review done by Bongers and Jansen (2016) supported the findings of Jansen et al. (2010) by emphasizing the poor predictive and discriminant validity of emotional eating scales and they argued that emotional eating might be a construct that reflects individuals'

reactivity to cues, lack of control, concerns regarding eating or propensity to associate overeating with negative mood, rather than merely reflecting eating in response to negative moods.

On the other hand, there is a body of evidence regarding the separation between emotional eating and external eating. From a theoretical perspective, essentially, psychosomatic theories and external-internal theory attribute overeating to different reasons. As van Strien et al. (1995) argued psychosomatic theories explain the cause of overeating as the confusion of the physiological state evoked by negative emotions with the physiological manifestations of actual hunger/satiety (Kaplan & Kaplan, 1957; Bruch, 1973), while externality theory (Schachter et al., 1968) explains the cause of overeating through individual's insensitivity to their internal cues and, consequently, increased sensitivity to food-related stimuli such as smell or appearance of the food. In addition to differences between theories, several studies demonstrated that emotional and external eating is related to different variables than each other (Mason et al., 2017; Ouwens et al., 2009; van Strien et al., 1995). More specifically, van Strien et al. (1995) examined the distinction between emotional eating and external eating, and they found that while emotional eating is significantly associated with relationship and emotional problems (e.g. depression, anxiety, suicidal ideations, etc.), external eating was not associated with any of these. van Strien et al. (1995) also stated that emotional eaters are characterized by problems such as adjustment problems, inadequate cognitive and affective mechanisms, and difficulties in labeling emotions while emphasizing that external eating is more associated with traits such as stimulus dependence, which makes external eaters more skilled in processing information or stimuli (Schachter, 1971).

Likewise, Ouwens et al. (2009) found significant, direct, and indirect relationships between emotional eating and depression, but this relationship was not present between

external eating and depression, rather, external eating was found to be more correlated with impulsivity. In the light of their findings, Ouwens et al. (2009) claimed that emotional eating and external eating might be independent constructs. A relatively recent study investigating the ecological validity of subscales of DEBQ demonstrated that while emotional eating was associated more with high negative affect and low positive affect, external eating was more correlated with expectations regarding eating such as expecting that taste of food will bring enjoyment (Mason et al., 2017). Therefore, based on the findings, although external and emotional eating is highly correlated, we believe that mechanisms involved in external and emotional eating patterns may not be identical.

1.5 Predictors and Correlates of Emotional Eating and External Eating

A good number of studies examined the predictors of abnormal eating patterns, with a portion focusing on the association between personality characteristics and abnormal eating patterns. For example, Elfhag and Morey (2008) and Heaven et al. (2001) specifically emphasized the role of high neuroticism and low conscientiousness in abnormal eating patterns. Namely, Heaven et al. (2001) found that those with low caution, low self-control, and high immoderation were more likely to exhibit higher levels of emotional eating and external eating. Similar results were replicated by Elfhag and Morey (2008) and they demonstrated that both neuroticism and conscientiousness were predictors of abnormal eating habits. Additionally, the importance of lower self-discipline and self-control, which are linked to impulsivity, was underlined and these traits were emphasized as significant correlates of abnormal eating patterns (Elfhag & Morey, 2008). Similarly, several studies also pointed out the role of impulsivity in abnormal eating patterns (Aki et al., 2022; Atalayer, 2018; Izydorczyk et al., 2019). In her review, Atalayer (2018) pointed to the role of impulsivity in abnormal eating patterns and stated that impulsivity could be a predisposing factor for overeating, especially for external eating. In another review, a consistent link

between trait impulsivity and abnormal eating patterns was reported as well (Loxton, 2018). Izydorczyk et al. (2019) also reported that the variable that had the greatest direct significant effect on emotional eating and external eating was impulsivity. Besides, emotional eating was also found to be associated with depressive symptoms and anxiety (Goldschmidt et al., 2013; Lazarevich et al., 2016; Nguyen-Rodriguez et al., 2009; Schneider et al., 2010). Although relatively less research has been done on external eating, a few studies focused on this pattern and documented that external eating was positively associated with reward sensitivity and drive to seek novel rewards (Hou et al., 2011; Vandeweghe et al., 2017) and greater attentional bias to food signs (Brignell et al., 2009; Hou et al., 2011).

Although children and adolescents are not within the scope of this study, it would be reasonable to talk about the correlates of abnormal eating habits observed during childhood and adolescence as it will help us to comprehensively understand the etiology and structure of these patterns. Studies conducted with youngsters also highlighted different constructs correlated with abnormal eating patterns (Damiano & Paxton, 2020; Forrester-Knasuss et al., 2012; Harrist et al., 2013; Vandeweghe et al., 2017). In their review which focuses on emotional eating and external eating in children and adolescents, Damiano and Paxton (2020) mentioned several factors such as body esteem and increased emotional symptoms as predictors of emotional eating (Forrester-Knauss et al., 2012) and stress, anxiety, and depression as important correlates of emotional eating. In addition to that, Harrist et al. (2013) found that children's emotion regulation strategies were correlated with their emotional and external eating such that a rise in reactivity of worry and anger regulation predicted increases in emotional and external eating. Another factor that is shown to be correlated with abnormal eating patterns in children was found as reward sensitivity, which is especially significantly and positively associated with external eating (Vandeweghe et al., 2017). Parental feeding practices and being exposed to weight stigma were also mentioned by

Damiano and Paxton (2020) as risk factors for abnormal eating patterns in the children population.

1.6 Negative Urgency as a Predictor of Emotional Eating and External Eating

The available literature points to the role of impulsivity when problematic eating behaviors are in question (Bénard et al., 2018; Mallorquí-Bagué et al., 2020). Impulsivity is a personality characteristic that refers to actions that are inadequately designed, manifest before the appropriate time frame, are expressed as excessively risky or inappropriate to the situation, and often lead to displeasing outcomes (Daruna & Barnes, 1993). The impulsivity trait, which is known to be associated with eating disorders (Waxman, 2009), has also been found to be associated with abnormal eating patterns (Izydorczyk et al., 2019; Atalayer, 2018; Elfhag & Morey, 2008; Hou et al., 2011). However, impulsivity is an umbrella term that covers several constructs that may have low correlations with one another (Whiteside & Lynam, 2001). Whiteside and Lynam (2001) scrutinized the several aspects of impulsivity based on the Five-Factor Model of personality (FFM; McCrae & Costa, 1990) and identified the facets of impulsivity as follows: urgency, (lack of) premeditation, (lack of) perseverance, and sensation seeking.

Among the facets of impulsivity, negative urgency (NU) has been described as a transdiagnostic risk factor (Racine et al., 2017) which refers to factors that underlies various psychopathologies (Nolen-Hoeksema & Watkins, 2011). More specifically, transdiagnostic risk factors are dysfunctional personality characteristics or cognitive, behavioral or emotional processes that contributes to multiple mental disorders (Harvey, 2009). For instance, NU has been found be a significant risk factor for anxiety disorders (Malivoire et al., 2019; Pawluk & Koerner, 2016) and addictive disorders (Kaiser et al., 2012; VanderVeen et al., 2016), In addition, the literature on eating disorders or abnormal eating patterns specifically points to the role of NU among other aspects associated with impulsivity. (Anestis et al., 2008; Dir et

al., 2013). Cyders and Smith (2008) defined NU as an emotion-based tendency to act recklessly in the presence of extremely negative affect. Frijda (2010) defines rush action as the behaviors that are automatic, stimulus-driven, have a degree of urgency, and purposive although they are non-intentional and that require no contemplation or prior planning. For example, in the NU subscale of the UPPS Impulsive Behavior Scale, Whiteside and Lynam (2001) pointed out behaviors like not being able to resist the urge to eat or smoke, acting to feel good now even if it results in regret later, or having difficulty in resisting acting on emotions. In addition, NU was found to be significantly associated with maladaptive behaviors such as excessive reassurance-seeking, drinking to cope, and bulimic symptoms such as binge eating (Anestis et al., 2007). These behaviors also might be examples of hasty actions because they serve a purpose (e.g., short-term relief from negative affect), are difficult to resist, and are more automatic than deliberate.

Over the past decades, literature on eating behaviors emphasized the impact of NU on eating problems, specifically bulimic symptoms (Wenzel et al., 2014, Lavender, Green, et al., 2015). In their meta-analytic review, Fischer et al. (2008) stated that NU was the only impulsivity trait that accounted for the significant variance in bulimic symptoms such as binging and purging. Regarding abnormal eating patterns, Racine et al. (2013) reported NU to be one of the predictors of emotional eating even after negative affect was controlled. More recently, Racine et al. (2016) replicated the results of Racine et al. (2013) and they reported a significant positive correlation between NU and dysregulated eating including emotional eating. Similarly, in their study conducted with adolescents with severe obesity, Rose et al. (2017) found that adolescents who are having trouble controlling their impulses in the face of negative emotions were more prone to engage in emotional eating.

Despite the abundance of research on how NU contributes to emotional eating, the relationship between NU and external eating has been relatively less investigated. Recently a

few studies investigated the relationship between NU and external eating and revealed mixed results (Aki et al., 2022; Benzerouk et al., 2021; Ellickson-Larew et al., 2013; Pike, 2013). Notably, external eating appeared to be significantly associated with the NU and NU was a strong predictor of both external eating and emotional eating (Aki et al., 2022). Similar results were also obtained from different studies and a significant and positive correlation between NU and external eating was reported (Ellickson-Larew et al., 2013; Hanras et al., 2022). On the other hand, in a study done by Benzerouk et al. (2021), a significant positive association between emotional eating and NU was documented but, no significant association between external eating and NU was observed. However, in another study, NU was found to be significantly and positively associated with both emotional eating and external eating, however, regression analyses revealed that NU was a strong predictor only for external eating but, not for emotional eating (Pike, 2013). Although findings appear to be more consistent for emotional eating compared to external eating findings are still mixed. Therefore, further research is needed to understand the nature of the relationship between NU and abnormal eating patterns and to identify similarities or differences between emotional eating and external eating from the NU perspective.

1.7 The Mediator Role of Emotion Regulation Deficits

Although several studies examined the relationship between NU and abnormal eating patterns, the mechanisms involved in this relationship are still not clear. However, a construct that has robust associations with both NU and abnormal eating patterns, namely emotion regulation difficulties, may help us better understand this association. Emotion regulation deficits (ERD) were defined as difficulties in acknowledging and accepting emotions, problems in engaging in goal-directed behavior and inhibiting impulsive behavior, and difficulties in accessing effective emotion regulation strategies (Gratz & Roemer, 2004). Considering that NU is a type of impulsivity that gets activated by exposure to difficult emotions, there is good

reason to assume that there might be an association between the two. Several studies indicated positive significant correlations between negative urgency and emotion dysregulation (Dir et al., 2016; Fossati et al., 2014; Smith, 2019). Furthermore, King et al. (2018) demonstrated that NU was correlated with the use of maladaptive emotion regulation strategies (i.e., reflexive responses and disengagement). It was found that people with higher NU were more prone to ruminate, blame themselves or catastrophize and, more likely to employ strategies like denial, suppression, or avoidance to regulate their emotions. Considering the results, it was concluded that ERD might be an essential construct in the understanding of the impact of NU on psychopathology (King et al., 2018).

The importance of ERD in the development and maintenance of disordered eating is well known (Fairburn et al., 2003; Lavender et al., 2015; Leehr et al., 2015) and several studies also documented that people suffering from EDs are also experiencing difficulties in emotion regulation (Dingemans et al., 2017; Oldershaw et al., 2015; Prefit et al., 2019). It is assumed that when people with EDs (especially BN and BED) experience negative feelings, they engage in dysfunctional behaviors like binging and this binging behavior serves as a mood-regulatory strategy (Fairburn et al., 2003; Leehr et al., 2015). Namely, the intake of food decreases the intensity of the current negative emotions and provides relief from the unpleasant emotional state (Fairburn et al., 2003; Leehr et al., 2015). Therefore, it has been suggested that disordered eating behaviors might be an effort to regulate negative emotions (Puttevils et al., 2021).

