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Brooke Kelly Strumbel

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THE MEDIATING EFFECTS OF SELF-HANDICAPPING ON
EATING DISORDER SYMPTOMOLOGY

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BROOKE K. STRUMBEL

ABSTRACT

With the high prevalence of eating disorders (ED) and the functional impairment that they cause, there is a pressing need to more fully identify their risk factors and mechanisms. While perfectionism and negative affect are known risk factors for ED, the mechanisms by which they develop are not well understood. The present study examined the roles of self-handicapping, thought suppression, and maladaptive emotion regulation strategies, as potential mechanisms through which perfectionism and negative affect confer risk for ED. A sample of 161 female undergraduates completed measures of perfectionism, negative affect, thought suppression, self-handicapping, eating disorder tendencies, and an Implicit Association Test that measured negative attitudes towards high calorie foods. Results showed that self-handicapping, but not thought suppression, mediated the effects of perfectionism and negative affect on self-reported ED tendencies. Contrary to expectation, perfectionism predicted lower levels of self-handicapping. Overall, the results suggest that self-handicapping may be an important link in the pathway through which ED develop.

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CHAPTER I

INTRODUCTION

According to the Diagnostic and Statistical Manual of Mental Disorders, eating disorders are defined by a persistent disturbance in food consumption or eating habits that have negative psychological and physical outcomes (APA, 2013). Eating disorders (ED) are becoming more prevalent with nearly 20 million women and 10 million men in the United States currently experiencing or reporting past disorders (Wade, Keski-Rahkonen, & Hudson, 2011). Indeed, it is thought that one in five women struggle with a eating disorder or disordered eating tendencies (National Institute of Mental Health, 2011). The high prevalence is matched only by the functional impairment and associated personal cost for treatment of over \$100,000 a year, amounting between \$500 and \$2000 a day (Eating Disorders Coalition, 2014). Thus, identifying proximal risk factors and potential mechanisms for eating disorder problems are necessary for treatment and prevention.

Although many risk factors likely work together to increase the possibility of developing eating disorder symptomology, perfectionism in particular has received increasing support in the pathway through which ED problems cultivate (Hewitt, Flett

& Ediger, 1995). Perfectionism is a facet of personality in which individuals set high goals and in regards to eating disorders such things as weight, diet, and food intake may be driven by this trait. Likewise, the uses of ineffective emotion regulation (ER) strategies aimed at reducing distress through avoidance have been evident in the pathways for ED genesis (Troop, Holbrey, Trowler & Treasure, 1994). Avoidant emotional regulation reflects a group of maladaptive responses used to lessen the intensity of an emotion in the present, at the expense of its worsening later. Thought suppression is one avoidant response that has been seen in eating disorder populations as a way in which to deal with distress and personal failure (Wegner & Zankakos, 1994).

Self-handicapping is another maladaptive emotion regulation response aimed at reducing negative affect brought about by potential negative judgments from others through claimed impediments or behavioral disengagement (Berglas & Jones, 1978). In essence, self-handicapping reflects an ego-protective strategy that aims to reduce one's level of distress. While largely unexamined in ED populations, self-handicapping is conceptually and empirically linked to many of the risk factors for ED (Stewart & George-Walker, 2014). For example, those with elevated perfectionism levels evidence greater self-handicapping tendencies (Stewart & George-Walker, 2014). Likewise, those with elevated levels of negative affect were more likely to deploy self-handicapping responses, which, in turn, predicted ED symptoms (Strumbel, Durey & Yaroslavsky, 2015). An example of self-handicapping in ED populations is when an individual claims handicaps throughout their treatment in order to protect their self-esteem. The present study aims to test functional relationships

between perfectionism, negative affect, thought suppression, and self-handicapping in ED risk. Clarifying these functional relationships could help aid in the recovery of those with diagnosed EDs along with prevention treatment in those who may be susceptible to developing ED symptomology.

1.1 *Eating Disorders*

With the prevalence and the seriousness of potential life outcomes that could proceed from disordered eating, there is a strong need for prevention and treatment strategies. The main categories of eating disorders that are studied, or perhaps the most prevalent, are anorexia (AN), bulimia nervosa (BN), and binge eating disorder (BED). Although these disorders have many different components there are similar circumstance by which these disorders develop.

