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The Relationship Between Experiential Avoidance, Eating Expectancies, And Eating Psychopathology In University Students; A Preliminary Test Of An Adaption Of The AP Model Of Eating Disorder Risk

Nicole Marie Della Longa

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THE RELATIONSHIP BETWEEN EXPERIENTIAL AVOIDANCE, EATING
EXPECTANCIES, AND EATING PSYCHOPATHOLOGY IN UNIVERSITY
STUDENTS; A PRELIMINARY TEST OF AN ADAPTION OF THE AP MODEL OF
EATING DISORDER RISK

by

Nicole Marie Della Longa
Bachelor of Science, Texas A&M University, 2013

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Arts

Grand Forks, North Dakota

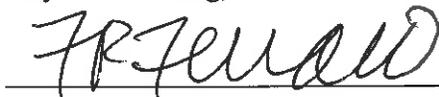
December
2016

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This thesis, submitted by Nicole Marie Della Longa in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.



Kyle De Young, Ph.D.

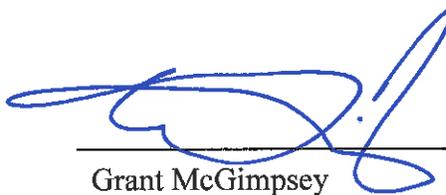


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Department Psychology

Degree Master of Arts

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Nicole M. Della Longa
11/25/2016

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ABSTRACT

Avoiding unpleasant internal experiences may be associated with eating disorder symptomatology, and college students may be especially at risk. However, the process through which the avoidance of uncomfortable experiences relates to eating psychopathology is unknown. By evaluating experiential avoidance and learned expectancies of eating outcomes, the present study investigated the potential mechanism through which maladaptive avoidant strategies relate to eating psychopathology. Participants included 244 undergraduate students enrolled in psychology courses from a Midwestern university. The participants completed a battery of questionnaires through an online research system managed by the university. Preacher and Hayes's (2008) bootstrapping method of mediation and structural equation modeling were used to analyze the relationships among experiential avoidance, eating expectancies, and binge eating and how experiential avoidance fits within the Acquired Preparedness model of eating disorder risk. Results revealed that experiential avoidance was significantly related to negative affect eating expectancies and to binge eating. Negative affect eating expectancies mediated the relationship between experiential avoidance and binge eating. Further, the experiential avoidance model more adequately predicted binge eating than the Acquired Preparedness model of eating disorder risk. The findings from this study suggest an alternative understanding of the pathways through which dispositional and

psychosocial characteristics of undergraduate students impact eating disorder
symptomatology.

CHAPTER I

INTRODUCTION

The transition to university life represents a significant time for many young adults, during which a crucial period of identity development occurs (Arnett, 2000). This transition often imposes unique financial, academic, and social demands, functioning as potential sources of stress for students (Baker & Siryk, 1984; Tinto, 1982; Xuereb, 2014). In fact, university students report experiencing significantly greater levels of psychological distress compared to the general population (Stallman, 2010). Failing to adapt to university life is associated with a number of negative outcomes, including diminished psychological health (Azmitia, Syed, & Radmacher, 2013; Chemers, Hu, & Garcia, 2001). Thus, it is imperative that students utilize effective strategies to manage the stress and negative emotions that may arise during this time.

Young adulthood, a time period when many individuals pursue an undergraduate degree, often represents a period of onset for clinically defined eating disorders (e.g., anorexia nervosa, bulimia nervosa, and binge eating disorder; American Psychiatric Association, 2013). It is suggested that entering the college environment instigates the development or exacerbation of disordered eating for individuals who already possess certain risk factors for eating psychopathology (Compas, Wagner, Slavin, & Vannatta, 1986; Fitzsimmons-Craft, 2011). For example, factors including low self-esteem

(Delinsky & Wilson, 2008), depression (Gilbert & Meyer, 2005), body weight (Delinsky & Wilson, 2008), and stress (Drewnowski, Yee, Kurth, & Kahn, 1994) have predicted increases in eating disorder symptomatology in undergraduate students over time.

Therefore, college students may particularly be at risk for eating disorder behaviors.

Indeed, eating disorder symptomatology is prevalent in college students. In a study assessing eating psychopathology in undergraduate students, 13.5% of women and 3.6% of men endorsed three or more eating disorder symptoms. In this same study, eating psychopathology assessed at baseline predicted symptomatology at 2-year follow-up, suggesting the persistence of eating disorder symptoms while in college (Eisenberg, Nicklett, Roeder, & Kirz, 2011). Further, 48% of college students in another study reported ever having a binge-eating episode, and about 20% reported ever using self-induced vomiting as a method of weight-management (Kelly-Weeder, 2011). Other work shows that 91% of female college students diet as a means of controlling their weight (Shisslak, Crago, & Estes, 1995). There is also evidence to suggest the prevalence of these maladaptive behaviors is increasing in college students. Data from one university indicates that eating disorder behaviors increased from 23 to 32% in females and from 7.9 to 25% in males over a period of 13 years (White, Reynolds-Malear, & Cordero, 2011). It is possible that certain undergraduate students are more susceptible to utilizing maladaptive methods of handling stress, which could potentially lead to or include eating disorder behaviors, as many believe that eating disorder behaviors may act as maladaptive coping strategies to mitigate stress and unpleasant emotions (e.g., Heilbrun & Harris, 1986).

Experiential Avoidance

Experiential avoidance represents an aversion to maintaining contact with unpleasant emotional, cognitive, and physical experiences and a subsequent effort to evade these experiences (Chawla & Ostafin, 2007). While avoidance of this nature may provide initial relief for the individual, it can increase the frequency of the negative experiences in the future (Farach, Mennin, Smith, & Mandelbaum, 2008; Marx & Sloan, 2005). In fact, research suggests that experiential avoidance can be detrimental by contributing to the development and maintenance of a variety of psychopathologies (Chawla & Ostafin, 2007), as well as to having a lower quality of life (Hayes et al., 2004). Experiential avoidance is particularly relevant to anxiety-related psychopathology. Borkovec (1994) argues that anxious individuals worry as a method of avoiding the experience of internal distress, and the immediate reduction in distress and arousal negatively reinforces the worrisome behavior. However, because worry diminishes functional exposure, it is associated with long-term negative effects, such as preserving threatening associations and having difficulties in emotional processing. Indeed, findings indicate that experiential avoidance is linked to worry and generalized anxiety disorder severity (Buhr & Dugas, 2012; Lee, Orsillo, Roemer, & Allen, 2010; Roemer, Salters, Raffa, & Orsillo, 2005). Evidence also exists to suggest that experiential avoidance is a significant predictor of social anxiety (Kashdan et al., 2014; Kashdan et al., 2013), such that attention placed on avoiding anxious thoughts or feelings may interfere with the individual's ability to respond to rewarding social cues during social interactions (Gross

& John, 2003). Thus, avoiding aversive experiences appears to be an ineffective attempt at managing potential psychopathology.

The internal experiences manipulated through experiential avoidance include painful thoughts and emotions and reflect what one may encounter during a stressful situation. In fact, some researchers suggest that experiential avoidance can be examined through more specific avoidant strategies, such as thought suppression and avoidant coping (Chawla & Ostafin, 2007). Thought suppression represents another form of experiential avoidance and is described as the act of repressing unpleasant cognitions. However, this cognitive process can have the paradoxical effect of increasing the incidence of the unwanted thoughts (Iijima & Tanno, 2012; Wegner, Schneider, Carter, & White, 1987). Further, avoidant coping has been classified as a method of experiential avoidance. Coping is multidimensional, representing the thoughts and behaviors that individuals use as a means of managing internal or external sources of stress (Lazarus & Folkman, 1984). Avoidant coping is one method of regulating stress, representing behavioral or mental efforts of shifting focus away from the problem (Cosway, Endler, Sadler, & Deary, 2000; Endler & Parker, 1990). While avoidant coping focuses specifically on the reaction to experiencing stress, experiential avoidance encompasses a more general idea of altering or escaping any form of negative internal experience, which could include stress. Based on previous evidence, researchers tend to describe this coping style as maladaptive, as it has been associated with greater levels of psychological distress (Shatford & Evans, 1986; Shikai et al., 2007). In a study developing a measure of experiential avoidance, this construct significantly related to a number of avoidant coping

strategies, including those measured by the escape-avoidance and distancing subscales of the Ways of Coping Questionnaire. In this same study, thought suppression, as measured by the White Bear Suppression Inventory, was also significantly related to experiential avoidance (Hayes et al., 2004). Thus, it appears that experiential avoidance can be measured in a number of ways (i.e., more generally or through various avoidant constructs).