Several studies examined the relationship between ERD and maladaptive eating habits (Baldofski et al., 2015; Gianini et al., 2013; Harrist et al., 2013; Kelly et al., 2016). A study conducted with children and adolescents demonstrated that those with loss-of-control eating had higher levels of emotion regulation difficulties as compared to those who do not have loss-of-control eating (Kelly et al.,2016). Regarding emotional and external eating, Baldofski et al. (2015) demonstrated that emotion dysregulation was significantly related to both emotional

and external eating in individuals who have applied for bariatric surgery. In their longitudinal study with children, Harrist et al. (2013) found a significant relationship between children's non-optimal emotion regulation style (esp. reactivity) and non-hunger-based eating styles (emotional eating and external eating) and, demonstrated that increased reactivity to emotions such as anger and anxiety predicted emotional and external eating. In another study which is conducted with individuals who have binge eating disorder (BED), emotion regulation difficulties significantly predicted emotional overeating frequency and explained unique variance in general eating pathology as well as emotional eating (Gianini et al., 2013).

Furthermore, several studies examined the mediator role of ERD in the relationship between NU and various variables such as smoking expectancies, internalizing symptoms, and eating patterns (Dir et al., 2016; King et al., 2021; İşçi et al., in prep.). In line with this, adolescents' expectations that smoking facilitates social interactions were predicted by NU and ERD, and NU was only associated with positive smoking expectations at high ERD levels (Dir et al., 2016). In another study, King et al. (2021) examined the relationship between NU and internalizing symptoms (i.e., depressive and anxiety symptoms) and found that the association between NU and anxiety was not significant after controlled for emotional reactivity and negative emotionality. It was suggested that ERD might be a relevant construct to understand NU's relation to internalizing symptoms (King et al., 2021). From a similar vein, İşçi et al. (in prep.) investigated the mediator role of the ERD in the relationship between NU and intuitive eating, which refers to eating in response to physiological hunger and satiety signs rather than external or emotional signs (Tylka, 2006), and demonstrated that the relationship between NU and intuitive eating was mediated by ERD. It was also stated that deficiencies in emotion regulation, along with high levels of NU, might be responsible for unhealthy eating patterns such as emotional eating (İşçi et al., in prep.). Based on such findings, ERD can be considered as an intermediary proximal intrapersonal risk factor that may help to explain the NU's relation

to abnormal eating patterns. Therefore, different from the other studies in the literature, by focusing on more specific eating patterns, we are planning to investigate the mediator role of ERD in the relationship between NU and emotional and external eating. By doing so, we aim to understand the different or shared mechanisms between emotional eating and external eating.

1.8 The Moderator Role of Eating Expectancies

Expectancies, described by Tolman (1932), refer to learned associations between behaviors and outcomes and are influential in subsequent behavioral choices. Expectancies were thought to represent the individual differences in past learning experiences of people, thus reflecting individual variations in motivations for a particular behavior (Hohlstein et al., 1998). Hohlstein et al. (1998) applied expectancy theory to eating behavior to understand the motivations behind extreme eating behaviors of individuals and came up with the term "eating expectancies". Eating expectancies refer to previously learned beliefs regarding the consequences of eating and are influential in later behavioral choices concerning eating (Hohlstein et al., 1998). Hohlstein et al. (1998) defined 5 facets of eating expectancies as follows: (1) Eating Helps Manage Negative Affect (EEI-NA), (2) Eating Alleviates Boredom (EEI-BOR), (3) Eating Is Pleasurable and Useful as a Reward (EEI-REW), (4) Eating Enhances Cognitive Competence (EEI-CC) and, (5) Eating Leads to Feeling out of Control (EEI-C), and conceptualized these expectancies based on the reinforcement type such that positively reinforced expectancies or negatively reinforced expectancies.

Expectancies associated with negative reinforcement are characterized by the anticipation that eating will minimize unpleasant emotional experiences and two related expectations are EEI-NA and EEI-BOR. On the other hand, the anticipation that eating would produce enjoyable stimuli are included in expectations related to positive reinforcement (Hohlstein et al., 1998). Two related expectations to positive reinforcement are EEI-REW and EEI-CC (Holstein et al., 1998). The last expectation, namely EEI-C, is not necessarily

categorized as a positively or negatively reinforced expectation, rather than that, it reflects the loss of control expectations which is mostly reported by individuals who engage in binge eating (Hohlstein et al., 1998).

Literature demonstrated that eating expectancies are potent factors in disordered eating patterns (Combs et al., 2011; Hayaki, 2009; Hayaki & Free, 2016; Smith et al., 2007). For instance, Hayaki (2009) found that negatively reinforced expectancies were found to predict BN symptoms even after controlling for the effect of emotion regulation (Hayaki, 2009). In another study, Combs et al. (2011) examined whether different types of eating expectancies are associated with different types of maladaptive eating behavior and found that while EEI-REW expectancy predicted overeating tendency on social occasions but did not predict binge eating, EEI-NA expectancy predicted clinical binge eating, but not social overeating.

Research has suggested that eating expectancies are risk factors that moderate the relationship of various anthropometric (i.e., BMI) and psychological constructs with abnormal eating habits (Hearon et al., 2012; Henrickson et al., 2010; Schaefer et al., 2021). Several studies have examined the interaction between eating expectancies and other risk factors to see how eating behavior changes across different conditions (Ortiz et al., 2021; Pearson et al., 2018; Smith et al., 2020). A recent study investigating predictors of binge eating found an interaction effect between EEI-NA expectancy and affective lability and reported that this interaction predicted binge eating over the period of 4 months (Ortiz et al., 2021). It was concluded that eating expectancies had a greater impact on binge eating at higher degrees of affective lability (Ortiz et al., 2021). Pearson et al. (2018) focused on binge eating and reported an interaction effect between the EEI-NA expectancy and self-control depletion, which refers to the depletion of self-control mechanisms due to engaging in actions requiring the use of control such as restriction of food intake and coping with negative affect

by inhibiting maladaptive responses. Results showed that binge eating was only predicted by self-control depletion when people also endorsed higher levels of eating expectancies (Pearson et al., 2018). Namely, people with self-control depletion were more likely to engage in binge eating especially when they expect that eating will help them to handle negative emotions (Pearson et al., 2018).

Some studies specifically investigated the moderator effect of eating expectancies on the relationship between NU and problematic eating behaviors (Grossman, 2015; Fischer et al.,2004; Fischer & Smith, 2008; Fischer et al., 2018). Fischer and Smith (2008) examined the role of NU and expectancies on addictive behaviors including binge eating. It was reported that the effect of NU on binge eating was moderated by the EEI-NA expectancy and was concluded that females who have high levels of NU were more likely to binge if they hold high eating expectations as well (Fischer & Smith, 2008). It was also discussed that an individual's susceptibility to engage in harmful behaviors (e.g., gambling, drinking, or eating) may be influenced by their level of NU yet, which of the harmful behaviors will be displayed may be related to behavior-specific expectations (Fischer & Smith, 2008). Findings like those of Fisher and Smith (2008) were also obtained and it was demonstrated that the association between NU and bulimic symptoms such as binging and purging was moderated by eating expectancies (Fischer et al., 2003; Fischer et al., 2013). In another study, Grossman examined the moderator role of eating expectancies (i.e., Eating Leads to Feeling out of Control) in the association between NU and eating disorder symptoms (i.e., restraining food intake, concerns related to weight, shape, and eating) and found that at the moderate and high levels of eating expectancies the association between NU and ED symptoms was stronger. Grossman (2015) concluded that if females are inclined to act rashly to cope with negative emotions and learned that eating will bring negative feelings such as loss of control, they are more likely to engage in problematic eating behaviors like restricting food intake to cope with negative

emotions. Grossman (2015) discussed that individuals who tend to handle negative emotions in rush may engage in problematic eating behaviors as a coping strategy. This tendency to act in rush to handle emotions may be strongly associated with abnormal eating patterns, especially if the individual endorses certain expectancies regarding the outcomes of eating like the elimination of negative emotions and induction of pleasurable feelings (Grossman, 2015). Based on this, it is conceivable that when an individual tends to quickly handle negative emotions and learned that eating will help to achieve desired results, the probability of engaging in eating would be higher compared to someone who did not learn such an association between eating and its outcomes. It appears that eating expectancies could be the motivators that increase the risk for abnormal eating patterns especially if there is a dispositional risk factor like NU.

In conclusion, eating expectancies appear to be cognitive constructs linked to disordered eating patterns that, when paired with other risk factors, enhance the likelihood of maladaptive eating behaviors (Fischer et al., 2004; Grossman, 2015). Studies point to the interaction effect between NU and eating expectancies on the development and maintenance of disordered eating (Fischer et al., 2003; Fischer & Smith, 2008). Therefore, examining the moderator role of eating expectations in the association between NU, ERD, and abnormal eating patterns may aid in our understanding of the circumstances in which the risk for these eating patterns rises and the identification of people at risk.

1.9 The Current Study

Given the findings, although several studies examined the possible pathways between NU and abnormal eating patterns, the mechanisms involved in this relationship still need clarification. Since the literature specifically points to the role of NU in the development and maintenance of disordered eating (Racine et al., 2013) and emphasizes the mediator role of ERD (King et al., 2018; İşçi et al., in prep.), we aim to understand the relationship between

NU and emotional eating and external eating, which we expect is mediated by the ERD. Such investigation may allow us to understand how NU influences abnormal eating patterns and whether the same mechanism is valid for both emotional eating and external eating. Additionally, findings indicate that eating expectancies might be cognitive constructs that may influence the strength of the relationship between NU, ERD, and abnormal eating patterns (Grossman, 2015; Fischer et al., 2012; Fischer et al., 2013). Based on the results of previous studies, we are planning to examine the moderator role of eating expectancies (i.e., EEI-NA, EEI-BOR, and EEI-REW) in the relationship between NU, ERD, and abnormal eating patterns. By examining their impact, we are planning to explore the role of eating expectancies to see the conditions in which the relationships between risk factors and abnormal eating patterns may change. Thus, we expand the literature on abnormal eating patterns by exploring the mechanisms and conditions that might influence these patterns by focusing on transdiagnostic and ED-specific risk factors simultaneously. In addition, by examining both emotional eating and external eating at the same time, we may shed light on the debate of whether these two constructs are separate constructs.

Thus, we hypothesize that NU would be positively related to both emotional eating and external eating (*hypothesis 1*). In other words, those with higher NU would reveal higher abnormal eating patterns compared to those with lower levels of NU. Secondly, we hypothesize that ERD would mediate the relationship between negative urgency and emotional eating, but not the relationship between negative urgency and external eating. (*hypothesis 2*). Thirdly, we anticipate that high levels of eating expectancies would moderate the relationship between NU and emotional eating *(hypothesis 3a)* and the relationship between ERD and emotional eating *(hypothesis 3b)*. Lastly, we anticipate that high levels of eating expectancies would moderate the relationship between NU and external eating

(hypothesis 4a) and the relationship between ERD and external eating (*hypothesis 4b)*. Namely, these associations would be stronger at the high levels of eating expectancies.