Anorexia is the third most chronic illness amongst adolescents (Public Service's Office in Women's Health, 2000). A young woman with anorexia is 12 times more likely to pass away than others her age (Sullivan, 1995). Anorexia is diagnosed when there is presence of restrictive energy intake, fear of gaining weight, and a disturbance in the way that one perceives his/her body (APA, 2013). Restrictive energy intake is consuming fewer calories than deemed necessary for an individual to have essential nutrients for functioning. An individual's body mass index (BMI) is one of the key factors in diagnosis of an eating disorder (APA, 2013). BMI is a measure of body fat that is based on height and weight. In those struggling with anorexia their BMI score is significantly lower than average. Onset of AN typically occurs in adolescence or young adulthood (APA, 2013).

Another prominently studied category of eating disorders is bulimia nervosa (BN). In BN, the individual will partake in bingeing followed by a form of purging. A binge is defined a period of excessive or uncontrolled indulgence; in this case, the indulgence is food. Typical binges will take place in private, where individuals lose control of themselves only stopping when interrupted, have pains in their stomach, or run out of food (National Institute of Mental Health, 2011). Following the binge, those struggling with BN will choose one of several mechanisms in order to “purge”/ prevent weight gain: self-induced vomiting, misuse of laxatives, diuretics, fasting, or excessive exercising (APA, 2013). The act of purging is done out of guilt from the binge and to keep from gaining weight (APA, 2013). Bulimia is not easily diagnosed, unlike anorexia, because body weight is typically normal to even overweight (NAMI). In order for individuals to be diagnosed with BN, they need to have at least one binge-purge episode per week for 3 months with high levels of self-evaluation based on their perceived body image (APA, 2013).

Binge-eating disorder (APA, 2013) is when an individual partakes in a binge but there is not a purge followed (APA, 2013). These “binges” can take place in social settings and are defined as one over consuming past the point of being full or when they are not hungry (APA, 2013). Commonly, these binges are brought on by stress and then induce guilt. Binges have to take place at least once a week for three months to reach threshold for diagnosis similarly to BN (APA, 2013). There is no specific age of onset for this disorder to date, and individuals struggling with BED are typically over- weight (Hudson, Hiripi, Pope, & Kessler, 2007).

The roots of AN, BN, and BED have similar liabilities in terms of risk factors and mechanisms by which they develop. There are common early facets of personality and other emotional defects that are present prior to ED development. One major defect is ways in which these individuals attempt to regulate their emotions.

1.2 Risk Factors and Tendencies

The spectrum of EDs has similar pathways and risk factors that can lead to their development. The most common behavior that leads to development of ED is dieting, with 35% of normal dieters progressing to forms of pathological eating (Shissak, Cargo, & Estes, 1995). Out of that 35% that form pathological eating habits, 20-25% will develop eating disorders (Shissak et al., 1995). According to a past study nearly one half of females between 18 and 25 would rather be ran over by a bus then become obese, and two thirds of these women would rather be considered stupid or mean rather than being overweight (Gaesser, 1996). Females endorse these extremes due to thin ideal internalization, which is prevalent across the spectrum of eating disorders. Thin ideal internalization pertains to a female physic that is nearly unattainable to achieve (Thompson, Heinberg, Altabe & Tantled-Dunn, 1999).

With the thin ideal being present within EDs, it is of no surprise that perfectionism is a particularly important aspect. Perfectionism is considered a personality trait that can have adverse effects depending on the type and the intensity. It was found that perfectionism is associated directly with the thin deal and leads to ED behaviors such as bingeing when accompanied by failure (Boone, Sonenes & Braet, 2011). Those with eating disorder pathology due to their inherent pressure to be thin, have high levels of perfectionism, and when they experience failure negative self-thoughts and distress are

triggered (Troop, et al., 1994). This negative self-thought, known as negative affect (NA), can lead to maladaptive ways of regulating emotions (Troop, et al., 1994; Watson & Clark, 1984).

1.3 *Perfectionism*

Perfectionism is a personality trait that is often associated with eating disorders, and is a common subscale in many diagnostic measures of EDs. There are various kinds of perfectionism due to the personal and interpersonal aspects of the trait itself. The most commonly described and accepted framework breaks perfectionism down into three main forms, which are self-prescribed perfectionism, other oriented, and socially prescribed perfectionism (Hewitt & Flet, 1991).