Eating Psychopathology

Eating psychopathology has been linked to experiential avoidance, such that individuals utilize eating disorder behaviors as a method of altering uncomfortable processes (Hayes & Pankey, 2002). Specifically, etiological data suggests that the desire to escape or control psychological experiences initiates binge eating and subsequent compensatory behaviors (Heatherton & Baumeister, 1991; Polivy & Herman, 2002). In the context of coping, using avoidant strategies can hinder actions necessary for adaptive coping, such as processing stress-related information, contemplating potential consequences, and planning adaptive reactions to stress (Neckowitz & Morrison, 1991). Therefore, engaging in this form of coping may be linked to unhealthy behavior (e.g., eating disorder behaviors), which can serve as a detrimental method of escaping distress. In fact, studies suggest that individuals who endorse eating disorder symptoms also endorse other factors that are relevant for understanding methods of coping with stress. These include having lower self-esteem, having lower coping self-efficacy, using ineffective coping strategies, using immature defense styles (Blaise, & Elklit, 2001), experiencing a greater sense of ineffectiveness, and experiencing increased negative

feelings about weight (Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). Avoidant coping has also been linked to drive for thinness, body dissatisfaction, weight dissatisfaction, and bulimic behaviors in non-clinical undergraduate women (Beukes, Walker, & Esterhuyse, 2010; Freeman & Gil, 2004; Koff & Sangani, 1997; VanBoven & Espelage, 2006). Evidence for the relationship between avoidant coping and eating disorder behaviors and cognitions is similarly present in other populations, including adolescent females (García-Grau, Fusté, Miró, Saldaña, & Bados, 2002) and male undergraduates (Filaire, Treuvelot, & Toumi, 2012). Experiential avoidance in the form of thought suppression has likewise been linked to eating psychopathology in both adolescents (Soetens, Braet, & Moens, 2008) and undergraduate males (Lavender, Anderson, & Gratz, 2012). Additionally, a sample of undergraduate students who endorsed bulimic symptomatology reported higher levels of thought suppression (Lavender, Jardin, & Anderson, 2009). Finally, the general measurement of experiential avoidance has also been associated with eating psychopathology in healthy samples of healthy adolescent and adult females (Cowdrey & Park, 2012) as well as undergraduate students (Fulton et al., 2012; Masuda, Muto, Tully, Morgan, & Hill, 2014).

Experiential avoidance is also salient in clinical populations. Women with eating disorders, including anorexia nervosa, bulimia nervosa, and binge eating disorder, have been shown to use avoidant styles of coping (Ghaderi & Scott, 2000; Sherwood, Crowther, Wills, & Ben-Porath, 2000; Soukup, Beiler, & Terrell, 1990; Spoor, Bekker, Van Strien, & van Heck, 2007). Further, Schmidt and Treasure (2006) argue that experiential avoidance represents a relevant maintaining factor of anorexia nervosa,

particularly through the act of avoiding negative emotions. Avoidant strategies are also relevant in relation to recovery. Research indicates that symptom reductions are related to decreases in avoidant coping strategies (Bloks, Van Furth, Callewaert, & Hoek, 2004). Additional research linking experiential avoidance to individuals with anorexia nervosa supports this claim and suggests that symptom reduction is associated with the reduction of experiential avoidance (e.g., Rawal, Park, & Williams, 2010). In fact, Acceptance and Commitment Therapy (ACT), a treatment that focuses on the reduction of cognitive fusion and experiential avoidance, has been applied to eating disorders (Juarascio et al., 2013; Orsillo & Batten, 2002). One study in particular examined the effect of an ACT intervention on binge eating in individuals seeking weight loss. The results suggest that experiential avoidance mediated the relationship between treatment effects and binge eating, such that individuals who reported a reduction in experiential avoidance also endorsed lower levels of binge eating (Lillis, Hayes, & Levin, 2011). Overall, these findings suggest that avoidant strategies, via experiential avoidance or related constructs, are meaningful in understanding eating disorder symptomatology.

Expectancy Theory

Expectancy learning theory draws its roots from behaviorist Edward C. Tolman, who originally described expectancies as learned associations between behaviors and their outcomes. These associations are retained in memory and influence future behavioral decisions (Behan, 1953; Tolman & Postman, 1954). Specifically, as a result of learning through observation and experience, individuals come to expect that a certain behavior will likely produce a particular result. During an individual's early learning

history, certain expectancies are developed and are said to serve as motivation for behaviors continuing on at a later age. However, when expectancies stem from dysfunctional learning histories, destructive behaviors may ensue and lead to the development of psychopathology (Miller, Smith, & Goldman, 1990).

Eating Disorder Expectancies

Over the past two decades, investigators have demonstrated the relevance of expectancy theory in the realm of eating psychopathology. Through the construction of two psychometrically sound instruments, Hohlstein and colleagues (1998) identified eating and thinness/dieting expectancies that are associated with bulimic and anorexic symptomatology in adults. Specifically, bulimic symptoms and measures of dietary restraint plus disinhibition are related to eating expectancies, such that individuals who engage in these behaviors believe eating will diminish negative affect and boredom. Thus, eating expectancies of this nature reflect negative reinforcement and parallel Polivy and Herman's (1993) description of the affect regulation model of binge eating. In conjunction with a vast amount of empirical support, this model posits that heightened negative affect precedes binge-eating episodes (Berg et al., 2013; Haedt-Matt & Keel, 2011; Munsch, Meyer, Quartier, & Wilhelm, 2012) and that binge eating relieves negative emotional states (Berg et al., 2013; Deaver, Miltenberger, Smyth, Meidinger, & Crosby, 2003; Smyth et al., 2007). Therefore, eating expectancies of negative reinforcement may provide insight into the perpetuation of bulimic symptomatology for individuals who hold these beliefs. Alternatively, thinness and dieting expectancies are related to anorexic symptomatology (i.e., drive for thinness and dietary restraint).

Particularly, individuals who possess these expectancies believe thinness and the restriction of food intake will lead to power, independence, and overall self-improvement. Bulimic symptomatology and a dietary restraint plus disinhibition pattern are also associated with thinness/dieting expectancies (Hohlstein, Smith, & Atlas, 1998). The expectation of overgeneralized self-improvement from thinness and dietary restriction resembles the emphasis of shape and weight control in individuals with anorexic and bulimic symptoms (American Psychiatric Association, 2013; Blechert, Ansorge, Beckmann, & Tuschen-Caffier, 2011; Garner & Bemis, 1982). Thinness/dieting expectancies are also consistent with theories on internalizing attitudes toward the thin ideal (Boone, Soenens, & Braet, 2011; Thompson, & Stice, 2001; Vartanian, Herman, & Polivy, 2005). Thus, it is credible to postulate that expectancies of eating, thinness, and dietary restriction play a significant role in either the development or maintenance of eating psychopathology, and indeed empirical evidence supports this contention.

In addition to adults, eating disorder expectancies correlate with symptom level in younger individuals. In studies of elementary school children, expectancies that eating will reduce negative affect predicted higher levels of binge eating (Pearson, Combs, Zapolski, & Smith, 2012; Pearson, Zapolski, & Smith, 2014). Investigators have also found associations among eating and thinness/dieting expectancies and eating psychopathology in adolescents (Simmons, Smith, & Hill, 2002). In a study of middle school adolescents, MacBrayer and colleagues (2001) examined the effect of being teased about one's weight and the effect of maternal displays of dysfunctional eating (negative maternal modeling). These experiences corresponded with adolescents' expectancies that

eating can mitigate negative affect and that thinness will generate life improvement. Adolescents who held these expectancies endorsed more bulimic symptoms than those who did not. Similar results were found in a study that assessed eating psychopathology in undergraduate women who were asked to recall childhood learning experiences. Retrospective reports of weight-related teasing, negative maternal modeling, and peer criticism of eating were associated with current eating and thinness/dieting expectancies, which predicted greater eating psychopathology as adults (Annus, Smith, Fischer, Hendricks, & Williams, 2007). Finally, longitudinal data of the expectancies provide predictive evidence of their influence on eating disorder behaviors in adolescents (Smith, Simmons, Flory, Annus, & Hill, 2007). Therefore, eating disorder expectancies may develop at an earlier point in life during which individuals learn that certain advantages are related to eating and thinness/dieting.

Acquired Preparedness Model

Personality is thought to impact behavior by transacting with environmental events. Due to differences in personality, individuals may encounter diverse experiences and react in different ways (Caspi & Roberts, 2001; Moffitt, 2005; Shiner & Caspi, 2003). Acquired Preparedness (AP) risk models hypothesize that certain personalities make individuals distinctively prepared to obtain expectancies related to risky or deleterious behavior (Smith, Williams, Cyders, & Kelley, 2006). When specifically applied to eating disorders, the AP model first postulates that individuals with negative urgency, a facet of impulsivity, have a tendency to react to stress in a rash manner (Whiteside & Lynam, 2001). The model then states that rash behaviors, such as binge

eating, may diminish an individual's negative emotions and therefore be reinforced (Agras & Telch, 1998). Finally, as a result of this reinforcement, individuals develop expectancies that eating will alleviate their distress, which increases their risk of binge eating in the future.

The AP model of eating disorder risk derives substantial support from the literature. Cross-sectional data of undergraduate students provides support for this model by demonstrating that individuals with high negative urgency who endorse negative reinforcement eating expectancies are more likely to engage in bulimic symptoms (Fischer, Anderson, & Smith, 2004; Fischer, Smith, Anderson, & Flory, 2003; Schaumberg & Earleywine, 2013). Further, cross-sectional and longitudinal studies of preadolescent children suggest that eating expectancies may in fact mediate the positive relationship between negative urgency and binge eating (Combs, Pearson, & Smith, 2011; Pearson et al., 2012; Pearson et al., 2014; Pearson, Combs, & Smith, 2010). In addition to the mediational role of eating expectancies, some tests of the AP model include thinness/dieting expectancies, which are associated with negative urgency and with binge eating. These studies also identified a positive relationship between negative urgency and purging with binge eating serving as a mediator (Combs et al., 2011; Pearson et al., 2010). Finally, in a sample of undergraduate women, the interaction of negative urgency and thinness/dieting expectancies predicted purging three months later (Fischer, Peterson, & McCarthy, 2013). It is therefore apparent, that the interaction of dispositional factors and psychosocial learning is influential in eating disorder behaviors.