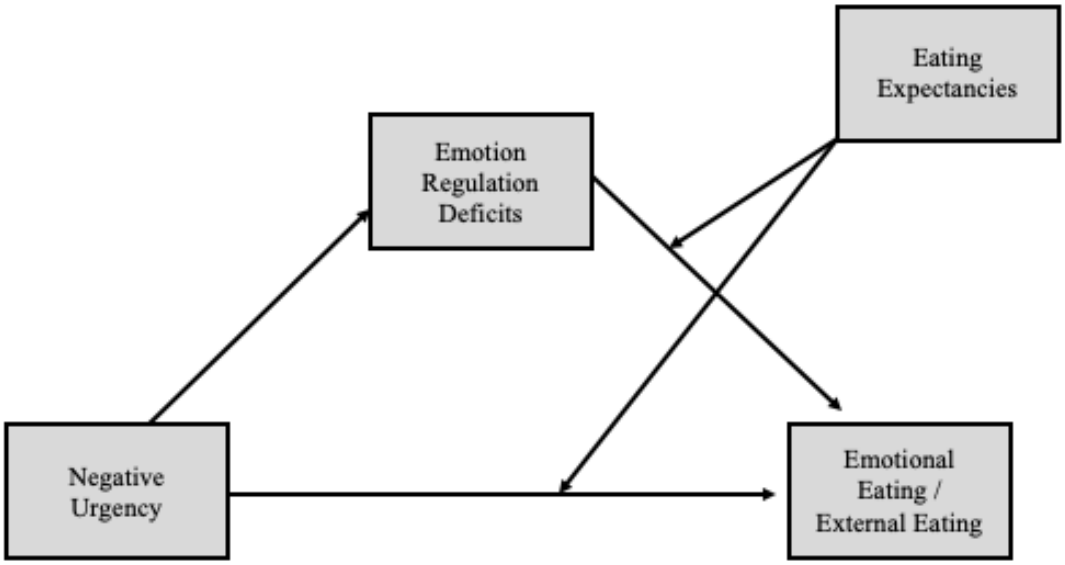


Figure 1: The proposed conceptual model

CHAPTER 2

METHOD

2.1 Participants

The sample consisted of 653 Turkish participants, the majority of whom were females (*n* = 536). The mean years of age was 33.15 (*SD* = 12.63) ranging from 18 to 68. BMI scores ranged from 15.1 to 51.3 with a mean of 25.14 (*SD* = 5.52), the mean BMI was 24.73 for females (*SD* = 5.63) and 26.85 for males (*SD* = 4.61). 61.4 % of the participants were university graduates.

2.2 Measures

2.2.1 Demographic Information Form Besides basic information regarding the participant's age, sex, education level, weight, and height; information about the participant's weight-control methods (e.g., purging, counting calories, bariatric surgery history, etc.), diet styles (e.g., vegetarian, vegan, etc.) and whether they have a diagnosed disease were collected as well.

2.2.2 The Dutch Eating Behavior Questionnaire *(*DEBQ*;* van Strien et al.,1986) is a self-report questionnaire that consists of 33 items and was developed to measure the three different eating styles in adults: emotional eating, external eating, and restrained eating. DEBQ is a 5-point Likert scale that assesses the frequency of the eating styles, and a sample item is "Do you have a desire to eat when you are irritated?". Cronbach alpha coefficients for emotional, external, and restrained eating subscales are respectively as follows: $\alpha = 0.95$, $\alpha = 0.81$, $\alpha = 0.95$. Bozan et al. (2011) reported higher internal consistency ($\alpha = .90$ for external eating, $\alpha = .92$ for emotional eating, and $\alpha = .96$ for restrained eating subscales) and test-retest reliability for all 3 subscales ($r = .90$ for emotional eating, $r = .94$ for restrained eating and $r = .96$ for external eating subscales) for the Turkish version of the DEBQ.

2.2.3 The Negative Urgency Subscale of the UPPS Impulsive Behavior Scale (UPPS-P; Whiteside & Lynam, 2001) is utilized to measure the personality traits that are associated with impulsivity. The UPPS scale consists of 45 items and has 4 subscales (Urgency, (lack of) Perseverance, (lack of) Premeditation, and Sensation Seeking Scale). In the current study, only the Urgency subscale, now referred as negative urgency (NU) was used. NU is measured with 12 items on a 1 to 4 Likert-type scale to measure one's predisposition to act in rush in response to negative affect. A sample item is "I have trouble controlling my impulses". The internal consistency score for the negative urgency subscale was reported as .86 by Whiteside and Lynam (2001). Concerning negative urgency, the Turkish adaptation of the scale has a sufficient internal consistency coefficient (α = .80) and satisfactory test-retest reliability (r = .80) (Yargıç et al., 2011).

2.2.4 Brief Version of the Difficulties in Emotion Regulation Scale (DERS-16; Bjureberg et al., 2015), the revised version of the scale DERS (Gratz & Roemer, 2004) is a 16-item, 5-point Likert self-report measure that evaluates the individuals' difficulty level in multiple domains of emotion regulation including acceptance of emotions, goal-directed behavior engagement when distressed, impulse control when distressed, access to effective emotion regulation strategies and emotional clarity. A sample item is "When I'm upset, I feel out of control". The original version of DERS-16 revealed excellent internal consistency (α = .92) and good test-retest reliability (r = .85). The Turkish standardization of the scale yielded an excellent internal consistency coefficient (α = .92) (Yiğit & Guzey Yiğit, 2019).

2.2.5 Eating Expectancies Inventory (EEI; Hohlestein et al., 1998) is a 34-item, 7-point Likert self-report questionnaire that was developed to evaluate individuals' cognitive anticipations regarding the consequences of eating. EEI has 5 subscales, and the coefficients alphas of subscales are as follows: 1) "Eating Helps Manage Negative Affect (EEI-NA)" (α = .94), 2) "Eating Is Pleasurable and Useful (EEI-REW)" (α = .78), 3) "Eating Leads to Feeling

Out Of Control (EEI-C)" (α = .86), 4) "Eating Enhances Cognitive Competence (EEI-CC)" (α = .79) and 5) "Eating Alleviates Boredom (EEI-BOR)" (α = .80). A pilot study was conducted, prior to the main study for the examination of the psychometric properties of the Turkish version of the scale.

2.3 Reliability Study for Turkish adaptation of EEI

2.3.1 Participants and Procedure

Preceding the collection of main data, a pilot study was carried out to evaluate the psychometric qualities of EEI in the Turkish sample. Firstly, the original version of the EEI was translated into Turkish by 3 bilingual translators and back translations from English to Turkish were conducted. After finalizing the Turkish version of the EEI, data collection was carried out online in 2 phases. Participants were asked to complete various measurements including adaptive and maladaptive eating habits, motivational systems, and emotion regulation measures in the first phase to later evaluate the correlations of EEI with other scales. One month after finishing the first phase, they were asked to complete the EEI scale once more. Of the sample of 386 participants, 78.2% were female, 21.2% were male, and 0.5% were non-binary. Participants' age ranged from 17 to 64 (M = 27.8, SD= 9.57) and the majority were undergraduate students (n = 386)

2.3.2 Materials

The participants were presented with demographic information form and DERS, which were also administered in the main study. However, the following scales (BIS/BAS scales, Three-Factor Eating Questionnaire-R21and Intuitive Eating Scale-2) are used only in the standardization study.

2.3.2.1 Behavioral Inhibition System / Behavioral Activation System Scale (BIS/BAS Scales; Carver & White, 1994) is a self-report questionnaire that consists of 24 items and is

scored on a 4-point Likert scale. The scale consists of 4 sub-scales and assesses the motivational systems, namely, the behavioral inhibition system (BIS) and behavioral activation system (BAS). While BIS relates to the drive to avoid unfavorable consequences (e.g., “Criticism or scolding hurts me quite a bit”), BAS relates to the motivation to pursue consequences that are goal oriented. One subscale assesses BIS and other subscales (i.e., BAS Drive, BAS Fun Seeking, and BAS Reward Responsiveness) assess BAS (i.e., “When I want something I usually go all-out-to get it”). The original version of the scale has yielded acceptable internal consistency for BIS (α = .74), BAS Reward Responsiveness (α = .73), BAS Drive (α = .76), and questionable internal consistency for BAS Fun Seeking (α = .66). Also scale has questionable test-retest reliability for BIS (*r* = .66), Drive (*r* = .66), Fun Seeking (r = .69) and poor test-retest reliability for Reward Responsiveness (*r* = .59). The Turkish version of the scale (Şişman, 2012) has yielded questionable internal consistency for BIS (α = .69), Fun Seeking (α = .63), Drive (α = .69) and poor internal consistency for Reward Responsiveness (α = .57).

*2.3.2.2 Three Factor Eating Questionnaire-R21 (*TFEQ-R21; Tholin et al., 2005) is a shortened and revised version of TFEG originally developed by Stunkard and Messick (1985). The self-assessment scale consists of 21 items with 4-point Likert-type scoring and assesses the eating behavior of individuals in various domains. It has 3 subscales: cognitive restraint (CR) scale ("I deliberately take small helpings to control my weight”), emotional eating (EE) scale (“I start to eat when I feel anxious”), and uncontrolled eating (UE) scale (“Sometimes when I start eating, I just can’t seem to stop”). The scale has yielded excellent internal consistency for emotional eating (α = .92), good internal consistency for uncontrolled eating (α = .84), and questionable internal consistency (α = .68) for cognitive restraint (Cappelleri et al., 2009). The Turkish version of TFEQ-R21 (Karakuş et al., 2016) has yielded acceptable internal consistency for the uncontrolled eating subscale (α = .78) and

good internal consistency for cognitive restraint (α = .80) and emotional eating subscales (α = .87).

2.3.2.3 Intuitive Eating Scale-2 (IES-2; Tylka & Kroon Van Diest, 2013) is a self-report questionnaire that consists of 23 items and is scored on a 5-point Likert scale. The scale was designed to assess the individuals' propensity to rely on their physical hunger/satiety signs when determining eating in terms of when, what, and how much. An example item is "I rely on my hunger signals to tell me when to eat". For the internal consistency of the scale, Cronbach's coefficients alpha scores were found as .87 for women and .89 for men. The Turkish adaptation of the scale (Akırmak et al., 2018) has yielded good internal consistency (α = .89).

2.3.3 Results

2.3.3.1 Factor Structure of EEI

Confirmatory factor analysis was conducted to analyze the factor structure of EEI and Chi-square tests and additional fit measures were carried out to evaluate the fitness of the model. Initial CFA results indicated a poor fit ($\chi2(df = 517, N= 386) = 1788.37$, $\chi2/df = 3.45$, CFI = .85, TLI = .83, RMSEA = .08, SRMR = .076, GFI = .74). After adjusted for correlated residuals, based on the suggested modification indices ($\chi2(df = 504, N = 386) = 1352.67$, $\chi2/df = 2.68$, CFI = 0.90, TLI = .89, RMSEA = .066, SRMR = .073, GFI = .80), the result revealed a relatively better model fit ($\Delta\chi2$ (13) = 435.70, $p < .001$). Factor loadings of all 34 items were significant ($p < .001$) and ranged from .32 ("I don't get a sense of security or safety from eating.") to .89 ("Eating helps me think and study better.").

2.3.3.2 Reliability of EEI

Cronbach's alpha coefficients of both the overall EEI and each subscale were determined to analyze the internal consistency and a test-retest reliability score of the EEI. Reliability analysis revealed Cronbach's alpha values as follows: Eating Manages Negative

Affect (EEI- NA): .95; Eating is Pleasurable and Useful as a Reward (EEI-REW): .83; Eating Leads to Feeling out of Control (EEI-C): .85; Eating Alleviates Boredom (EEI-BOR): .77 and Eating Enhances Cognitive Competence (EEI-CC): .80. Turkish version of the EEI yielded excellent internal consistency ($\alpha = .94$) and acceptable test-retest reliability ($r = .79$).

2.3.3.3 Validity of EEI

To examine the construct validity of EEI, a series of correlation analyses were conducted and correlations between EEI subscales and, emotion regulation difficulties, behavioral action and behavioral inhibition systems, uncontrolled eating, emotional eating, cognitive restrain, and intuitive eating measurements were examined (see Table 1). The majority of the EEI's subscales were correlated with each other. Respectively, EEI-NA scores positively correlated with EEI-BOR ($r = .70$, $p < .01$), EEI-REW ($r = .46$, $p < .01$), EEI-C ($r = .39$, $p < .01$), and EEI-CC ($r = .36$, $p < .01$). A positive correlation between EEI-BOR scores and EEI-REW ($r = .53$, $p < .01$), EEI-C ($r = .20$, $p < .01$) and EEI-CC ($r = .30$, $p < .01$) was observed. Results revealed a significant negative correlation between EEI-REW and EEI-C ($r = -.12$, $p < .05$) but a significant positive relationship with EEI REW and EEI-CC ($r = .46$, $p < .0$). There was no significant association between EEI-C and EEI-CC. These findings were largely consistent with the results of Hohlstein et al. (1998).