Self-prescribed perfectionism, which is considered an intrapersonal form, is when an individual strives to reach unrealistic goals for him/or herself (Hewitt & Flet, 1991). Other-oriented perfectionism is when an individual sets unrealistic expectations for other people, which is an interpersonal aspect of perfectionism (Hewitt & Flet, 1991). Socially prescribed perfectionism, which is the other form of interpersonal, is when an individual assumes that others desire perfectionism of one self (Hewitt & Flet, 1991). Seeing as those with eating disorders are struggling with their physical appearance by setting unrealistic goals for weight, it is of no surprise that the population has been linked with perfectionist traits.

With the various types of perfectionism that an individual can display, there is a need to differentiate between them. Research has been able to demonstrate this perfectionism in numerous studies using clinical and non-clinical samples across the spectrum of eating disorders. In a previous study, it was found that those struggling

with AN who display a drive for thinness have been directly related to perfectionist traits as speculated by Hewit (Hewit & Flet, 1991; Halmi, Sunday, Strober, Kaplan, Woodside, Fichter, Treasure, Berretini & Kaye, 2000). It has been found that greater perfectionism was associated with more severity of AN symptoms (Halmi et al., 2000).

In a study that was carried out in the hopes of differentiating the types of perfectionism in those with AN, the three accepted facets were examined: self-prescribed, other-oriented, and socially prescribed (Cockell, Hewitt, Seal, Sherry, Goldner, Flett & Remick, 2002). The results were that those in the experimental group had higher levels of self-prescribed and socially prescribed perfectionism in comparison to the controlled group (Cockell, et al., 2002). This study, with support of several others, makes it evident that those struggling with AN have an adherent need to be perfect and to be seen as such.

Similarly, those struggling with BN and BED have been associated with perfectionist traits as well. Pervious research on BN sample showed that they have a higher concern for making mistakes and interpret them as personal failures (Bulik, Tozzi, Anderson, Mazzeo, Aggen, Sullivan, 2003). This concern for failures falls under self-prescribed perfectionism in which an individual is holding unrealistic standards for themselves. It was also found that BED is linked to self-prescribed perfectionism with association between eating concern, weight and shape concern, and binge eating severity (Pratt, Telch, Labouvie, Wilson and Agras, 1999).

Overall, amongst the various spectrum of ED, there is a drive to have the perfect body, the ideal weight, and the perception that one is perfect. It is clear that specifically self-prescribed perfectionism is related with ED symptomology. With the high levels of self-prescribed perfectionism, there are moments when these standards are not met, which may cause negative self-thought accompanied by maladaptive forms of attempting to regulate emotions.

1.4 *Negative Affect*

Negative affect is a dimension of personality that triggers negative emotions along with a negative self-concept (Watson & Clark, 1984). Negative affect is triggered when an individual is presented with a failure or a difficult life event. Those who are high on negative affect tend to experience marked distress when failure is met along with a negative self-outlook. Indeed, high levels of negative affect are associated with anxiety, introspectiveness, distress, discomfort, and dissatisfaction (Watson & Clark, 1984), all of which are present or co-occur with eating disorder problems. Negative affectivity, for this reason, is apart of many scales for diagnosis and high levels are at the root of a many emotional disorders including ED's.

In regards to eating disorder pathology, negative affect has been shown to trigger binges and purges, and it may lead to higher levels of restrained eating (Heatherton & Baumeister, 1991; Paa & Lason, 1998). In a clinical sample, it was found that high levels of negative affect predicted higher levels of restrained eating (Paa & Laston, 1998). This means that when individuals who are struggling with AN are more likely to restrict eating when a negative emotion is experienced. In the same sense, when an individual partakes in a binge, they are using it as an escape of self-awareness from a

negative emotion. This escape is typically due to negative affect and is used as a means of which to regulate their emotion, even though it does more harm than good in the long run (Heatherton & Baumeister, 1991). In another study involving a BED sample, it was found that interpersonal problems adversely affect symptoms and are associated with higher levels of negative affect (Ivanova, Tasca, Hammond, Blafleur, Ritchie, Kozycki & Bissada 2015). This means that those who partake in a binge are struggling with personal issues, and after the maladaptive behavior, there is an increase in negative emotion and negative self-concept. Another relevant study showed that negative affect was increased 4 hours prior to a binge and once again 4 hours post binge in a sample of obese women (Berg, Crosby, Cao, Crow, Engel, Wonderlich & Peterson, 2015). This finding indicates that bingeing is an attempt to regulate negative affect but is unsuccessful and creates a vicious cycle that many over eaters have a hard time breaking (Berg et al., 2015).