Avoidance and Expectancies

With the exception of one study, researchers have neglected to explore the relationship between experiential avoidance and eating expectancies in undergraduate students. In the aforementioned study, experiential avoidance was associated with expectancies that eating relieves negative affect and boredom in a sample of undergraduate women (Hayaki, 2009). Therefore, it is possible that having the intent to elude negative internal experiences along with having direct or vicarious experiences of eating being used to regulate negative emotions may encourage individuals to anticipate relief from eating in the future. However, to the author's knowledge, researchers have yet to investigate a mediation relationship between experiential avoidance, eating expectancies, and eating psychopathology in a college sample.

Addiction Research

Many researchers view eating disorder behaviors as addictive behaviors (Davis, 1999; Davis & Claridge, 1998; Umberg, Shader, Hsu, & Greenblatt, 2012). In fact, eating disorders are often comorbid with substance use disorders (Harrop & Marlatt, 2010; Holderness, Brooks-Gunn, & Warren, 1994; Nøkleby, 2012). This comorbidity is likely explained by the myriad of etiologic factors present in both substance use and eating psychopathology, such as reward sensitization (Calero-Elvira et al., 2009), neuroticism (Baker, Mazzero, & Kendler, 2007), interpersonal sensitivity (Carbaugh & Sias, 2010), emotional dysregulation (Root et al., 2010), and impulsivity (Thompson-Brenner et al., 2008). Thus, it is credible to postulate that other mechanisms and risk factors of substance disorders may also be present in eating disorders.

In addition to the previously discussed risk factors for substance disorders, evidence exists for the role of expectancies and experiential avoidance via maladaptive coping in substance abuse. Similar to eating expectancies, alcohol expectancies represent the beliefs held about the outcomes of consuming alcohol. Expectancies that drinking alcohol will lead to either positive or negative effects are associated with alcohol consumption (Fromme, Stroot, & Kaplan, 1993; Greenfield, Harford, & Tam, 2009; Nicolai, Moshagen, & Demmel, 2012) and with alcohol-related problems (Pabst, Kraus, Piontek, Mueller, & Demmel, 2014). From the perspective of experiential avoidance, avoidant styles of coping have likewise been linked to alcohol consumption (Chung, Langenbucher, Labouvie, Pandina, & Moos, 2001; Feil & Hasking, 2008). When examining the combined effect of avoidant coping styles and alcohol expectancies, investigators have denoted a moderating relationship among these two constructs and alcohol use. Specifically, avoidant coping predicts alcohol consumption for individuals who hold strong positive alcohol expectancies (Cooper, Russell, Skinner, Frone, & Mudar, 1992; Laurent, Catanzaro, & Callan, 1997). Evidence also exists for a causal mechanism among these constructs, such that positive alcohol expectancies, which are associated with drinking motives, mediate the relationship between avoidant coping and drinking behavior (Hasking, Lyvers, & Carlopio, 2011). It therefore appears that dispositional and cognitive factors play a vital role in the prediction of substance use and may have a presence in other disordered behaviors of a similar nature. Because several underlying influences of eating disorders resemble those of substance use disorders, the

relationship between experiential avoidance and expectancies may similarly be a vital etiological component of eating disorder behaviors as it is in substance abuse.

The Present Study

The literature on the construct of experiential avoidance and eating disorder symptomatology is limited, particularly when considering undergraduate students.

Although some support exists for the direct association between experiential avoidance and eating psychopathology, it is not evident what intervening factor may be driving this relationship. Therefore, the present study intends to test one specific mechanism linking maladaptive avoidance strategies and eating psychopathology through the investigation of psychosocial learning factors. The primary aim is to examine the relationships between experiential avoidance, eating expectancies, and binge eating in undergraduate students.

It is hypothesized that experiential avoidance will be related to binge eating. Second, it is hypothesized that negative affect eating expectancies (i.e., expectancies that eating will alleviate negative affect) will be positively associated with binge eating. Moreover, it is hypothesized that negative affect eating expectancies will mediate the relationship between experiential avoidance and binge eating. Finally, as an exploratory aim, this study will test the AP model of eating disorder risk (i.e., negative urgency is associated with binge eating and this relationship is mediated by negative affect eating expectancies) and will determine whether experiential avoidance serves as a unique predictor of eating psychopathology in this model (Figure 1).

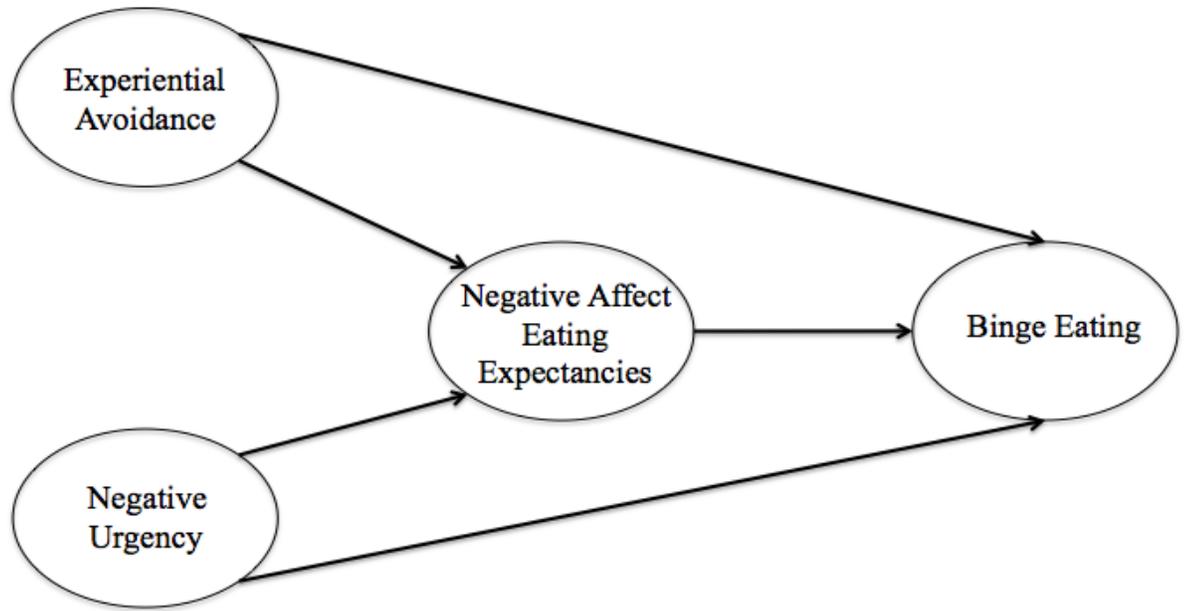


Figure 1. Model of Hypotheses

CHAPTER II

METHOD

Participants

Participants ($N = 290$) were undergraduate students enrolled in psychology courses at a Midwestern university. Only 244 participants were included in data analysis, as the remaining participants did not complete the study or were identified as invalid responders. The latter did not pass the validity check questions (e.g., indicated that they have played quarterback for the Dallas Cowboys) and/or responded to questionnaires in an inconsistent manner. One of the measures is scored in the opposite direction of the other measures. Respondents who provided maximum scores on all of the items of the reverse-scored measure and minimum scores on the items of the other measures were identified as inconsistent responders (e.g., reported to possess maximum levels of negative urgency and reported the complete absence of binge eating, experiential avoidance, and negative affect eating expectancies). Empirically, this response pattern is improbable, as these measures are routinely positively associated. Additionally, some of these responders endorsed maximum scores on all the items of the scales except on specific items that were reverse-scored, for which they instead provided minimum scores. It was suspected that these participants selected responses that were located entirely on the left side of the computer screen without taking care to read the questions thoroughly. These responders were not included in any planned analyses. Participants' ages ranged from 18 to 38 ($M=20.08$, $SD=2.54$), and one person neglected to provide her age. The

remaining participant characteristics are described in Table 1. Participation in this study either fulfilled a course requirement or provided extra credit toward a psychology course.

Table 1. Participant Characteristics

		<i>n</i>	Percent
Sex	Male	35	14.3%
	Female	209	85.7%
Year in School	Freshman	97	39.8%
	Sophomore	70	28.7%
	Junior	48	19.7%
	Senior	29	11.9%
Race/Ethnicity	Caucasian	224	91.8%
	African American	4	1.6%
	Asian	2	0.8%
	Hispanic/Latino	4	1.6%
	Native American	8	3.3%
	Other	2	0.8%
Mental Illness Diagnoses	Major depressive disorder	23	9.4%
	Bipolar disorder	2	0.8%
	Anxiety disorder	50	20.5%
	Eating disorder	13	5.3%

Measures

Demographics

Participants completed a short questionnaire requesting information about their age, sex, year in college, race/ethnicity, and mental illness diagnoses (Appendix A).