Furthermore, DERS scores showed a significant and positive association with EEI-NA ($r = .32$, $p < .01$), EEI-BOR ($r = .29$, $p < .01$), EEI-REW ($r = .12$, $p < .01$), EEI-C ($r = .38$, $p < .01$) and EEI-CC ($r = .15$, $p < .01$). Results showed a negative correlation between BIS scores and, EEI-NA ($r = -.14$, $p < .05$), EEI-BOR ($r = -.14$, $p < .01$), EEI-C ($r = -.15$, $p < .01$). No significant correlation between BIS scores and EEI-REW and, EEI-CC was observed. Besides, BAS scores were not significantly associated with any of the eating expectancies subscales. Results demonstrated that the UE subscale was significantly associated with all eating expectancies. Respectively, UE positively associated with EEI-NA ($r = .59$, $p < .01$),

EEI-BOR (r = .54, p < .01), EEI-REW (r = .39, p <.01), EEI-C (r = .30, p <.01) and EEI-CC (r = .32, p <.01). Similarly, EE scale also was significantly correlated with EEI-NA (r = .84, p < .01), EEI-BOR (r = .62, p < .01), EEI-REW (r= .35, p <.01), EEI-C (r = .39, p <.01) and EEI-CC (r = .27, p <.01). Lastly, CR scores was found to be significantly positively associated with EEI-NA (r = .11, p <.05) and EEI-C (r = .43, p <.01) and negatively correlated with EEI-REW (r = -.13, p <.05). There was no significant association between CR and, EEI-BOR and EEI-CC. Finally, IE was significantly and negatively correlated with EEI-NA (r = -.68, p < .01), EEI-BOR (r = -.53, p <.01), EEEI-REW (r = -.16, p <.01), EEI-C (r = -.54, p <.01). No correlation between IE and EEI-CC was observed.

Table 1. *Correlations among EEI subscales and other scales*

	M	*SD*	*N*	1	2	3	4	5
1.EEI-NA	62,87	25,01	386	--				
2.EEI-BOR	16,83	5,92	386	.704**	--			
3.EEI-REW	31,40	7,68	386	.460**	.536**	--		
4.EEI-C	11,91	6,24	386	.398**	.203**	-.124*	--	
5.EEI-CC	9,13	3,24	386	.366**	.301**	.460**	-0,056	--
6.DERS	41,26	14,64	330	.325**	.294**	.120*	.383**	.153**
7.BIS	14,03	2,54	319	-.142*	-.149**	-0,008	-.155**	-0,052
8.BAS	22,07	5,41	137	-0,108	-0,114	-0,151	-0,005	-0,033
9.UE	44,84	22,13	336	.592**	.548**	.395**	.360**	.320**
10.CR	44,01	24,58	336	.112*	0,080	-.134*	.430**	-0,066
11.EE	37,32	29,24	336	.845**	.629**	.351**	.393**	.273**
12.IE	3,46	0,67	320	-.689**	-.539**	-.161**	-.540**	-0,074

Note: EEI-NA = Eating Helps Manage Negative Affect Scale, EEI-BOR = Eating Alleviates Boredom Scale, EEI-REW = Eating is Pleasurable and Useful as a Reward Scale, EEI-C = Eating Leads to Feeling out of Control Scale, EEI-CC = Eating Enhances Cognitive Competence, DERS = Difficulties in Emotion Regulation Scale, BIS = Behavioral Inhibition System Scale, BAS = Behavioral Activation System Scale, UE = Uncontrolled Eating Subscale, CR = Cognitive Restraint Subscale, EE = Emotional Eating Subscale, IE = Intuitive Eating Scale

** $p < .01$, * $p < .05$

2.4 Procedure

The present study was approved by the Koç University Institutional Review Board. A link that includes the informed consent form, demographic form, and other important scales, was distributed to various social media sites as part of the online data collection process. Participants who provided informed consent were included in the study. The data collection process took one and a half months, and the average completion time of the questionnaires was 20 minutes. Participants were not given any incentives to participate.

CHAPTER 3

RESULTS

In advance of statistical analysis, data were checked for outliers. In all variables, no univariate outlier was detected. Mahalanobis Distance was used to identify multivariate outliers, and one participant was removed from the data. Since the present study aimed to explore abnormal eating patterns in a non-clinical population, 32 participants who reported on the demographic information form that they had a mental disorder diagnosed by a physician (e.g., EDs, borderline personality disorder, depression, etc.) were excluded from the data, considering that their food intake patterns might be influenced by their current psychopathology. (Lee & Kim, 2011; Marino & Zanarini, 2001; Yannakoulia et al., 2008).

3.1 Correlations among Variables

The correlations between descriptive and study variables were displayed in Table 2. Among the descriptive variables, BMI was found to be significantly and positively correlated with age ($r = .31$, $p < .01$), gender ($r = .12$, $p < .01$), and EEI_NA ($r = .08$, $p < .05$) and emotional eating ($r = .08$, $p < .05$). Age did not significantly correlate with other variables, except BMI scores. All study variables were found to be significantly and positively associated with one another.

A significant and positive relationship between all study variables was found. In more detail, NU significantly and positively correlated with DERS ($r = .63$, $p < .01$), EEI-NA ($r = .46$, $p < .01$), EEI-BOR ($r = .38$, $p < .01$), EEI-REW ($r = .18$, $p < .01$), EEI-TOT ($r = .44$, $p < .01$), DEBQ_Emo ($r = .49$, $p < .01$), DEBQ_Exo ($r = .43$, $p < .01$). Similarly, DERS scores were found to be positively and significantly correlated with EEI-NA ($r =$

.37, $p < .01$), EEI-BOR ($r = .32$, $p < .01$), EEI-REW ($r = .16$, $p < .01$), EEI-TOT ($r = .36$, $p < .01$), DEBQ_Emo ($r = .40$, $p < .01$) and DEBQ_Exo ($r = .36$, $p < .01$). Among the eating expectancies, EEI-NA was significantly and positively correlated with EEI-BOR ($r = .70$, $p < .01$), EEI-REW ($r = .53$, $p < .01$), EEI_TOT ($r = .97$, $p < .01$), DEBQ_Emo ($r = .83$, $p < .01$) and DEBQ_Exo ($r = .53$, $p < .01$). Furthermore, EEI-BOR was positively and significantly associated with EEI-REW ($r = .50$, $p < .01$), EEI-TOT ($r = .79$, $p < .01$), DEBQ_Emo ($r = .63$, $p < .01$) and DEBQ_Exo ($r = .53$, $p < .01$). The last expectancy, EEI-REW, was significantly and positively correlated with EEI-TOT ($r = .69$, $p < .01$), DEBQ_Emo ($r = .45$, $p < .01$) and DEBQ_Exo ($r = .50$, $p < .01$). Lastly, EEI-TOT scores significantly and positively correlated with DEBQ_Emo ($r = .81$, $p < .01$) and DEBQ_Exo ($r = .59$, $p < .01$). Regarding abnormal eating patterns, DEBQ_Emo scores were found to be positively correlated with DEBQ_Exo ($r = .56$, $p < .01$)

Table 2. *Correlations among Study Variables*

	Mean	SD	Cronbach's Alpha	BMI	Age	Gender	NU	DERS	EEI_NA	EEI_BOR	EEI_REW	EEI_TOT	DEBQ_Emo
BMI	25.095	5.5294		--									
Age	33.15	12.633		.319**	--								
Gender	1.19	0.409		.127**	0.045	--							
NU	25.81	7.113	0.80	0.035	0.013	.073	--						
DERS	40.35	15.219	0.92	0.053	0.009	0.062	.634**	--					
EEI-NA	58.15	25.799	0.95	0.086*	0.031	0.041	.467**	.376**	--				
EEI-BOR	15.82	6.427	0.77	0.001	-0.010	0.009	.384**	.322**	.701**	--			
EEI-REW	30.27	7.950	0.83	0.053	-0.014	-0.070	.184**	.165**	.537**	.508**	--		
EEI-TOT	104.24	36.671	0.94	0.075	0.018	0.016	.448**	.367**	.970**	.797**	.698**	--	
DEBQ_Emo	32.81	15.367	0.92	0.081*	-0.002	0.043	.492**	.408**	.830**	.638**	.457**	.817**	--
DEBQ_Ext	32.43	7.160	0.90	0.033	-0.016	0.053	.433**	.368**	.533**	.535**	.505**	.592**	.569**

Note: BMI = Body Mass Index, NU = Negative Urgency, DERS = Difficulties in Emotion Regulation Scale, EEI_NA = Eating Helps Manage Negative Affect Scale, EEI_BOR = Eating Alleviates Boredom Scale, EEI_REW = Eating is Pleasurable and Useful as a Reward Scale, EEI_TOT = Eating Expectancies Inventory Total, DEBQ_Emo = Dutch Eating Behavior Questionnaire Emotional Eating Subscale, DEBQ_Ext = Dutch Eating Behavior Questionnaire External Eating Subscale.

** $p < .01$, * $p < .05$

3.2 Testing the Main Hypotheses

The data were analyzed via PROCESS macro for SPSS. PROCESS is a tool for modeling logistic regression analysis and computes regression analyses covering various combinations of mediators, moderators, and conditional process models such as moderated mediation (Hayes, 2019; Hayes, 2012). It uses bootstrapping method, a random sampling method with a replacement, to construct confidence intervals (Hayes, 2012). The mediation and moderation hypotheses can be supported if the generated confidence intervals do not include 0.

To test the mediation and moderation hypotheses of the model, Hayes' (2018) PROCESS model 4 for simple mediation and model 15 for moderated mediation was used. To detect the differences between abnormal eating patterns, each model (i.e., model 4 and model 15) was tested separately for emotional eating and external eating.

3.3. Testing the Mediator role of ERD

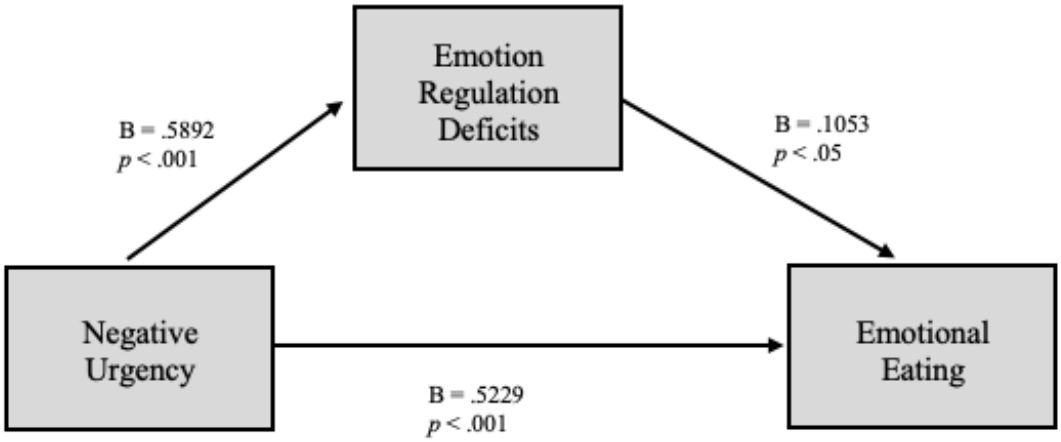
3.3.1 Mediation Analysis for Emotional Eating

To test the effect of NU on abnormal eating patterns, model 4 of PROCESS was used (Hayes, 2018). While testing the association between NU and abnormal eating patterns, demographic variables (i.e., BMI, age, gender) were controlled. In addition to demographic variables, external eating was added as the control variable in the mediation analysis conducted for emotional eating, and emotional eating was added as the control variable in the mediation analysis conducted for external eating. Two separate simple mediation analyses were conducted for emotional eating and external eating.