A study that examined a clinical sample of AN, BN, and individuals who are considered to be obese, found a strong correlation between negative affect and eating disorder behaviors (Wonderlich, Lavender, Wonderlich, Peterson, Crow, Grange, Mitchell & Crosby, 2015). Specifically, it was that negative affect was correlated strongly with bingeing, purging, and excessive exercise in the ED samples (Wonderlich et al., 2015). This study supports that negative affect is expressed across the spectrum of eating disorders and not just specifically correlated with one particular disorder.

Negative affect has been shown to be at the root of eating disorder behaviors whether it be partaking in a binge, purge or actively restricting one's diet. These

maladaptive behaviors are all techniques in which an individual attempts to regulate their emotions or even deal with their shortcomings.

1.5 Emotional Regulation Deficits

Thompson defines emotional regulation as “consisting of extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one’s goals” (Thompson, 1994). Emotional regulation refers to how an individual maintains emotion, enhances it, or diminishes it (Thompson, 1994). This process is taken for granted because people are unaware that they regulate their emotions constantly. There are adaptive forms of emotional regulation along with more maladaptive ones that can lead to a worsening impact over time.

It is clear that those struggling with eating disorders are partaking in maladaptive forms of dealing with their emotions and that it has a negative impact on their physical and psychological well-being. In a study that was done using a clinical sample, it was found that those with ED were far more likely to implement maladaptive strategies compared to a control group (Danner, Evers, Stok, Van Elburg, De Ridder, 2012). Specifically, those with eating disorder symptomology are more likely to partake in thought suppression, which is a very common way to regulate emotions but has a negative outcome later on (Danner et al., 2012). This has been shown in countless studies that those struggling with eating disorder tendencies have a higher chance of dealing with emotions, especially negative ones, in a maladaptive manner

(Erskine & Georgiou, 2010; Barnes & Tantkeff-Dunn, 2010; Danner, Sternheim & Evers, 2014).

1.6 Thought Suppression

Thought suppression is a form of maladaptive coping in which an individual is able to suppress a feeling or emotion by momentarily pushing it out of consciousness (Wegner & Zankakos, 1994). Thought suppression consists of two mental processes, where one is consciously searching for distractors and another is unconsciously monitoring for the unwanted thought (Wegner & Zankakos, 1994). This is explained when an individual is instructed not to think about a certain event or object and they find themselves attempting to distract all the while having intrusions of the thought. Thought suppression can be done with emotions, as well, in which an individual will not experience an emotion in the moment. Although this does shelter the individual from experiencing the emotion, it has a negative effect later on when the emotion is brought back into consciousness (Wegner & Zankakos, 1994). This is called the rebound effect where the thought or the emotion comes back with more intensity. Those who do have eating disorder tendencies have shown high levels of thought suppression in a hand full of studies (Danner et al., 2012; Erskine & Georgiou, 2010; Barnes & Tantkeff-Dunn, 2010).

A previous study examined maladaptive and adaptive emotional regulation techniques in different categories of eating disorders hypothesized that overall those with eating disorder symptomology would have more maladaptive regulation compared to a controlled group (Danner, et al., 2014). Overall, it was found that women with EDs implemented thought suppression and had lower cognitive reprisal than the control

group (Danner, et al., 2014). Cognitive reappraisal is considered an adaptive antecedent form of coping in which an individual changes the way of interpreting a situation to lessen an emotional impact prior to an event happening (Gross & John, 2003).

Suppressing of thoughts is a maladaptive coping strategy where an individual refrains from displaying an emotion that should be triggered (Gross & John, 2003).