Validity Checks

Two items were included to check for the validity of participant responses (i.e., “You have played quarterback for the Dallas Cowboys.” and “You have had lunch with Martin Luther King, Jr.”). Participants responded on a 7-point scale, ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). Participants who reported scores other than 1 on either of these items were deemed invalid responders and were excluded from further analyses (Appendix B).

Eating Psychopathology

The Multifactorial Assessment of Eating Disorder Symptoms (MAEDS) is a 56-item self-report measure that assesses six clusters of symptoms that are relevant for treatment outcome of eating disorders. One of its six subscales (Binge Eating) was used to measure binge eating. Participants responded on a 7-point scale, ranging from 1 (“always”) to 7 (“never”) with higher scores indicating greater psychopathology. The Binge Eating subscale has demonstrated excellent internal consistency with a Cronbach’s alpha value of .92 (Anderson, Williamson, Duchmann, Gleaves, & Barbin, 1999). In the present study, the Binge Eating subscale demonstrated excellent internal consistency reliability ($\alpha = .90$) (Appendix C).

Eating Expectancies

The Eating Expectancy Inventory (EEI) is a self-report measure consisting of 34 items. It contains five subscales that measure expectancies concerning the outcomes of eating. Participants respond on a 7-point scale, ranging from 1 (“completely disagree”) to 7 (“completely agree”). Two subscales evaluate eating as a means of negative reinforcement (Eating Helps Manage Negative Affect and Eating Alleviates Boredom). Two other subscales assess eating for the purpose of positive reinforcement (Eating is

Pleasurable and Useful as a Reward and Eating Enhances Cognitive Competence). The final subscale measures the association of eating with a loss of control (Eating Leads to Feeling out of Control). The subscales have exhibited acceptable reliability with internal consistency estimates ranging from .78 to .94. In the present study, the EEI negative reinforcement subscale demonstrated excellent internal consistency reliability ($\alpha = .97$). The EEI has shown to be correlated with measures of eating disorder symptomology (Hohlstein et al., 1998). Specifically, the two negative reinforcement subscales and loss of control subscale are strongly associated with measures of bulimic symptomatology (Boerner, Spillane, Anderson, & Smith, 2004). Additionally, it has distinguished between individuals with eating disorders and psychiatric/non-psychiatric controls (Hohlstein et al., 1998) (Appendix D).

Experiential Avoidance

The Brief Experiential Avoidance Questionnaire (BEAQ) is a 15-item self-report measure of explicit avoidant behavior, attitudes relating to distress, implicit avoidance, and distress endurance. Participants responded on a 6-point scale, ranging from 1 (“strongly disagree”) to 6 (“strongly agree”) with higher scores representing greater experiential avoidance. The BEAQ has demonstrated good internal consistency reliability with Cronbach’s alpha values ranging from .80 to .89 (Gámez, et. al, 2014). In the present study, the BEAQ demonstrated excellent internal consistency reliability ($\alpha = .90$) (Appendix E).

Negative Urgency

The UPPS-P Impulsive Behavior Scale is a 59-item self-report instrument that assesses five facets of impulsivity. One of its five subscales (Negative Urgency) was used

to measure the tendency to act rashly in response to negative emotions. Participants responded on a 4-point scale with higher scores signifying greater impulsivity (Lynam, Smith, Cyders, Fischer, & Whiteside, 2007). The Negative Urgency subscale has demonstrated good internal consistency reliability ($\alpha = .89$) (Cyders, 2013). In the present study, the Negative Urgency subscale demonstrated excellent internal consistency reliability ($\alpha = .94$) (Appendix F).

Procedure

Following informed consent, participants completed a battery of questionnaires, including the demographic questionnaire, validity checks, Binge Eating subscale of the MAEDS, EEI, BEAQ, and Negative Urgency subscale of the UPPS-P. Participants accessed the measures through an online research system managed by the university's psychology department.

Statistical Analyses

To identify the unidimensionality of each scale, exploratory factor analyses (EFA) were conducted in SPSS using maximum likelihood extraction and direct oblimin rotation. Factor retention was determined by the Kaiser criterion (retaining factors with eigenvalues >1.0), percent of total variance explained, the scree plot (assessing for discontinuities in a plot of the eigenvalues), and factor loadings (loadings above .30 were considered acceptable (Mertler & Vannatta, 2010)).

Using AMOS Software, confirmatory factor analyses (CFA) were used to verify the factor structures derived by the EFAs and to test the presence of latent variables. Three CFAs were conducted testing three models: Model 1) the hypothesized mediation model: experiential avoidance, negative reinforcement eating expectancies, and binge

eating; Model 2) the AP model: negative urgency, negative affect eating expectancies, and binge eating; and Model 3) the exploratory model: experiential avoidance, negative urgency, negative affect eating expectancies, and binge eating.

In accordance with Preacher and Hayes's (2008) method, a mediation analysis utilizing a bootstrapping approach was conducted within structural equation modeling (SEM) using AMOS Software. The bootstrapping method calculated 5,000 samples and utilized bias-corrected 95% confidence intervals. Kline (1998) suggests that most SEM analyses may be "untenable" (p. 12) with samples of less than 100 participants and that including between 100 and 200 participants is a more appropriate minimum number of cases. He describes sample sizes greater than 200 as "large" (p. 12), depending on the complexity of the model. Thus, due to the complexity introduced by the mediating variable, the intended sample size for the present study was roughly 250 participants.

Experiential avoidance and negative urgency were exogenous variables. Negative affect eating expectancies and binge eating were tested as endogenous variables. The bootstrapping analysis first tested the direct effect of experiential avoidance on binge eating. The indirect effect of experiential avoidance on binge eating was then tested with negative affect eating expectancies as the mediator. The significance threshold was set at .05. To test whether experiential avoidance is a unique predictor in the AP model of eating disorder risk, model fit was examined twice: once with and once without experiential avoidance. It is recommended that multiple fit indices be utilized to generate a more comprehensive assessment of model fit (Bentler & Bonett, 1980). The indices chosen for this study represent four common tests of model fit and include the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), the root mean square error

of approximation (RMSEA), and the standardized root mean square residual (SRMR) (Hu & Bentler, 1998). CFI and TLI values of ≥ 0.95 , RMSEA values of < 0.06 to 0.08 , and SRMR values of ≤ 0.08 are indicative of good fit (Schreiber et al., 2006). The chi-square test statistic was also utilized to assess model fit with the significance threshold set at $.05$.

CHAPTER III

RESULTS

Factor Analyses

Results of the EFAs indicated that one factor was retained for each scale. However, further investigation revealed that the reverse-scored items from the BEAQ, UPPS-P, and EEI loaded poorly ($\leq .06$) onto each factor. Examination of bivariate correlations conveyed that the reverse-scored items of each scale largely positively correlated or did not correlate with other items of their scale. There were very few significant negative correlations among the reverse-scored items and the other items of their scale ($p < .05$). Three more EFAs were conducted for the BEAQ, UPPS-P, and EEI without the reverse-scored items, and structure improved for all scales (i.e., the factor of each scale explained more of the total variance, the scree plots were clearer, and all the factor loadings were above the .30 cut-off). Thus, the reverse-scored items were eliminated from future analyses to improve model fit.

The model fit indices for the CFAs varied in terms of establishing adequate fit. In particular, the CFI indices for all three models and the SRMR indices for two models suggested poor fit. RMSEA and TLI indices for all models either did not meet the designated cut-offs or were within the margin of error for indication of good fit. To improve model fit and to reduce the complexity of the models, parcels of the items from each scale were formed. Parceling involves combining items within the same scale to condense the total number of items in the model. Items corresponding to each scale were

separated into groups and the averages of item scores from each group were calculated (Rhemtulla, 2016). The MAEDS items, EEI items, and UPPS-P items each produced four parcels. Five parcels were generated from the BEAQ items. Using the parcels as variables, the unidimensionality of each scale was reassessed with four EFAs. Replacing the scale items with parcels improved the factor structure for each scale (i.e., increased the percent of variance explained and the factor loadings; Table 2).

Table 2. Summary of EFA Results

	Variable	Factor Loading
BEAQ	Parcel 1	.697
	Parcel 2	.835
	Parcel 3	.851
	Parcel 4	.841
	Parcel 5	.848
Eigenvalue		3.331
% Variance		66.629
EEI	Parcel 1	.959
	Parcel 2	.942
	Parcel 3	.933
	Parcel 4	.946
Eigenvalue		3.572
% Variance		89.296
UPPS-P	Parcel 1	.840
	Parcel 2	.900
	Parcel 3	.909

Table 2. cont.

	Variable	Factor Loading
	Parcel 4	.926
Eigenvalue		3.319
% Variance		79.972
MAEDS	Parcel 1	.881
	Parcel 2	.775
	Parcel 3	.773
	Parcel 4	.808
Eigenvalue		2.628
% Variance		65.701

Model fit was reexamined via three CFAs, which utilized the parceled items. Results of the CFAs revealed that fit indices met the designated cut-offs for all three models, indicating good model fit and construct validity (Table 3).

Table 3. CFA Global Fit Indices

	Model 1	Model 2	Model 3
Chi-square	87.46	94.40	178.04
Chi-square <i>df</i>	62	51	113
<i>p</i>	.018	.000	.000
SRMR	0.040	0.041	0.046
RMSEA	0.041	0.059	0.049
90% lower CI	0.018	0.040	0.035
90% upper CI	0.060	0.078	0.062
CFI	0.991	0.985	0.983

Table 3. cont.