In the first mediation analysis conducted for emotional eating, results revealed a positive significant association between NU and ERD (b = .58, SE = .07, t = 16.67, p < .001) and a significant positive association between ERD and emotional eating (b = .10,

SE = .04, *t* = 2.53, *p* < .05). For the total effect of NU on emotional eating, results revealed a positive and significant association between NU and emotional eating (*b* = .65, *SE* = .07, *t* = 8.58, *p* < .001). Moreover, a significant direct effect of NU on emotional eating was found (*b* = .52, *SE* = .09, *t* = 5.64, *p* < .001) (see Figure 2). Finally, a significant indirect effect of NU on emotional eating was found (*b* = .06, *SE* = .02, 95% Boot CI [.01, .11]). Since ERD mediated the relationship between NU and emotional eating after controlling for the effect of external eating, the first part of the second hypothesis was supported.

Figure 2: *The mediation model for Emotional Eating: Emotion Regulation Deficits as the mediator between Negative Urgency and Emotional Eating (N = 588)*

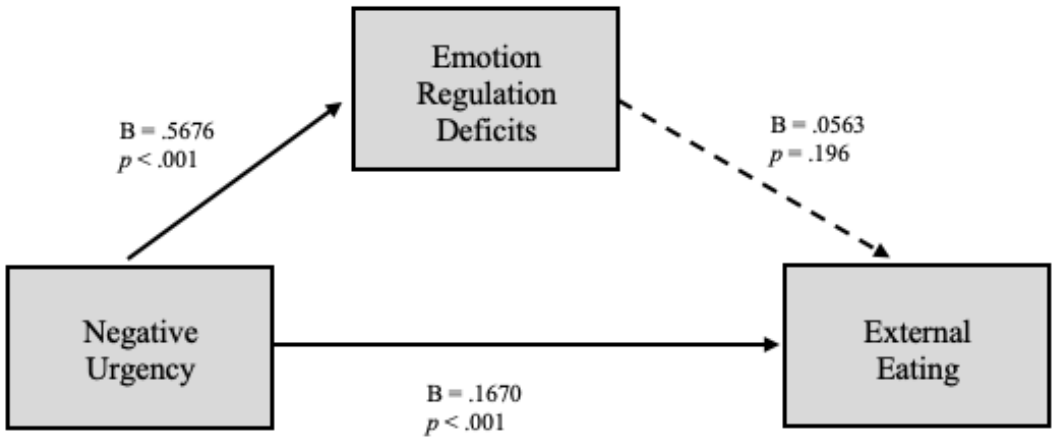


3.3.2 Mediation Analysis for External Eating

The results of the second mediation analysis conducted for external eating showed that NU was also significantly and positively associated with ERD (*b* =.56, *SE* = .07, *t* = 15.54, *p* < .001) and but ERD was not significantly associated with external eating (*b* = .05, *SE*= .02, *t* = 1.29, *p* = .196). For the total effect of NU on external eating, results revealed a positive and significant association between NU and external

eating (b = .19, SE = .03, t = 5.19, p < .001). Additionally, a significant direct effect of NU on external eating was found (b = .16, SE = .04, t = 3.67, p < .001) (see Figure 3). Finally, as expected, results revealed no significant indirect effect of NU on external eating via ERD (b = .03, SE = .02, 95% Boot CI [-.02, .08]) after controlling for the effect of emotional eating. In line with our expectations, ERD did not mediate the relationship between NU and external eating. In sum, ERD mediated the relationship between NU and emotional eating but did not mediate the relationship between NU and external eating. Hence, our second hypothesis was supported.

Figure 3: *The mediation model for External Eating: Emotion Regulation Deficits as the mediator between Negative Urgency and External Eating (N = 588)*



3.4 Testing the Moderator role of Eating Expectancies

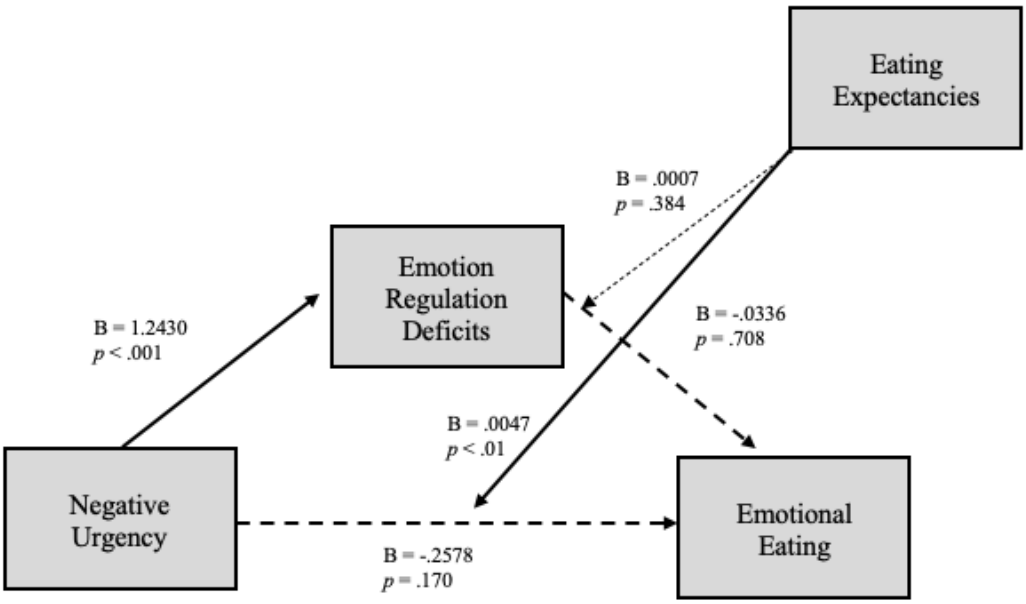
3.4.1 Moderation Analysis for Emotional Eating

To test the moderator effect of eating expectancies, model 15 of PROCESS was used (Hayes, 2018). Among demographic variables, age, gender, and BMI were added as covariates. Furthermore, a composite score for eating expectancies (i.e., EEI NA, EEI

BOR, EEI REW) was calculated (Bruce et al., 2009). Two separate moderated mediation analysis was conducted for emotional eating and external eating.

In the first moderated mediation analysis in which emotional eating was the dependent variable and external eating was controlled, results demonstrated that NU was positively associated with ERD (b = 1.24, SE = .07, t = 16.18, p < .001) but ERD was not significantly associated with emotional eating (b = -.03, SE = .08, t = -.37, p = .708). The association between NU and emotional eating was not significant (b = -.25, SE = .19, t = -1.34, p = .179) (See Figure 4)

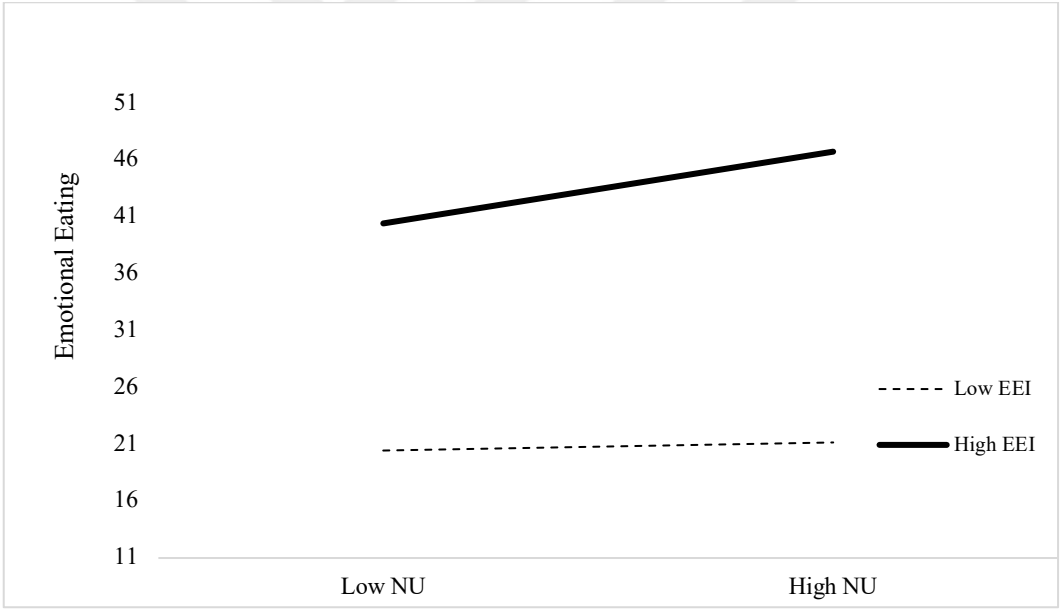
Figure 4: *The moderated mediation model for Emotional Eating (n = 565)*



Furthermore, results showed a significant moderator role of eating expectancies on the relationship between NU and emotional eating (b = .01, SE = .01 t = 2.78, p < .01). More specifically, NU was not associated with emotional eating when the level of eating expectancies is low (b = .04, SE = .09, t = .48, p = .630, -.14, .23). However,

higher NU was associated with higher levels of emotional eating among the participants who had higher levels of eating expectancies (b=.42, SE = .09, t = 4.55, p < .001, .23, .60) (See Figure 5). That is, at low levels of eating expectations the association between NU and emotional eating was not significant, whereas, at higher levels of eating expectations the association between NU and emotional eating was significant. There was a positive association between NU and emotional eating at higher levels of eating expectations.

Figure 5: *The moderating effect of Eating Expectancies on the relationship between Negative Urgency and Emotional Eating (N = 565).*



However, no significant moderator effect of eating expectancies on the relationship between ERD and emotional eating (b = .01, SE = .01, t = .87, p = .384) was found. Namely, the strength of the relationship between ERD and emotional eating did not change across levels of eating expectancies. Thus, the third hypothesis of the

study found partial support, and a significant moderation effect of eating expectancies was only found in the relationship between NU and emotional eating (see Figure 4)

Whether the conditional indirect effect of NU on emotional eating through ERD changes depending on the levels of eating expectancies was also assessed. Results indicated no significant moderated mediation (index of moderated mediation = .0008, 95% CI [-.0010, .0028], which suggests that NU's indirect effect on emotional eating via ERD did not show a difference across different levels of eating expectancies.