Similarly, an experimental study that compared restrictive eaters to a non-restrictive sample demonstrated higher levels of thought suppression and more compulsive eating (Erskine & Georgiou, 2010). This study had a control group, suppression group, and expression group. The control group was instructed to think about whatever came to mind while the suppression group was told not to think about chocolate and the expression group was informed to only think of chocolate. After the five minutes was up each group was presented chocolate and those who were suppressing ate more than both the other groups. Then various scales were administered like the White Bear Thought Suppression Inventory (WSBI), which showed that those who rated higher on this scale and who also who were in the restricted group consumed more chocolate in the experiment (Erskine & Georgiou, 2010). This study is able to support the idea the suppressing thought about foods can lead to over indulging in them. In study that was done using a clinical sample it was found that thought suppression was linked to binge eating, food cravings and eating disorder symptomology (Barnes & Tantkeff-Dunn, 2010). This study also implied that those who are attempting to diet or restrict their calorie intake are more likely to food thought suppress although this strategy works short term it leads to regain when thoughts rebound (Barnes & Tantkeff-Dunn, 2010).

Thought suppression is just one form of maladaptive coping that has been researched in regards to eating disorders. With the perfectionism aspect that is displayed in ED, there is more than likely other maladaptive coping techniques that could potentially be implemented.

1.7 Self-handicapping

Another form of maladaptive coping that can take place when presented with personal failure is self-handicapping. Self-handicapping is considered an ego-protective behavior in which an individual will blame failure on external factors in the hopes of extinguishing threats to their self-esteem (Berglas & Jones, 1978). The act of self-handicapping can take place in many environments in which performance is taken into account or on display. Typically an individual who is actively taking part in self-handicapping does not suffer from threats to self-esteem when a goal or a performance is not met because they reduce personal responsibility (Berglas & Jones, 1978). Personal responsibility can be lowered by claiming handicaps and tailoring them to explain for a specific failure. If an individual succeeds with their claimed handicaps, then it gives them grounds to boast about their performance (Alter & Forgas, 2007).

In a previous study it was found that those with high self-handicapping and low self-esteem had higher levels of cognitive distortions (Yavuzer, 2015). These cognitive distortions included self-criticism, self-blame, and hopelessness all of which can lead to negative psychological outcomes (Yavuzer, 2015). These findings suggest that individuals that have low self-esteem are more likely to claim handicaps in order to protect themselves. Along with low self-esteem, individuals who have high levels of perfectionism partake in self-handicapping. In a study done using undergrads and post

grad students, it was found that maladaptive perfectionism predicted self-handicapping (Stewart & George-Walker, 2014). Maladaptive perfectionism relates to second guessing actions, fear of failure and extreme fear of negative evaluation. This mediation of perfectionism on self-handicapping means that those who are setting unrealistic goals for themselves are more likely to claim reasons as to why they may not be obtained.

Although self-handicapping is protecting self-esteem, it in turn can hinder performance, and there is evidence that it leads to more negative affect (Midgley, Arunkumar & Urda, 1996). Specifically, a study looked at academic self-handicapping in which those who were more likely to self-handicap had more negative outlooks on education and lower grade point averages leading to lower self-esteem (Midgley, et al., 1996). Therefore, self-handicapping strategies can be seen as maladaptive form of emotional regulation because of the initial protect to self-esteem that can lead to poorer performance in various facets of achievement or perhaps even treatment.

Since perfectionism is a risk factor for development of eating disorder tendencies it can be hypothesized that individuals with ED symptoms or ideology will partake in self-handicapping as a way to protect self-esteem. Self-handicapping has not been extensively studied in regards to ED symptomology. It has been previously shown that self-handicapping mediates ED problems although no extensive research has been conducted (Strumbel, et al., 2015). Specifically, self-handicapping emerged as a stronger predictor of disordered eating than previously researched thought suppression (Strumbel, et. al, 2015).

1.8 *Shortcomings in Research*

Self-handicapping may play an important role in ED risk, as it reflects an avoidant, ego-protective strategy tied closely to perfectionism that aims to reduce negative affect. However, self-handicapping has yet to receive attention in the literature as a risk factor for ED. Given that self-handicapping is a readily detectible and modifiable strategy, clarifying its role in ED risk has implications for prevention and treatment efforts.

Another potential gap in the literature is the over-reliance on self-report measures to assess ED (Hudson, et al., 2007; Wonderlich et al., 2015; Cockell, et al., 2002; Strumbel et al., 2015). Although self-report surveys provide valuable information, they are susceptible to demand characteristics and deception on the part of the respondent. These limitations of self-report measures may be particularly notable for those with ED, given the stigma associated with this group of disorders, and normalization of ED behaviors among symptomatic individuals.