	Model 1	Model 2	Model 3
TLI	0.989	0.980	0.979

Convergent validity of the models was examined through manual calculation of average variance extracted (AVE) for each construct. An AVE value of at least .50 represents acceptable convergent validity (Fornell & Larcker, 1981; Hair, Black, Babin, & Anderson, 2010). AVE values of each latent variable were greater than .50, suggesting adequate convergent validity for all three models (Tables 3-5). Discriminant validity was also investigated by examining the correlations and the square roots of the variables' AVE values. All the correlations among the factors were less than the square roots of the AVE values, suggesting adequate discriminant validity of the models (Fornell & Larcker, 1981; Tables 4-6).

Table 4. AVE Values and Correlations Among Factors: Model 1

<u>Factors</u>	<u>AVE</u>	<u>F1</u>	<u>F2</u>	<u>F3</u>
Experiential avoidance (F1)	.666	.816		
Negative affect eating expectancies (F2)	.893	.505	.945	
Binge eating (F3)	.659	.526	.622	.812

Square root of AVE is in bold diagonals.

Table 5. AVE Values and Correlations Among Factors: Model 2

<u>Factors</u>	<u>AVE</u>	<u>F1</u>	<u>F2</u>	<u>F3</u>
Negative urgency (F1)	.800	.894		
Negative affect eating expectancies (F2)	.893	.183	.945	
Binge eating (F3)	.659	.223	.621	.812

Square root of AVE is in bold diagonals.

Table 6. AVE Values and Correlations Among Factors: Model 3

Factors	AVE	F1	F2	F3	F4
Experiential avoidance (F1)	.665	.815			
Negative urgency (F2)	.801	.217	.895		
Negative affect eating expectancies (F3)	.893	.505	.182	.945	
Binge eating (F4)	.658	.527	.225	.622	.811

Square root of AVE is in bold diagonals.

Bootstrapping and SEM Analyses

In Model 1, results indicated significant direct effects of experiential avoidance on negative affect eating expectancies ($\beta=.505$, $SE=.116$, $p=.001$), negative affect eating expectancies on binge eating ($\beta=.478$, $SE=.065$, $p<.001$), and experiential avoidance on binge eating ($\beta=.285$, $SE=.113$, $p=.001$; Figure 2). The indirect effect of experiential avoidance on binge eating was significant ($\beta=.241$, 95% CI = [.167 - .333], $p<.001$), revealing a partial mediation with negative affect eating expectancies as the mediator.

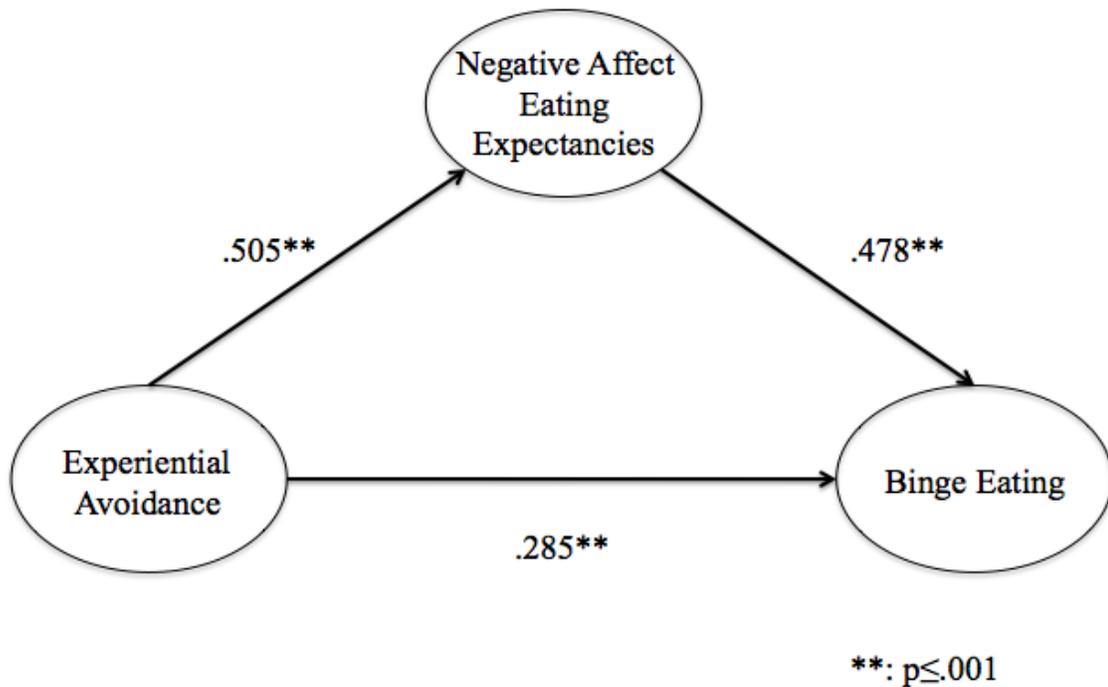


Figure 2. Model 1

In Model 2, results revealed significant direct effects of negative urgency on negative affect eating expectancies ($\beta=.183$, $SE=.110$, $p=.004$) and negative affect eating expectancies on binge eating ($\beta=.601$, $SE=.060$, $p<.001$). The direct effect of negative urgency on binge eating was not significant ($\beta=.113$, $SE=.095$, $p=.072$; Figure 3). The indirect effect of negative urgency on binge eating was significant ($\beta=.110$, 95% CI = [.035 - .192], $p=.003$), revealing a full mediation with negative affect eating expectancies as the mediator.

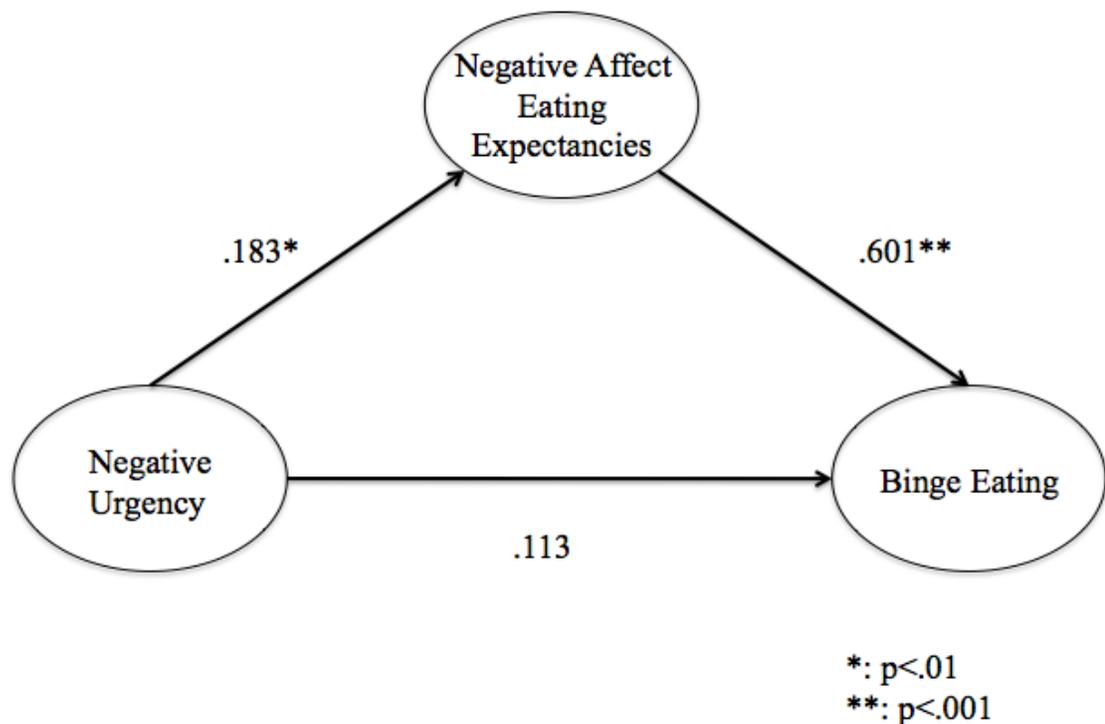


Figure 3. Model 2

In Model 3, results indicated significant direct effects of experiential avoidance on negative affect eating expectancies ($\beta=.489$, $SE=.118$, $p=.001$), negative affect eating expectancies on binge eating ($\beta=.470$, $SE=.065$, $p=.001$), and experiential avoidance on binge eating ($\beta=.273$, $SE=.114$, $p=.001$). The indirect effect of experiential avoidance on

binge eating was significant ($\beta=.230$, 95% CI = [.155 - .320], $p=.001$), revealing a partial mediation with negative affect eating expectancies as the mediator. The direct effects of negative urgency on negative affect eating expectancies ($\beta=.076$, SE=.101, $p=.151$) and negative urgency on binge eating ($\beta=.080$, SE=.092, $p=.175$) were not significant. Thus, in this model, there was no mediation of negative affect eating expectancies between negative urgency and binge eating ($\beta=.036$, 95% CI = [-.010 - .092], $p=.127$). The model also revealed a significant positive correlation between negative urgency and experiential avoidance ($r(242)=.217$, $p=.01$; Figure 4). This model reveals that even in the presence of negative urgency, experiential avoidance is positively related to negative affect eating expectancies and binge eating, suggesting that experiential avoidance is a unique predictor in the AP model of eating disorder risk.