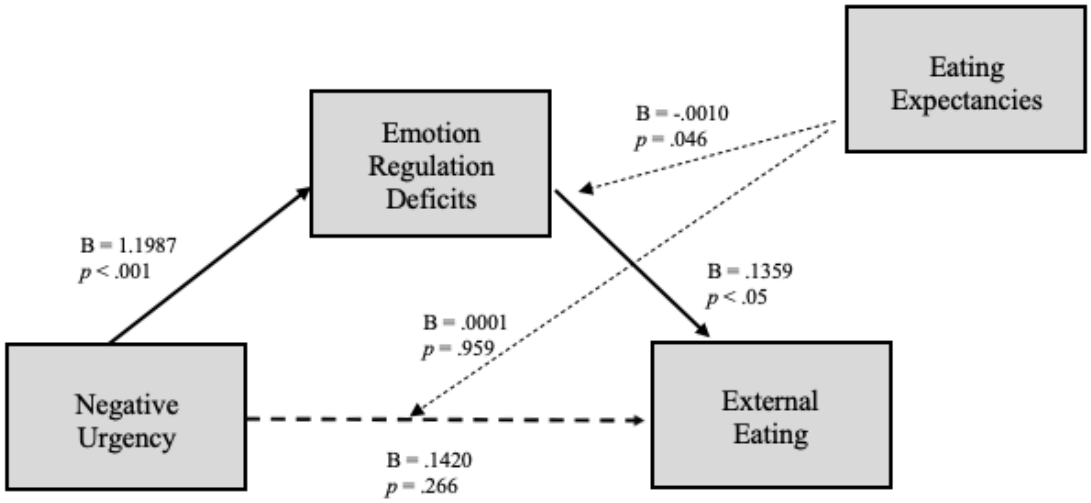
3.4.2 Moderation Analysis for External Eating

In the second moderated mediation analysis in which the dependent variable is external eating; age, gender, BMI, and emotional eating were added as covariates. The results of the second moderated mediation model demonstrated that NU was significantly and positively related to ERD (b = 1.19, SE = .07, t = 15.05, $p < .001$). Furthermore, results revealed a significant positive association between ERD and external eating (b = .13, SE = .05, t = 2.28, $p < .05$). However, no significant association between NU and external eating was found (b = .14, SE = .12, t = .1.11, p = .266)

Further, results showed that eating expectancies did not moderate the relationship between NU and external eating (b = .01, SE = .01, t = .05, p = .959). Namely, NU's effect on external eating did not differ depending on levels of eating expectancies. Results also demonstrated that there was no significant moderation effect of eating expectancies on the relationship between ERD and external eating (b = -.01, SE = .01, t = -1.99, p = .046). Thus, results indicated that eating expectancies had no moderator role in the relationships between NU and external eating, nor between ERD and external eating. Therefore, the fourth hypothesis of the study was not supported (See Figure 6).

Additionally, results revealed that eating expectancies did not moderate the NU's conditional indirect effect on external eating through ERD (index of moderated mediation = -.0012, 95% CI [-.0028, .0001]. Namely, the indirect effect of NU on external eating via ERD did not change across levels of eating expectancies.

Figure 6: *The moderated mediation model for External Eating (n = 565)*



CHAPTER 4

DISCUSSION

The current study aimed to examine the mediator role of ERD in the association between NU and abnormal eating behaviors (i.e., emotional eating and external eating) as well as the moderator role of eating expectancies among the relationships between NU, ERD, and abnormal eating patterns. By examining whether the association between the previously mentioned variables varies according to these two abnormal eating patterns, it also sought to examine the variations between emotional eating and external eating patterns. This study emphasized the importance of NU in abnormal eating patterns and underlined the role of ERD and eating expectations in identifying unique aspects of abnormal eating patterns.

A moderated mediation model was proposed to investigate the mechanism of the relationship between NU and abnormal eating patterns. The findings demonstrated that NU was associated positively with both emotional eating and external eating. Furthermore, ERD mediated the relationship between NU and emotional eating but did not mediate the relationship between NU and external eating. Additionally, the findings showed that eating expectancies moderated the relationship between NU and emotional eating but did not moderate the association between NU and external eating. No significant moderator role of eating expectancies in the relationship between ERD and abnormal eating patterns was found.

One of the main findings of the study is that NU was found to be significantly and positively associated with abnormal eating patterns. In more detail, results revealed a significant and positive association between NU and emotional eating. In other words, individuals who tend to act rashly when experiencing negative emotions were more prone to eat

after experiencing negative emotions. Our finding was in line with our expectations, as well as previous studies that had revealed a significant positive correlation between emotional eating and NU (Hanras et al., 2022; Pike, 2013; Racine et al., 2013). In that sense, the findings supported the prevailing view in the literature that NU is an important predictor and risk factor for emotional eating.

It could be argued that those who are high on NU engage in emotional eating as a way of dealing with difficult emotions. Emotional eating has been hypothesized as a maladaptive, emotion and avoidance-focused coping mechanism used to alleviate negative affect (Spoor et al., 2007) and NU is known to be associated with the utilization of different maladaptive coping strategies (Dir et al., 2013). Since adaptive coping strategies require solutions to the problem through planning, organization, and alteration of the situation (Endler & Parker, 1994), impulsive individuals might be more prone to employ emotion and avoidance-focused strategies to get faster results by investing less. To be specific, adaptive strategies require more time devotion, planning the future, and an in-depth examination of the source of the problem (Endler & Parker, 1994) which is not very compatible with the nature of NU. Therefore, it might be possible that since individuals who are high on trait urgency are in favor of immediate solutions that may reduce distress, they may turn to eating as an emotion and avoidance-focused coping strategy since it is easy to reach requires less investment and is successful in decreasing negative emotions in even the short term.

In addition, Cyders and Smith (2008) have argued that an increase in rush actions may lay the groundwork for individuals to develop more adaptive coping strategies. An alternative perspective to this might be the existence of such a trait may have led to the use of maladaptive coping strategies. Namely, speculatively speaking, it may be possible that the presence of NU has hindered the development of adaptive coping strategies, therefore, resulting in the use of maladaptive ones, such as emotional eating. Therefore, people who are high on NU trait may

employ maladaptive coping methods like emotional eating to alleviate the negative emotions related to NU (Fischer et al., 2004).

Moreover, NU also was found to be significantly and positively associated with external eating. Namely, individuals who have high levels of NU demonstrated elevated external eating behaviors. There is limited number of studies investigating the relationship between NU and external eating and the findings are mixed (Aki et al., 2022; Benzerouk et al., 2021; Ellickson-Larew et al., 2013; Pike, 2013). Our results supported the findings of studies that reported a positive association between NU and external eating (Booth et al., 2018; Pike, 2013). Although more research is still needed for more robust results, our results suggested that NU might be an important risk factor for external eating as well.

The decreased capacity for self-control may help to explain the positive association between NU and external eating. Self-control has been described as one's ability to modify or thwart reactions such as behaviors, emotions, or thoughts to achieve long-term objectives or to make them more compatible with beliefs, expectancies, or ideals (Baumeister et al., 2007). Chester et al. (2016) described the NU as a self-control failure when experiencing distress and, Elfhag and Morey (2008) stated that poor self-control is one of the major characteristics of external eating. So, it could be possible that those with higher NU trait may be experiencing difficulties in inhibiting or altering their reactions due to diminished self-control related to NU and, this inability to control may manifest as external eating in which an individual is not capable of inhibiting eating behavior in the presence of food-related environmental stimuli. Thus, experiencing difficulties in overriding or restraining reactions due to NU may result in external eating in which individuals fail to control their healthy eating behavior.

Secondly, we predicted that ERD would mediate the association between NU and emotional eating but not the relationship between NU and external eating. In line with our predictions, results revealed a significant mediating effect of ERD in the relationship between

NU and emotional eating after controlling for the effect of external eating. Namely, NU was found to be associated with emotional eating through ERD. To our knowledge, this is the first study investigating the mediator role of ERD in the relationship between NU and emotional eating and our results were in line with studies that reported a positive association between NU and ERD (Christian et al, 2019; King et al, 2018) and positive association between ERD and emotional eating (Dalrymple et al., 2018; Ferrell et al, 2020; Vandewalle et al., 2016). Our findings were also consistent with a very similar, but not identical with İşçi et al. (in prep.), which reported a significant mediating role for ERD in the association between NU and intuitive eating, which is the opposite of abnormal eating patterns. Thus, our results supported the findings of previous studies and reinforced the mediator role of ERD in explaining NU's relation to abnormal eating behaviors.

The significant mediating effect of ERD suggests that individuals who tend to act immediately in response to negative emotions may have trouble accessing appropriate emotion regulation strategies during times of distress and their inability to properly regulate emotions may increase the utilization of fast but ineffective strategies like emotional eating. Namely, those who are high on NU might be more likely to engage in emotional eating as a way of soothing their emotional distress as these individuals might lack effective emotion regulation strategies.

Regarding the mediation results for external eating, in line with our expectations, results did not reveal a significant mediating effect of ERD in the relationship between NU and external eating after we controlled for the effect of emotional eating. Although no previous research has investigated the mediating role of ERD in the association between NU and external eating, compatible findings were reported by the previous studies that reported a significant association between NU and ERD (Christian et al, 2019; King et al, 2018). However, we did not obtain a significant association between ERD and external eating. The

result of the mediation analysis for external eating implies that, in contrast to emotional eating, ERD may not be a suitable mechanism that explains NU's relation to external eating. The tendency to act recklessly in response to negative emotions may make it difficult to engage in effective emotion regulation strategies, however, reduced ability to regulate emotion may not result in external eating, given that external eating is a style of overeating triggered by food-related stimuli rather than negative emotions. The non-significant mediating effect of ERD may be attributable to the difference in emotionality between ERD and external eating.

One of the remarkable points of our finding is that ERD appeared to be a mediator between NU and emotional eating, but not between NU and external eating. Therefore, the mediating role of ERD highlighted the unique aspects of emotional eating and external eating patterns. Therefore, it is noteworthy to emphasize the distinctiveness of these abnormal eating patterns. Although emotional eating and external eating tend to co-occur (Heatherton & Baumeister, 1991) and share common underlying features (Vainik et al., 2015) this may not precisely indicate that these constructs are not different from each other as Jansen et al. (2010) suggested. It was stated that these eating-related psychological constructs are not interchangeable, which means that each eating behavior may also include unique aspects in addition to a shared one (Vainik et al., 2015). Despite the strong correlation between emotional and external eating (Nagl et al., 2016; van Strien et al., 1995), studies showed that these eating styles are related to the same concepts in varying degrees or associated with different constructs (Benzerouk et al., 2021; Ouwens et al., 2009; van Strien et al., 1995). For example, Ouwens et al. (2009) reported that although" difficulty in identifying feelings" and depression were related to both abnormal eating patterns, their association with emotional eating was higher than it is for external eating. Unlike Ouwens, but still, by providing some evidence that these two eating styles might be independent constructs, van Strien et al. (1995) showed that emotional eating is associated with emotional problems (depression, anxiety, suicidal ideation or acts, etc.), but

external eating is not. Similar to these studies, our findings also highlighted a pathway peculiar to emotional eating, but not to external eating. In sum, our findings demonstrated that emotional eating and external eating are associated with different constructs and do not operate through the same mechanism, implying that these two eating styles are distinct from each other.

Thirdly, we hypothesized that EEI would moderate the relationship between NU and emotional eating. A significant moderating effect of EEI in the relationship between NU and emotional eating was found. Results indicate that individuals who are high in NU have demonstrated elevated levels of emotional eating, especially the ones who have higher levels of eating expectancies. In other words, the association between NU and emotional eating was stronger for individuals who had high expectations for the consequences of eating. Our result was in line with the previous research which reported a significant moderating effect of eating expectancies in the relationship between NU and dysregulated eating (Fischer et al., 2003; Fischer & Smith, 2008; Schaumberg & Earleywine, 2013) and supported the views that the NU increases the risk for dysregulated eating when combined with eating expectancies (Fischer et al., 2004; Fischer et al., 2012). Moreover, our findings also provided partial support for the Acquired Preparedness (AP) Model of EDs (Combs et al., 2010) which assumes that personality traits (e.g., ineffectiveness) have an impact on the individuals' learning process and that these learned behaviors (i.e., eating expectancies) increases the risk for the development of bulimic symptoms. From a similar vein, extending the AP model of EDs, our results may be suggesting that the simultaneous existence of NU and eating expectancies appear to enhance the risk for abnormal eating patterns, specifically for emotional eating. It could be speculated that an individual who is experiencing negative emotions and tends to act immediately to relieve distress may favor the potential solutions that are easy to access, especially if this behavior is believed to provide desired reinforcement (e.g., reduction of negative emotions). That is, if an individual has expectations about certain behaviors that can reduce distress (e.g.,

"Eating reduces my stress"), then this may increase the likelihood of that particular behavior (i.e., emotional eating) for a person with high NU because the present belief gives clue about a solution that is easy to access and found to be effective in the past. (Grossman, 2015). Therefore, it might be concluded that eating expectancies are important risk factors for emotional eating, especially when combined with NU.