A possible approach to combat the shortcomings that are associated with self-report measures could be using Implicit Association Tasks (IAT). Implicit Association Tasks examine cognitions, feelings, or attitudes that are outside conscious awareness by measuring differences in participants' reaction times when they are instructed to pair words with conceptually concordant and discordant categories. Implicit Association Tasks are becoming more popular due to their having lower response bias that is associated with self-report measures (Nosek, Greenwald & Banaji, 2007), and by requiring less "self-knowledge" on the part of the respondent. This method could target early susceptibility for ED by examining unconscious attitudes and beliefs.

For example, the Food IAT has individuals rate certain food as either good or bad and high calorie versus low calorie. Those who receive a higher score are more food conscientious, which could lead to increased chance of developing ED symptomology. Also, an IAT could potentially identify those struggling with ED symptomology that may have a hard time being forthcoming about their eating habits.

CHAPTER II

CURRENT STUDY

This study aims to examine the role of self-handicapping in the development of ED problems. Specifically this study will look at the functional relationships between perfectionism, negative affect, thought suppression, and self-handicapping in ED risk. Expanding on these relationships could help aid in the recovery process of those with diagnosed EDs along with prevention treatment in those who may be susceptible to developing ED symptomology.

2.1 Hypotheses

Hypothesis I

Self-handicapping will mediate the relationship between perfectionism, negative affect, and ED symptomology incremental to thought suppression.

Hypothesis II

Self-handicapping will mediate the relationship between perfectionism, negative affect, and implicit association of caloric foods.

CHAPTER III METHODS

3.1 *Participants*

Participants were recruited from the undergraduate research participant pool via the SONA research engine. A female sample of $N=191$ undergraduate students anonymously completed the study procedures that were administered online. Of these participants, $N=30$ were excluded from analyses due to their unacceptably fast completion of the study (i.e., $M = 9$ minutes for a 30 minute study). The remaining $N = 161$ participants were 19 years old on average ($SD = 2.84$), and were comprised of mostly of those in their freshman (70%) and junior (17%) years of education. The vast majority of participants were Caucasian (67%), followed by those of African Americans (18%), those who marked other (11%), Asians (3%), and Native Hawaiians or Pacific Islanders (1%). The average height of participants was on average 5 feet and 4 inches ($SD=2.56$), and their average weight was 148lbs ($SD=36.76$). The average Body Mass Index (BMI) for participants was 25.14 ($SD=5.65$).

3.2 *Measures*

3.2.1 *Perfectionism*

The *Multidimensional Perfectionism Scale* (MPS) is a 45-item measure of perfectionism (Hewitt & Flet, 1991). It is comprised of three 15-item scales measuring self-prescribed, other-oriented and socially prescribed perfectionism (Hewitt & Flet,1991). A 7-point rating scale of agreement is used for prompts such as “One of my goals is to be perfect in everything I do” (Hewitt & Flet,1991). Subscale scores vary from 15 to 105 with the higher the score meaning the higher level of perfectionistic qualities (Hewitt & Flet,1991). The MPS is considered to be a reliable and valid test ($\text{Alpha} > .80$ for all 3 subscales) (Hewitt & Flet,1991). The self-prescribed scaled was found to be reliable in this sample ($\text{Alpha} = .902$).

3.2.2. *Negative Affect*

The *Positive and Negative Affect Schedule* (PANAS) is comprised of two scales; one that assesses negative affect and the other positive affect (Watson, Clark, Tellegen, 1988).

The two subscales consist of 10 items answered in a 5-point Likert scale format making a combined total of 20 items (Watson, et al., 1988). Items consist of words such as “Interested, Upset and Guilty” and asks to rate to what extend they are feeling that way in the present moment (Watson, et al., 1988). The PANAS is considered to be a reliable and valid test ($\text{Alpha} > .85$) (Watson, et al., 1988). The PANAS was found to be reliable in this sample (Positive Affect $\text{Alpha} = .871$; Negative Affect $\text{Alpha} = .917$).