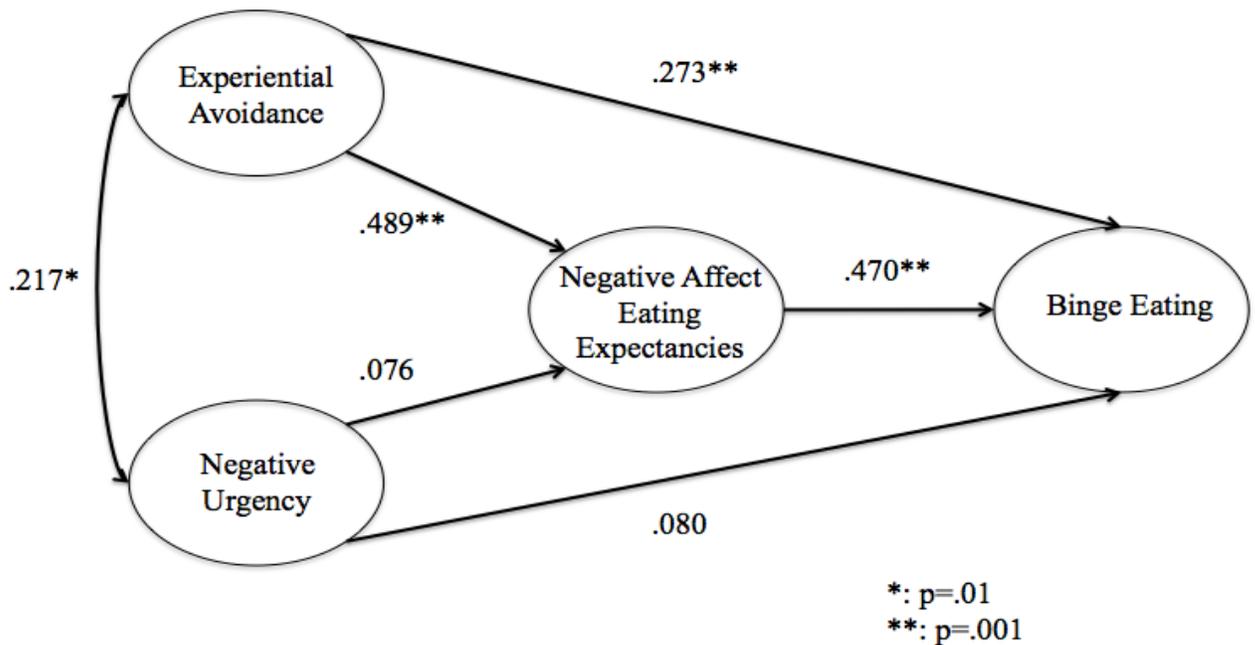


Figure 4. Model 3

Within SEM, model fit indices were indicative of good fit for all three models. Additional measures were utilized to investigate the best fitting model. Two comparative

measures of fit, which derive meaning through comparison of two different models, were employed: Akaike Information Criterion (AIC) and Browne-Cudeck criterion (BCC). Lower values of AIC and BCC are indicative of better fit (Schreiber et al., 2006; Table 3). Based on these indices, the hypothesized model (Model 1) demonstrated a better fit than the AP model (Model 2). The AP model demonstrated a better fit than the exploratory model (Model 3). However, caution is warranted when using AIC and BCC to compare fit, as some have argued this method can be problematic when comparing non-nested models (e.g., Merkle, You, & Preacher, 2015). Further, the squared multiple correlation (SMC) of the dependent variable in each model was examined to determine the amount of variance in binge eating explained by the predictors. The proportion of variance in binge eating explained by the predictors was similar in Model 1 and Model 3 but was lower in Model 2 (Table 7).

Table 7. SEM Fit Indices

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>
Chi-square	87.46	94.40	178.04
Chi-square <i>df</i>	62	51	113
<i>p</i>	.018	.000	.000
SRMR	0.040	0.041	0.046
RMSEA	0.041	0.059	0.049
90% lower CI	0.018	0.040	0.035
90% upper CI	0.060	0.078	0.062
CFI	0.991	0.985	0.983
TLI	0.989	0.980	0.979
AIC	145.456	148.402	258.043
BCC	149.002	151.454	264.443

Table 7. cont.

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>
SMC	.447	.398	.454

In sum, it is clear that all three models exhibit good fit. The amount of variance explained by the predictors is greatest in Models 1 and 3. Model 3 may be the most informative model, as it contains all the variables and reveals that experiential avoidance uniquely predicts binge eating. However, Model 3 contains insignificant pathways of negative urgency to negative affect eating expectancies and to binge eating. Additionally, AIC and BCC fit indices suggest Model 1 has the best fit. Thus, based on these findings and considering the value of parsimony, Model 1 represents the best approach to explaining the relationships among the variables.

CHAPTER IV

DISCUSSION

The present study primarily sought to examine the relationship between experiential avoidance and binge eating in undergraduate students, hypothesizing that negative affect eating expectancies mediates this relationship. Some researchers have explored the link between various methods of avoiding uncomfortable experiences and eating psychopathology (e.g., Fulton et al., 2012). However, the literature specifically concerning the relationship between experiential avoidance and binge eating is scarce. Moreover, to the author's knowledge, the mechanism driving this relationship had not previously been identified. As an additional aim, the present study tested the AP model of eating disorder risk, a model possessing extensive support in the literature (e.g., Combs et al., 2011). The present study intended to address whether or not experiential avoidance uniquely predicts negative affect eating expectancies and binge eating within the AP model in a college sample.

Experiential Avoidance

In support of the author's hypothesis, experiential avoidance positively predicted binge eating. This result is similar to Fulton and colleagues' (2012) as well as to Masuda and colleagues' (2014) findings of the association between experiential avoidance and eating psychopathology in undergraduate students. Report of bulimic symptomatology by undergraduates has also been linked to more specific forms of experiential avoidance, such as thought suppression (Lavender et al., 2009) and avoidant coping (Freeman &

Gill, 2004). Thus, individuals who tend to evade aversive experiences are more likely to engage in binge eating. It is possible that this behavior serves as a method of escaping or modifying distressing circumstances. Indeed, prior findings suggest that binge eating is a tactic, which individuals may utilize to circumvent or manage psychological distress (Heatherton & Baumeister, 1991; Polivy & Herman, 2002). Undergraduate students, who encounter unique avenues (e.g., course-related demands and financial strain; Tinto, 1982) that can lead to distress, may be particularly at risk for engaging in maladaptive behaviors (i.e., binge eating) to manage their experiences.

Negative Affect Eating Expectancies

As predicted, negative affect eating expectancies was positively associated with binge eating. This result supports past findings of a relationship between eating expectancies and bulimic symptomatology. Hohlstein and colleagues' (1998) eating expectancies measure was formulated based on the association between eating expectancies and bulimic symptomatology in adults. In terms of negative affect eating expectancies, individuals with such expectancies believe that eating will relieve negative emotions. Thus, they are more likely to engage in binge eating as a way of mitigating the experience of negative affect, which then results in negative reinforcement of the behavior. The affect regulation model of binge eating (Polivy & Herman, 1993) supports this conceptualization as well as findings that suggest increased negative affect occurs prior to a binge-eating episode and diminishes after the episode (e.g., Berg et al., 2013).

Experiential Avoidance and Negative Affect Eating Expectancies

In accordance with the author's hypothesis, negative affect eating expectancies mediated the relationship between experiential avoidance and binge eating. The

mediation relationship, which was partial in nature, demonstrates that experientially avoidant students are at risk for binge eating partly due to their expectation that eating will diminish negative affect. The mediation model demonstrated in the present study explains that individuals who avoid uncomfortable cognitive, emotional, and physical experiences are at greater risk for engaging in binge eating. These avoidant-prone students may have engaged in binge eating during a period of negative affect and experienced the decline of negative affect after this episode. Consequently, positive expectancies related to eating are maintained and applied in future episodes of wishing to avert unpleasant internal processes. Therefore, having the belief that eating will alleviate these unpleasant experiences represents a mechanism explaining the relationship between experiential avoidance and binge eating. It is possible that other mediating variables may be lacking in this model, explaining the partial mediation encountered in this study. Negative affect eating expectancies relate to the instance of avoiding an emotional experience. However, experiential avoidance is a general concept of evasion, including areas of avoidance besides affect. Thus, experiential avoidance may also predict constructs accounting for negative cognitive and physical episodes. In conjunction with negative affect eating expectancies, these additional variables related to cognitive and physical experiences, may fully explain the relationship between the tendency to avoid distressing episodes and binge eating.