In the current study, we also hypothesized that EEI will moderate the relationship between ERD and emotional eating. Contrary to our expectations, we did not find a significant moderating effect of EEI in the association between ERD and emotional eating. Thus, our third hypothesis was only partially supported. Namely, the relationship between ERD and emotional eating did not differ across levels of eating expectancies. These two variables did not augment the impact of each other but are separately associated with emotional eating. Instead, it appears that the combined effect of ERD and eating expectancies is additive, which implies rather than creating a joint effect on emotional eating, ERD and eating expectancies individually contributed to emotional eating. In other words, regardless of the level of eating expectancies, the association between ERD and emotional eating remained stable. In line with the previous findings, previous research has also reported that an additive effect on binge eating frequency occurs when eating expectancies are combined with negative affect (De Young et al., 2014). Overall, this may indicate that eating expectancies could be relevant factors that boost the effect of dispositional risk factors (e.g., NU) on emotional eating, rather than boosting the effect of ability-based (e.g., ERD) risk factors.

The last hypothesis of the study was that EEI would moderate the relationship between NU and external eating and the relationship between ERD and external eating. However, results revealed no significant moderating effect of EEI for external eating. Namely, EEI did not moderate either the relationship between NU and external eating or the relationship between ERD and external eating. Thus, our fourth hypothesis was not confirmed.

The absence of the moderating effect of EEI in the relationships between NU and external eating and, ERD and external eating might be explained by the emotion-based aspects of the chosen eating expectancies. The eating expectancies (EEI-NA, EEI-BOR, and EEI-REW) that were used in the current study reflect the individuals' anticipated emotional changes as a result of eating (e.g., expecting that eating will reduce negative affect or will bring enjoyment/pleasure). On the other hand, external eating is a type of eating that is motivated by external stimuli as opposed to emotional stimulation (Schachter et al., 1968; Schachter, 1971). Since external eating has been mostly characterized by a stimulus-response process (Schachter, 1971), eating expectancies intended for affect-alteration may not be relevant factors that may influence various risk factors' relation to external eating. In addition, many of the previous studies focusing on the moderator role of eating expectancies mostly investigated their impact on the relationship between NU and emotional eating, binge eating, or other ED symptoms (Fischer et al., 2004; Grossman, 2015; Racine & Martin, 2016). In contrast to emotional eating and binge eating, which are mostly associated with emotional problems like depression and alexithymia (Ouwens et al.,2009; Wheeler et al., 2005) or with affect-regulatory purposes (Heatherton & Baumeister, 1991), external eating was not found to associated with affect-related problems (Ouwens et al., 2009; van Strien et al., 1995). For this reason, external eating can be considered as an eating pattern in which emotional components are less prominent and environmental stimuli and reactions to them come to the fore. Therefore, anticipating an emotional change following eating may not be an appropriate factor for understanding the association of external eating with risk factors such as NU and ERD.

4.1 Contributions

Firstly, our study offered a detailed and comprehensive picture of emotional eating and external eating by investigating the abnormal eating patterns in a sophisticated model that concurrently included trans-diagnostic and eating-disorder-

specific risk factors. By exploring the mechanisms in which abnormal eating patterns operate and the impactful conditions, we highlighted the risk factors that might be influential in the development and maintenance of abnormal eating patterns. Notably, this study contributed to accumulating evidence for the role of NU in abnormal eating (Pike, 2013; Racine et al., 2013;) and reinforced the importance of ERD and eating expectancies for emotional eating, when combined with NU (Fischer et al., 2012; Racine & Martin, 2016). Based on our findings, we expand the literature by demonstrating that different mechanisms are in question for different abnormal eating patterns. ERD and eating expectancies are important risk factors only for emotional eating, not for external eating.

Secondly, there has been a longstanding debate in the literature about whether emotional eating and external eating are separate constructs, and findings are still mixed (Benzerouk et al., 2021; Jansen et al., 2010; Ouwens et al., 2009). Our findings have demonstrated that both eating patterns share some commonalities but have unique aspects as well. That is, while NU is a common risk factor for both abnormal eating patterns, the important mediating role of ERD between NU and emotional eating and the finding that eating expectations only pose a risk for emotional eating when combined with NU suggested that these eating styles are independent constructs. Thus, our results contributed to the literature by showing that emotional eating and external eating are related yet separate constructs.

Finally, even though these eating patterns are not disorders, they have a key role in the prediction of ED, especially emotional eating (Černelič-Bizjak & Guiné, 2021; Schulz & Laessle, 2010) So, by drawing attention to abnormal eating patterns, we shed on light a potential pre-ED phase. Understanding the mechanisms behind them and

recognizing the risky conditions may contribute to identifying risk factors that may contribute to the occurrence of EDs.

4.2 Limitations

Despite significant findings, the current study is not free from limitations. One of the major limitations was that most of our sample consisted of women, and more than the half of participants were university graduates. Therefore, a possible bias might be in question.

Secondly, although mediation analysis suggests causality, data collection was self-report based and the design of the study was cross-sectional. Therefore, no causal inferences can be made in terms of the direction of the relationships. A longitudinal design would allow us to make inferences about the direction of the relationships among variables, therefore, would provide a more proper demonstration of abnormal eating patterns.

Thirdly, the data collection process was carried out during the COVID-19 pandemic. Studies have shown that increased rates of emotional eating (Cecchetto et al., 2021) and emotional difficulties (Visser & Law-van Wyk, 2021) is associated with the social isolation and discomfort experienced during COVID-19. Therefore, some of our variables might have been influenced by this specific period.

Finally, although participants diagnosed with a psychological disorder (e.g., ED or depression) were excluded from the data, a small proportion of the remaining participants were diagnosed with different medical conditions such as diabetes, cardiovascular diseases, or high blood pressure. It is known that adhering to a certain diet to manage these illnesses is important, or excessive appetite might be a symptom of the current disease (Astrup, 2001; Matthews, 2002; Verschuren, 2012). So, off chance, it's possible that some of these participants follow a strict or special diet because of their

illness, or that they have increased appetite due to their illness, which may make them more vulnerable to overeating.

4.3 Future Studies

Although ERD differentiated emotional eating and external eating, to determine how much these constructs diverge from one another, examining the mediator effects of different constructs which are more closely related to either emotional eating or external eating might be beneficial. For example, alexithymia, which is found to be significantly correlated with both NU and emotional eating (Pike, 2013), might be a relevant construct to examine its' mediator role and see the differentiation of emotional eating from external eating. From the perspective of external eating, the role of reward sensitivity, which is found to be significantly associated with both NU (Puhalla et al., 2016) and external eating (Vandeweghe et al., 2017), could be investigated in further studies as well.

In this study, the moderator role of general eating expectations was examined. Yet, previous studies demonstrated that specific eating expectancies are differently related to abnormal eating patterns. For example, EEI-NA was found to be associated with emotional eating while EE-REW was more related to external eating (Hennegan et al., 2013) and different eating expectancies predicted different maladaptive eating behaviors (Combs et al., 2011). To better understand the differences or similarities between emotional eating and external eating, future research could explore the impact of different eating expectancies on abnormal eating patterns within complex models.

Additionally, prior research suggested that eating expectations can be a sign of poor emotion regulation skills (Kauffman et al., 2018), and might be useful for describing how ERD is related to disordered eating (Smith et al., 2018). Therefore, it is conceivable that eating expectancies may serve as an explanatory factor in the

connection between ERD and abnormal eating patterns. Future studies could investigate the mediator role of eating expectancies in the association between ERD and disordered eating patterns to have a better understanding of the role of eating expectancies in abnormal eating behaviors.

The scope of this study was limited to emotional eating and external eating. However, there are many forms of overeating patterns (e.g., restricted eating, hedonic eating, food addiction, etc.) that need to be examined to see how much overeating styles differ from each other. Vainik et al. (2015) have argued that eating-related psychological constructs share a common ground which implies loss of control over eating, however, also emphasized that these constructs are not interchangeable. Therefore, future studies may inquire about distinctive features of overeating tendencies to come up with a more valid representation of them.

Lastly, future studies may examine the associations among NU, ERD, EEI and abnormal eating patterns with a different sample such as people with EDs or obesity as the relationships among these constructs may be different from people who are not diagnosed with any of them. For example, previous research has shown that people diagnosed with EDs have different levels of eating expectancies (Fitzsimmons-Craft et al., 2013), elevated levels of ERD (Dingemans et al., 2017) and high levels of emotional eating (Ricca et al., 2012) compared to those who do not have EDs. Therefore, repeating this study with different samples may yield different results than we found.

4.4 Clinical Implications

The contribution of NU to abnormal eating patterns has been stressed in this study. Our findings illuminate that in therapy, detecting and addressing impulsive tendencies in the face of negative emotions are essential (Borg et al., 2022). Aiming to reduce impulsive behaviors with different therapeutic modalities such as cognitive behavioral therapy for

eating disorders (CBT-E; Fairburn, 2008) or dialectical behavior therapy (DBT; Linehan, 1993) may help individuals to controlling their impulses and therefore may prevent them to engage in abnormal eating patterns. Techniques such as self-observation, problem-solving skills, cognitive restructuring, and psychoeducation used to minimize mood intolerance in CBT-E may help reduce the effect of NU as well (Fairburn, 2008; Wenzel et al., 2014). Furthermore, DBT might be beneficial in decreasing impulsive actions by enhancing individuals' emotion regulation and distress tolerance skills (Linehan & Wilks, 2015; Wenzel et al., 2014). In addition, it is known that NU-related behaviors are reinforced through negative reinforcement, aiming to alleviate distress immediately (Cyders & Smith, 2008). Therefore, the utilization of techniques like exposure and response prevention to break the association between stimuli (e.g., either emotions or food-related cues) and behavior (i.e., eating) may assist to change an individual's overeating behavior in response to various triggers (Wenzel et al., 2014).

In addition, our results revealed a pathway specific to emotional eating in which ERD mediated the association between NU and emotional eating. Therefore, addressing the ERD of individuals is fundamental either in the assessment or intervention of emotional eating. Therapy modalities like CBT (Dobson & Davidson, 1990), DBT (Linehan, 1993), acceptance and commitment therapy (Hayes et al., 2006), and acceptance-based emotion regulation group therapy (Gratz & Gunderson, 2006) cover some components of emotion regulation skills in their practice. Such treatments, by working on accepting and tolerating emotions and developing more adaptive strategies to cope with negative emotions, may reduce the risk of emotional eating. In addition, providing individuals with basic problem-solving skills that can modify the quantity and quality of their emotions may be effective in reducing emotion regulation difficulties (Berking et al., 2008) and indirectly in reducing emotional eating behaviors.

Since emotional eating has been mostly conceptualized as a coping mechanism used to deal with negative emotions (Spoor et al., 2007), exploring and practicing various effective coping ways (e.g., seeking social support during times of distress) in therapy may help individuals to replace their ineffective and detrimental coping ways with healthier ones (Wagener & Much, 2010).

According to our findings, addressing eating expectancies is crucial for identifying the populations that are most at risk of emotional eating and for preventing or reducing the negative impacts of NU on the development or maintenance of emotional eating. CBT might be beneficial in challenging dysfunctional beliefs about eating through hypothesis testing or behavioral experiments and may help individuals to construct more adaptive thoughts related to eating (Brosof et al., 2019). Also, through expectancy challenge interventions, individuals may test the accuracy and effectiveness of their expectancies (Schaumberg et al., 2016). Thus, therapists may integrate these cognitive and behavioral experiments into their practice in emotional eating cases.

Overall, our results highlighted the importance of assessing and targeting traits such as NU, skills such as ERD, and cognitive constructs such as eating expectations in the treatment or prevention of emotional eating. Notably, addressing these risk factors collectively might be the most beneficial way to manage emotional eating. Early identification and intervention of these structures may prevent the development of both subclinical eating patterns and clinical eating disorders.