3.2.3. *Thought Suppression*

The *White Bear Suppression Inventory* (WSBI) is a 15-item self-report measure that is used to assess thought suppression (Wegner & Zanakos, 1994). Items are answered in a 5-point Likert scale with prompts such as “My thoughts frequently return to one idea” (Wegner & Zanakos, 1994). The total score can range from 15 to 75 with higher scores

being more associated with thought suppression (Wegner & Zanakos, 1994). The WSBI is considered to be a reliable and valid test ($\text{Alpha} > .85$) (Wegner & Zanakos, 1994). The WSBI was found to be a reliable in this sample ($\text{Alpha} = .883$) (1994).

3.2.4 *Self-handicapping*

The *Self-handicapping Scale* (SHS) is a 25-item self-report measure that is used to assess self-handicapping (Rhodewalt & Hill, 1995). Items assess various types of self-handicapping tendencies using a 6-point scale with prompts such as, “When I do something wrong, my first impulse is to blame circumstances” (Rhodewalt & Hill, 1995). The lowest score achievable is 25 and the highest 150 with the higher the score indicating more usage of self-handicapping (Rhodewalt & Hill, 1995). The SHS is considered to be a reliable and valid measure ($\text{Alpha} > .79$) (Rhodewalt & Hill, 1995). The SHS was found to be reliable in this sample ($\text{Alpha} = .675$).

3.2.5 *Eating Disorder Symptomology*

The *Eating Attitude Test* (EAT-26) is 26-item self-report measure that is used to assess eating behavior (Garner, Olmstead, Bohr, Garinkel, 1982). There are 3 subscales in the EAT-26; Dieting, Bulimia and Food Preoccupation, and Oral Control. Items are answered is a 6-point Likert scale with prompts such as “I engage in dieting behavior” (Garner, et al., 1982). Total scores greater or equal to 20 are frequently associated with abnormal eating behaviors and attitudes (Garner, et al., 1982). The EAT-26 is considered to be a reliable and valid measure ($\text{Alpha} > .85$) (Garner, et al., 1982). The EAT-26 was found to be a reliable in this sample (Dieting $\text{Alpha} = .857$; Bulimia $\text{Alpha} = .795$; Food Preoccupation $\text{Alpha} = .598$).

3.2.6 *Implicit Association*

The *Eating-Implicit Association Task* (IAT) is used to assess the unconscious preference to low-caloric or healthy foods versus foods that are considered unhealthy (Nosek, et. al, 2007). It examines if an individual implicitly associates eating high-fat foods as shameful and should be completed under 10 minutes (Nosek, et. al, 2007). Due to the format of this task there is not true validity although IAT's have been deemed reliable ways to get at individuals unconscious awareness (Nosek, et. al, 2007).

3.3 *Procedure*

Participants completed all study procedures that included the consent document, study measures and the IAT online via Qualtrics and the web version of the Inquisite software v. 5. The median completion time for all study procedures was 30 minutes.

3.4 *General Analysis*

Descriptive statistics and bivariate correlations were computed using IBM SPSS Statistics v. 22 (IMB Inc., 2013). Mediation analyses were conducted through path modeling procedures in MPlus version 7.4 (Muthen & Muthen, 2007-2015). As part of hypothesis testing, a path model that constrained the effects of self-prescribed perfectionism, negative affect, self-handicapping, and thought suppression on eating disorder tendencies to those depicted in Figure 1 was first tested. Following best practice, Root Mean Square of Approximation (RMSEA) and the Comparative Fit Index (CFI) were used to examine the fit of this model to the data (Browne & Cudeck, 1993).

CHAPTER IV

RESULTS

4.1 Descriptive Statistics

Pearson's correlations were conducted to examine bivariate correlations between all variables and are presented in Table 1. Body mass index scores significantly correlated with self-handicapping and endorsement of eating disorder tendencies, $r = .24$, $p < .01$; $r = .24$, $p < .01$. This implies that those who had a higher body mass index were more likely to utilize self-handicapping and endorse eating disorder tendencies. As expected, self-prescribed perfectionism was also significantly related to thought suppression and eating disorder tendencies, $r = .20$, $p < .05$; $r = .26$, $p < .01$. Surprisingly, self-prescribed perfectionism was negatively associated with self-handicapping, $r = -.19$, $p < .05$. Also as expected, negative affect was significantly associated with thought suppression, self-handicapping, and the eating disorder tendencies, $r = .39$, $p < .01$; $r = .46$, $p < .01$; $r = .25$, $p < .01$. Eating disorder tendencies was significantly related to self-handicapping and thought suppression, $r = .30$, $p < .01$; $r = .31$, $p < .01$. Lastly, self-handicapping was positively correlated with thought suppression, $r = .50$, $p < .01$.