In addition to the aforementioned literature revealing a link among experiential avoidance and bulimic symptomatology, relationships within the present study's mediation model derive support from another preceding study. In a sample of undergraduate women, Hayaki (2009) found not only a link between experiential

avoidance and symptoms of bulimia nervosa but also an association between experiential avoidance and negative affect eating expectancies. Holding beliefs that engaging in a specific behavior will relieve uncomfortable internal experiences includes experiential avoidance by definition; thus, it is sensible that these two constructs (i.e., experiential avoidance and negative affect eating expectancies) are related. Research pertaining to substance use has demonstrated a similar relationship between a mode of experiential avoidance and expectancies related to alcohol consumption. Specifically, undergraduate students who utilize avoidant coping are more likely to have expectancies that drinking alcohol will have positive effects (e.g., reduced tension). Additionally, in this same sample, positive alcohol expectancies mediated the relationship between avoidant coping and alcohol consumption (Hasking et al., 2011). Thus, it is evident that having positive expectancies about a specific behavior make students who lack adaptive coping strategies more likely to engage in that behavior.

AP Model of Eating Disorder Risk

Results indicated a significant indirect effect of negative urgency on binge eating, which was fully mediated by negative affect eating expectancies. Such findings make the study unique in that it is the first, when using an undergraduate sample, to demonstrate a mediation relationship among these variables. This mediation relationship explains that the tendency to react rashly to stress predicts binge eating in individuals who believe that eating will diminish experiences of negative affect. This finding reflects a portion of the AP model of eating disorder risk, which maintains ample support from preadolescent samples, tested both cross-sectionally and longitudinally (Combs et al., 2011; Pearson et al., 2012; Pearson et al., 2014). Similarly, in cross-sectional and longitudinal studies of

undergraduate students, negative urgency and negative affect eating expectancies positively predicted binge eating (Fischer et al., 2004; Fischer et al., 2013; Fischer et al., 2003; Schaumberg & Earleywine, 2013). The present study's finding further highlights the importance of examining specific mechanisms related to risk factors of eating psychopathology in this population.

Experiential Avoidance and Negative Urgency Model(s)

The present's study experiential avoidance model and AP model of eating disorder risk demonstrated good model fit, both separately and together. When entered into the AP model, experiential avoidance represented a unique predictor. In this combined model, experiential avoidance significantly predicted binge eating, and this relationship was mediated by negative affect eating expectancies. However, the model containing experiential avoidance without negative urgency demonstrated the best representation of the variables. Interestingly, in the combined model, pathways from negative urgency to negative affect eating expectancies and from negative urgency to binge eating were nonsignificant. Thus, it appears that not only does experiential avoidance uniquely predict binge eating in the presence of negative urgency, but it may predict binge eating more adequately than negative urgency. It is possible that in the AP model, negative urgency seemingly predicts negative affect eating expectancies and binge eating because it is capturing a portion of the variance shared with experiential avoidance. The significant positive correlation among experiential avoidance and negative urgency in this model supports this interpretation, suggesting that the two variables embody statistically significant overlap. Thus, experiential avoidance may better explain the relationship between the variables.

Limitations

The results of the present study should be evaluated in the context of its limitations. First, examinations of the AP model of eating disorder risk have typically involved assessment of additional variables: thinness/dieting expectancies and purging. The present study did not examine these variables when testing the AP model and perhaps is not providing a complete depiction of the risk model of bulimic symptomatology via dispositional influences. Second, the study utilized self-report measures to assess the variables. While all of the measures employed have adequate to excellent psychometric properties, it is possible that the use of interview assessments rather than questionnaires would have provided more precise data if clarification was needed on certain items. Finally, the study was lacking a diverse sample in terms of sex and racial/ethnic demographics. The sample included predominantly Caucasian females; thus, similar findings may not be present in samples with a greater percentage of males or of students with other racial/ethnic backgrounds. However, evidence suggests that the AP model of eating disorder risk is applicable to both males and females (Pearson et al., 2012; Schaumberg & Earleywine, 2013) as well as to European Americans and African Americans (Pearson et al., 2012).

CHAPTER V

CONCLUSION

The current study provided additional evidence of experiential avoidance and negative affect eating expectancies predicting binge eating in undergraduate students. Further, the study revealed a partial mediation relationship between experiential avoidance and binge eating via negative affect eating expectancies. Thus, it is apparent that avoiding negative, internal experiences contributes to maladaptive eating patterns partly by way of believing eating will reduce negative affect. However, it is important to discover what additional mediating variables may be formulating the relationship between experiential avoidance and binge eating. As previously discussed, perhaps concepts related to alleviating negative cognitions and physical experiences may also lead experientially avoidant individuals to binge eat. Future studies should first attempt to replicate the present study's finding. If the partial mediation relationship is reproduced, researchers should explore constructs associated with cognitive and physical occurrences to further understand this model. Incorporating thinness/dieting expectancies and purging behaviors into the model may also be relevant in future investigations of bulimic symptomatology.

The findings that 1) negative urgency was not a unique predictor in the presence of experiential avoidance and 2) the experiential avoidance model predicted binge eating more adequately than the AP model are noteworthy indeed. Because this study remains the first to demonstrate these results, it is important that these findings be reproduced.

Upon replication, experiential avoidance rather than negative urgency may be considered a more relevant risk factor of binge eating, particularly in the context of negative affect eating expectancies. Additionally, future research should utilize a longitudinal design to test this model in order to determine temporal sequence among the variables. Examining these variables over time may allow researchers to establish a more accurate developmental pathway (in contrast to one containing negative urgency), which perhaps predicts the development of clinically significant eating psychopathology.

The study further highlights undergraduate students as an at-risk population for eating psychopathology. Individuals in this population are more likely exposed to potentially distressing situations; due to their avoidant dispositions and psychosocial learning experiences, they may be prone to use eating disorder behaviors as coping mechanisms. These findings have important implications for targeted prevention efforts for disordered eating on university campuses. Prevention programs for college students tend to focus on body image and thin ideal internalization (Yager & O’Dea, 2008). Given the present findings, such programs should also consider addressing the deleterious consequences associated with avoidant coping strategies and eating expectancies. Implementing more approaches that encourage adaptive coping styles and healthy eating attitudes may improve prevention techniques and reduce the risk of eating disorder development in this population. Thus, it is apparent that findings from the current study provide numerous avenues for future research. Additionally, these conclusions facilitate researchers and clinicians in further deciphering the most pertinent dispositional and psychosocial influences of eating psychopathology.

Appendix A
Consent Form

INFORMED CONSENT

TITLE: The Effect of Personality Characteristics on Eating Attitudes and Behaviors

PROJECT DIRECTOR: Nicole Della Longa, B.S.

PHONE #: (281) 384-2090

DEPARTMENT: Psychology

STATEMENT OF RESEARCH

A person who is to participate in the research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please ask.

WHAT IS THE PURPOSE OF THIS STUDY?

You are invited to participate in a research study examining personality characteristics and eating attitudes and behaviors. The purpose of the study is to understand how personality is related to eating attitudes and behaviors. It is hoped that what is learned through this study will promote a better understanding of factors contributing to both healthy and unhealthy eating related thoughts and behaviors.

HOW MANY PEOPLE WILL PARTICIPATE?

Approximately 300 people will take part in this study at the University of North Dakota.

HOW LONG WILL I BE IN THIS STUDY?

Your participation in the study will last approximately 45 to 60 minutes.

WHAT WILL HAPPEN DURING THIS STUDY?

This study takes place over the internet. Participation involves completing a set of questionnaires that ask you to respond to items about your demographics, eating attitudes and behaviors, mood, and personality.

WHAT ARE THE RISKS OF THE STUDY?

There may be some risk from participating in the study. For instance, you may become uncomfortable answering sensitive questions regarding mood or specific behaviors such as binge eating or purging. However, such risks are not viewed as exceeding “minimal risk.”

If, however, you become upset by questions, you may stop at any time or choose not to answer a question. If you would like to talk to someone about how you are feeling, you

are encouraged to contact the UND Psychological Services Center at (701) 777-3691 or the UND Student Counseling Center at (701) 777-2127.

WHAT ARE THE BENEFITS OF THIS STUDY?

You may not benefit personally from participating in this study. However, we hope that, information obtained from the study will help benefit others in the future. Knowledge gathered from the study could potentially aid and further develop interventions aimed at addressing unhealthy eating attitudes and behaviors.

ALTERNATIVES TO PARTICIPATING IN THIS STUDY

If you are a student at UND who chooses not to participate in this study, you may earn extra credit in your course in other ways. Please ask your instructor, who will provide you with comparable assignments that you may choose to complete (e.g. writing assignments, participation in other research experiments).

WILL IT COST ME ANYTHING TO BE IN THIS STUDY?

You will not have any costs for being in this research study.

WILL I BE PAID FOR PARTICIPATING?

You will receive one credit on SONA for your participation in this study.

WHO IS FUNDING THE STUDY?

The University of North Dakota and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study.

CONFIDENTIALITY

The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study data may be reviewed by Government agencies, the University of North Dakota Institutional Review Board, and the researchers conducting this study.

Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of labeling the information you provide with a unique identification number that is in no way linked to your name or other identifiable information. In addition, all information you provide will be kept securely on password-protected computers and servers or in a locked research office for 7 years until they are permanently deleted and shredded.

If we write a report or article about this study, we will describe the study results in a summarized manner so that you cannot be identified.

IS THIS STUDY VOLUNTARY?

Your participation is voluntary. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with the University of North Dakota.

CONTACTS AND QUESTIONS?

The researcher conducting this study is Nicole Della Longa. If you later have questions, concerns, or complaints about the research, please contact Nicole Della Longa at (281) 384-2090 or nicole.dellalonga@my.und.edu.