4.5 Conclusion

The current study highlighted the importance of NU for both emotional and external eating. Also, by exploring the mediator role of ERD only in the relationship between NU and emotional eating, we both emphasized the significance of ERD in explaining NU's relation to emotional eating and demonstrated that emotional eating and

external eating might be independent constructs. Finally, our results stressed the importance of eating expectancies as a risk factor for emotional eating, especially when combined with other risk factors like NU. It appears that transdiagnostic risk factors and eating-disorder-specific risk factors play an interactive role in abnormal eating patterns and targeting them might be key for the prevention and intervention of abnormal eating patterns.

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APPENDIX A: Demographic Information Form

Demografik Bilgi Formu

1. Cinsiyetiniz nedir? Kadın/Erkek/Diğer
2. Kaç yaşındasınız?
3. Eğitim Durumunuz?
4. Şu anki kilonuz?
5. Boyunuz?
6. Bu boyda en yüksek kilonuz?
7. Bu boyunuzda en düşük kilonuz?
8. Son bir yılda kilonuzu kontrol etmek için kendinizi uzun süreli (9 saat veya daha fazla) aç bıraktınız mı? Cevabınız evet ise lütfen son bir yılda kaç kere bu yöntemi kullandığınızı rakamla yazınız.
9. Son bir yılda kilonuzu kontrol etmek için öğün atladınız mı? Cevabınız evet ise lütfen son bir yılda kaç kere bu yöntemi kullandığınızı rakamla yazınız.
10. Son bir yılda kilonuzu kontrol etmek için kalori saydınız mı? Cevabınız evet ise lütfen son bir yılda kaç kere bu yöntemi kullandığınızı rakamla yazınız.
11. Son bir yılda kilonuzu kontrol etmek için müshil (bağırsak çalıştırıcı) kullandınız mı? Cevabınız evet ise lütfen son bir yılda kaç kere bu yöntemi kullandığınızı rakamla yazınız.
12. Son bir yılda kilonuzu kontrol etmek için metabolizma çalıştırıcı ilaç kullandınız mı? Cevabınız evet ise lütfen son bir yılda kaç kere bu yöntemi kullandığınızı rakamla yazınız.

13. Son bir yılda kilonuzu kontrol etmek için daha fazla sigara içtiniz mi? Cevabınız evet ise lütfen son bir yılda kaç kere bu yöntemi kullandığınızı rakamla yazınız.

14. Son bir yılda hiç kilonuzu kontrol etmek için kendinizi kusturdunuz mu? Cevabınız evet ise lütfen son bir yılda kaç kere bu yöntemi kullandığınızı rakamla yazınız.

15. Hiç kilo kontrolü amaçlı mide ameliyatı geçirdiniz mi? Cevabınız evet ise lütfen son bir yılda kaç kere bu yöntemi kullandığınızı rakamla yazınız.

16. Son bir yılda kilonuzu kontrol etmek için kaç kere diyet yaptınız?

    a. 0
    b. 1-4
    c. 5-10
    d. 10'dan fazla
    e. Hep diyet halindeyim

17. Doktor teşhisiyle konmuş herhangi bir hastalığınız var mı? Evet ( ) Hayır ( )

APPENDIX B: The Negative Urgency subscale of the UPPS Impulsive Behavior Scale

UPPS Dürtüsel Davranış Ölçeği-Sıkışıklık Alt Ölçeği

1=Bana hiç uymuyor

2=Bana uymuyor

3=Bana uyuyor

4=Bana çok uyuyor

1. Dürtülerimi kontrol etmede sorun yaşarım.
2. Şiddetli isteklerime direnç göstermede sorun yaşarım. (örneğin, yemek, sigara içmek vb.)
3. Kendimi çoğu kez, sonradan pişman olup da kurtulmak istediğim işlerin içine sokarım.
4. Kendimi kötü hissettiğimde, çoğu kez o anda iyi hissettiren fakat sonradan yaptığıma pişman olduğum şeyler yaparım.
5. Kendimi kötü hissettiğim bazı zamanlarda, kendimi kötü hissettirse bile yapmakta olduğum şeyi durduramam.
6. Üzgün olduğum zamanlarda çoğu kez düşünmeden hareket ederim.
7. Reddedildiğimi hissettiğim zamanlarda, çoğu kez sonradan pişman olduğum şeyler söylerim.
8. Duygularıma göre hareket etmemin önüne geçemiyorum.
9. Sorunlarla karşılaştığımda onları çoğu kez içinden çıkılmaz bir hale getiririm çünkü üzgün olduğum zamanlarda düşünmeden hareket ederim

10. Bir tartışmanın en ateşli anında, çoğu kez sonradan pişman olduğum sözler söylerim.
11. Duygularımı her zaman kontrol altında tutmayı başarabilirim.

APPENDIX C: Brief Version of the Difficulties in Emotion Regulation Scale

Duygu Düzenleme Güçlüğü Ölçeği-Kısa Form (DDGÖ-16)

Hemen hemen hiç (%0 - %10)

Bazen (%11 - %35)

Yaklaşık/ Yarı yarıya (%36 - %65)

Çoğu Zaman (%66 - %90)

Hemen hemen her zaman (%91 - %100)

1. Duygularıma bir anlam vermekte zorlanırım.
2. Ne hissettiğim konusunda karmaşa yaşarım.
3. Kendimi kötü hissettiğimde işlerimi bitirmekte zorlanırım.
4. Kendimi kötü hissettiğimde kontrolden çıkarım.
5. Kendimi kötü hissettiğimde uzun süre böyle kalacağına inanırım.
6. Kendimi kötü hissetmenin yoğun depresif duyguyla sonuçlanacağına inanırım.
7. Kendimi kötü hissederken başka şeylere odaklanmakta zorlanırım.
8. Kendimi kötü hissederken kontrolden çıktığım korkusu yaşarım.
9. Kendimi kötü hissettiğimde bu duygumdan dolayı kendimden utanırım.
10. Kendimi kötü hissettiğimde zayıf biri olduğum duygusuna kapılırım.
11. Kendimi kötü hissettiğimde davranışlarımı kontrol etmekte zorlanırım.
12. Kendimi kötü hissettiğimde daha iyi hissetmem için yapabileceğim hiçbir şey olmadığına inanırım.
13. Kendimi kötü hissettiğimde böyle hissettiğim için kendimden rahatsız olurum.

14. Kendimi kötü hissettiğimde kendimle ilgili olarak çok fazla endişelenmeye başlarım.

15. Kendimi kötü hissettiğimde başka bir şey düşünmekte zorlanırım.

16. Kendimi kötü hissettiğimde duygularım dayanılmaz olur.

APPENDIX D: Eating Expectancies Inventory

Yeme Beklentileri Envanteri

1=Tamamen Katılmıyorum

2=Çoğunlukla Katılmıyorum

3=Biraz Katılmıyorum

4=Ne katılıyorum ne katılmıyorum

5=Biraz Katılıyorum

6=Çoğunlukla Katılıyorum

7=Tamamen Katılıyorum

1. Yemek yemek bana sevildiğimi hissettirir.

2. Depresif veya üzgün hissettiğimde yemek yemek aklımı sorunlarımdan uzaklaştırmama yardımcı olabilir.

3. Yemek yemek bazı duygusal ihtiyaçları karşılar

4. Kendimi kaygılı veya gergin hissettiğimde yemek yemek rahatlamama yardımcı olur

5. Yemek yemeyi keyif verici bir /olay olarak görmüyorum

6. Yemek yemek kendim hakkındaki yetersizlik duygularıyla başa çıkmama yardım eder

7. Yemek yemek can sıkıntısıyla başa çıkmama yardımcı olmaz

8. Yapacak bir şeyim olmadığında yemek yemek can sıkıntısını gidermeme yardımcı olur

9. Kaygılı hissettiğimde, yemek yemek beni daha sakinleştirmez

10. Yemek yemek duygusal bir rahatlama görevi görür

11. Kendimi gergin veya stresli hissediyorsam yemek yemek kaygı seviyemi azaltıyor gibi görünüyor

12. Yemek yemek kutlamak için iyi bir yoldur

13. İyi bir şey yaptığım zaman yemek yemek kendimi ödüllendirmenin bir yoludur

14. Yemek yemek benim için işe yarar bir ödül değildir

15. Yemek yiyerek güvenlik ya da emniyet duygusu sağlayamıyorum

16. Eğer gün içinde yapmayı planlandığım bir şey yoksa, yemek yemek zamanı doldurmama yardımcı olan bir şey değildir

17. Yemek yemek eğlenceli ve keyiflidir

18. Çok çalıştığım veya bir şeyi başardığım zaman yemek yemek iyi bir ödül olarak fayda etmez

19. Yemek yemek canın sıkıldığında yapılabilecek bir şeydir

20. Yemek yemek öfkemi dışa vurmanın bir yoludur

21. Yemek yemek, rahatsız edici sosyal durumlardan kaçınmama yardımcı olur

22. Yemek yemek anneme, babama, eşime veya arkadaşlarıma sinirlendiğimde onlardan intikam almama yardımcı olur

23. Zor görevlerle karşılaştığımda yemek yemek bunları yapmaktan kaçınmama yardımcı olabilir

24. Yemek yemek, depresyon, yalnızlık ve korku gibi olumsuz duyguları unutmama veya engellememe yardımcı olur

25. Yemek yemek kendimi stresli, kaygılı veya gergin hissettiğimde beni sakinleştirir

26. Yemek yemek, hissetmek istemediğimde duygularımı gömmeme yardım edebilir

27. Yemek yemek, olumsuz duygularla baş etmeme yardımcı olur

28. Yemek yemek, üzüntü veya duygusal acıyla başa çıkmama yardımcı olur

APPENDIX E: The Dutch Eating Behavior Questionnaire (DEBQ)-Emotional Eating and External Eating Subscales

Hollanda Yeme Davranışı Anketi -Duygusal Yeme ve Dışsal Yeme Alt Ölçekleri

1=Hiçbir zaman

2=Nadiren

3=Bazen

4=Sık

5=Çok Sık

1. Bir şeyden rahatsız olduğunuzda daha fazla yemek yemek ister misiniz?
2. Yapacak bir şeyiniz olmadığında yemek ister misiniz?
3. Depresyonda olduğunuzda ya da hayal kırıklığına uğradığınızda yemek ister misiniz?
4. Kendinizi yalnız hissettiğinizde yemek ister misiniz?
5. Biri sizi üzdüğünde yemek ister misiniz?
6. Sinirleriniz bozuk olduğu zaman yemek ister misiniz?
7. İstemediğiniz bir şey olduğu zaman yemek ister misiniz?
8. Kaygılı, endişeli olduğunuz zaman yemek ister misiniz?
9. Bir şeyler ters ya da yanlış gittiğinde yemek ister misiniz?
10. Korktuğunuz zaman yemek ister misiniz?
11. Hayal kırıklığına uğradığınız zaman yemek ister misiniz?
12. Duygusal olarak üzüntülü olduğunuzda yemek ister misiniz?
13. Huzursuz olduğunuzda ya da canınız sıkkın olduğunda yemek ister misiniz?
14. Yediğiniz şey lezzetliyse, genelde yediğinizden daha çok yer misiniz?

15. Yediğiniz şey güzel kokuyor ve güzel görünüyorsa, genelde yediğinizden daha çok yer misiniz?
16. Lezzetli bir şey gördüğünüzde ya da kokladığınızda onu yemek ister misiniz?
17. Eğer yemek için lezzetli bir şeyler varsa doğrudan onu yer misiniz?
18. Eğer bir fırının önünden geçerseniz, lezzetli bir şeyler satın almak ister misiniz?
19. Eğer bir kafe ya da büfenin önünden geçerseniz, lezzetli bir şeyler satın almak ister misiniz?
20. Başkalarını yerken görürseniz, siz de yemek yemek ister misiniz?
21. Lezzetli yiyeceklere karşı koyabilir misiniz?
22. Başkalarını yerken gördüğünüzde, genelde yediğinizden daha fazla yer misiniz?
23. Yemek hazırlarken bir şeyler yemeye meyilli misiniz?