If you have questions regarding your rights as a research subject, or if you have any concerns or complaints about the research, you may contact the University of North Dakota Institutional Review Board at (701) 777-4279. Please call this number if you cannot reach research staff, or you wish to talk with someone else.

By clicking the “I agree” button below, you are indicating that you agree to take part in this study. You may print this screen to retain a copy of this form.

Please indicate whether you agree to consent to participate in this study.

["I agree" button]

["I do not agree" button]

Appendix B
Demographics

Please answer the following questions.

1) What is your age?

____ years

2) What is your sex?

Male

Female

3) What year of your undergraduate degree are you currently completing?

Freshman

Sophomore

Junior

Senior

4) Which of the following best describes your racial/ethnic background?

Caucasian

African American

Asian

Hispanic/Latino

Native American

Hawaiian/Pacific Islander

Other

5) Have you ever been diagnosed with any of the following? Check all that apply.

Major depressive disorder

Ø Bipolar disorder

Ø An anxiety disorder

Ø An eating disorder

Appendix C
Validity Check Questions

Read each statement and indicate the response number that most closely matches your level of agreement.

Completely Disagree	Mostly Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Mostly Agree	Completely Agree
1	2	3	4	5	6	7

- 1) You have played quarterback for the Dallas Cowboys. 1 2 3 4 5 6 7
- 2) You have had lunch with Martin Luther King, Jr. 1 2 3 4 5 6 7

Appendix D
 Binge Eating Subscale of the Multifactorial Assessment of Eating Disorder Symptoms
 (MAEDS)

Using the scale below, please rate the following items on a scale from 1 to 7. Please answer as truthfully as possible.

	Never	Very Rarely	Rarely	Sometimes	Often	Very Often	Always
1) If I keep food in house I will binge on it.	1	2	3	4	5	6	7
2) I eat so rapidly I can't taste my food.	1	2	3	4	5	6	7
3) I overeat too frequently.	1	2	3	4	5	6	7
4) I crave sweets and carbohydrates.	1	2	3	4	5	6	7
5) I lose control when eating.	1	2	3	4	5	6	7
6) I am too fat.	1	2	3	4	5	6	7
7) I eat until completely stuffed.	1	2	3	4	5	6	7
8) I eat even when not hungry.	1	2	3	4	5	6	7

Appendix E
Eating Expectancy Inventory (EEI)

Read each statement and circle the number of the response which most closely matches your level of agreement. Please respond to the items in terms of what the word “eating” means to you. There are no right or wrong answers. Choose only one response for each item. Do not leave any items blank.

Completely Disagree	Mostly Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Mostly Agree	Completely Agree
1	2	3	4	5	6	7
1) Eating makes me feel loved.						1 2 3 4 5 6 7
2) When I am feeling depressed or upset, eating can help me take my mind off my problems.						1 2 3 4 5 6 7
3) Eating makes me feel out of control.						1 2 3 4 5 6 7
4) Eating fills some emotional need.						1 2 3 4 5 6 7
5) When I am feeling anxious or tense, eating helps me relax.						1 2 3 4 5 6 7
6) I don't see eating as a pleasurable event.						1 2 3 4 5 6 7
7) Eating helps me deal with feelings of inadequacy about myself.						1 2 3 4 5 6 7
8) Eating doesn't help me deal with boredom.						1 2 3 4 5 6 7
9) When I have nothing to do, eating helps relieve the boredom.						1 2 3 4 5 6 7
10) When I eat, I often feel I am not in charge of my life.						1 2 3 4 5 6 7
11) When I am feeling anxious, eating does not make me feel calmer.						1 2 3 4 5 6 7
12) Eating serves as an emotional release.						1 2 3 4 5 6 7
13) Eating seems to decrease my level of anxiety if I am feeling tense or stressed.						1 2 3 4 5 6 7
14) Eating is a good way to celebrate.						1 2 3 4 5 6 7
15) When I do something good, eating is a way to reward myself.						1 2 3 4 5 6 7
16) Eating isn't useful as a reward for me.						1 2 3 4 5 6 7
17) I don't get a sense of security or safety from eating.						1 2 3 4 5 6 7
18) If I have nothing planned to do during the day, eating isn't something that would help me fill the time.						1 2 3 4 5 6 7
19) Eating helps me think and study better.						1 2 3 4 5 6 7
20) Eating is fun and enjoyable.						1 2 3 4 5 6 7
21) My eating behavior often results in a feeling that I am not in control.						1 2 3 4 5 6 7

- | | |
|---|---------------|
| 22) When I work hard or accomplish something,
eating doesn't serve as a good reward. | 1 2 3 4 5 6 7 |
| 23) Eating is something to do when you feel bored. | 1 2 3 4 5 6 7 |
| 24) Eating is a way to vent my anger. | 1 2 3 4 5 6 7 |
| 25) Eating helps me avoid uncomfortable
social situations. | 1 2 3 4 5 6 7 |
| 26) When I am angry at my parents, spouse or
friends, eating helps me get back at them. | 1 2 3 4 5 6 7 |
| 27) When I am faced with difficult tasks, eating
can help me avoid doing them. | 1 2 3 4 5 6 7 |
| 28) Eating helps me forget or block out negative
feelings, like depression, loneliness, or fear. | 1 2 3 4 5 6 7 |
| 29) Eating calms me when I am feeling
stressed, anxious, or tense. | 1 2 3 4 5 6 7 |
| 30) Eating can help me bury my emotions
when I don't want to feel them. | 1 2 3 4 5 6 7 |
| 31) Eating helps me work better. | 1 2 3 4 5 6 7 |
| 32) Eating helps me cope with negative emotions. | 1 2 3 4 5 6 7 |
| 33) Eating does not make me feel out of control. | 1 2 3 4 5 6 7 |
| 34) Eating helps me deal with sadness or
emotional pain. | 1 2 3 4 5 6 7 |

Appendix F
Brief Experiential Avoidance Questionnaire (BEAQ)

Please indicate the extent to which you agree or disagree with each of the following statements.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1) The key to a good life is never feeling any pain.	1	2	3	4	5	6
2) I'm quick to leave any situation that makes me feel uneasy.	1	2	3	4	5	6
3) When unpleasant memories come to me, I try to put them out of my mind.	1	2	3	4	5	6
4) I feel disconnected from my emotions.	1	2	3	4	5	6
5) I won't do something until I absolutely have to.	1	2	3	4	5	6
6) Fear or anxiety won't stop me from doing something important.	1	2	3	4	5	6
7) I would give up a lot not to feel bad.	1	2	3	4	5	6
8) I rarely do something if there is a chance that it will upset me.	1	2	3	4	5	6

9) It's hard for me to know what I'm feeling.	1	2	3	4	5	6
10) I try to put off unpleasant tasks for as long as possible.	1	2	3	4	5	6
11) I go out of my way to avoid uncomfortable situations.	1	2	3	4	5	6
12) One of my big goals is to be free from painful emotions.	1	2	3	4	5	6
13) I work hard to keep out upsetting feelings.	1	2	3	4	5	6
14) If I have any doubts about doing something, I just won't do it.	1	2	3	4	5	6
15) Pain always leads to suffering.	1	2	3	4	5	6

Appendix G
Negative Urgency Subscale of the UPPS-P Impulsive Behavior Scale

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement. If you **Agree Strongly** select **1**, if you **Agree Somewhat** select **2**, if you **Disagree Somewhat** select **3**, and if you **Disagree Strongly** select **4**. Be sure to indicate your agreement or disagreement for every statement below. Also, there are questions on the following pages.

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
1) I have trouble controlling my impulses.	1	2	3	4
2) I have trouble resisting my cravings (for food, cigarettes, etc.).	1	2	3	4
3) I often get involved in things I later wish I could get out of.	1	2	3	4
4) When I feel bad, I will often do things I later regret in order to make myself feel better now.	1	2	3	4
5) Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.	1	2	3	4
6) When I am upset I often act without thinking.	1	2	3	4
7) When I feel rejected, I will often say things that I later regret.	1	2	3	4
8) It is hard for me to resist acting on my feelings.	1	2	3	4
9) I often make matters worse because I act without thinking when I am upset.	1	2	3	4
10) In the heat of an argument, I will often say things that I later regret.	1	2	3	4
11) I always keep my feelings under control.	1	2	3	4
12) Sometimes I do impulsive things that I later regret.	1	2	3	4

Appendix H
Referral Form

We thank you for your time spent taking this survey.
Your response has been recorded.

If you have become upset by any of the questions previously presented or if you would like to talk to someone about how you are feeling, you are encouraged to utilize the following referrals.

Referral Information

University of North Dakota Counseling Center
Located on campus in McCannel Hall
(701) 777-2127

University of North Dakota Psychological Services Center
Located on campus in Montgomery Hall
(701) 777-3691

Altru Psychiatry Center
860 S. Columbia Rd., Grand Forks, ND 58201
(701) 780-6697

Northeast Human Services Center
151 S. 4th St., Suite 401, Grand Forks, ND 58201
(701) 795-3000
24-hour Crisis Line (701) 775-0525; Toll-free (800) 845-3731

Family Institute
2100 S. Columbia Rd., Suite 202, Grand Forks, ND 58202
(701) 772-1588

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