4.2 Hypothesis Testing

To test the restricted model previously proposed (Figure 1.) a path model was run using MPlus. The restricted model evidence a poor fit with the data (RMSEA=0.21; CFI=.67). Therefore, an alternate model was run that fit direct effects of perfectionism on self-handicapping, thought suppression, and eating disorder tendencies, as well as direct effects of negative affect on eating disorder tendencies to the restricted model (Figure 2.). Given that this model is fully saturated, as all variables are allowed to relate with one another, it resulted in a perfect fit for the data (RMSEA= 0.00; CFI= 1.00).

In partial support of the first hypothesis, self-handicapping predicted eating disorder tendencies incremental to thought suppression (Figure 3.). However, self-prescribed perfectionism was negatively associated with self-handicapping. This finding implies that those who claimed to be more perfectionistic were less likely to partake in the act of self-handicapping. Perfectionism also predicted the use of thought suppression responses, implying that those who have perfectionist qualities are more likely to implement this form of emotion regulation independent of their tendencies to engage self-handicapping. Tests of indirect effects revealed that self-handicapping, rather than thought suppression, significantly mediated the relationship between perfectionism and ED tendencies, $b = -.08, p < .01$. Specifically, self-handicapping evidenced a protective in that it reduced the association between perfectionism and ED. Thought suppression did not mediate the effects of perfectionism on ED.

It is noteworthy that negative affect had a positive relationship with both forms of maladaptive emotion regulation. That is, both negative affect predicted greater use of self-handicapping and thought suppression responses. Self-handicapping was correlated with thought suppression within the full model implying that both forms of maladaptive

emotional regulation were related to one another, $r=.48, p<.01$. There was also an indirect effect found between negative affect and ED tendencies through self-handicapping, $b=.17, p<.00$. This implies that self-handicapping mediated the relationship between negative affect and ED tendencies.

The second hypothesis was not supported because no variables were related to the Implicit Association Task. This implies a lack of relationships between food conscientiousness and all predictor variables within the full model.

CHAPTER V

DISCUSSION

With the high prevalence of eating disorders and the functional impairment that they cause, there is pressing need to identify their risk factors and mechanisms (Eating Disorders Coalition, 2014; Wade et al., 2011). Of the potential risk factors, perfectionism and negative affect seem to play important roles in development of EDs. With respect to mechanisms, there has been increasing attention paid to avoidant emotional regulation responses, with thought suppression receiving particular attention in the realm of ED research. Self-handicapping is another maladaptive emotional regulation response that has not received much attention in research on ED thus far. Therefore, the present study examined the role of self-handicapping in the development of ED problems. Specifically, it examined the mediating role of self-handicapping on perfectionism, negative affect, and known ED risk factors. Further, given the potential pitfalls of solely relying on self-report measures, the present study used an Implicit Association Test that measured negative attitude biases for high caloric foods as a second index of ED tendencies.

The first aim of this study was to examine the mediating role of self-handicapping between perfectionism and negative affect on ED symptoms. It was hypothesized that

self-handicapping would mediate the relationships between perfectionism and ED tendencies incremental to thought suppression. Findings partially supported this hypothesis.

The results of the study showed that self-prescribed perfectionism was not a predictor of negative affect. This finding is surprising, as it contradicts what has previously been found linking maladaptive perfectionism to higher levels of negative affectivity (Zuroff & Blankstein, 2003; Frost, Heimberg, Holt, Mattia, Neubauer, 1993; Kobori, Tanno, 2005). However, potential concerns about the validity and generalizability of this study are attenuated by the fact that self-prescribed perfectionism and negative affect predicted ED tendencies in ways that are consistent with the literature (Hewit & Flet, 1991; Halmi et al., 2000; Paa & Laston, 1998; Heatherton & Baumeister, 1991; Berg et al., 2015).

Also consistent with prior literature, negative affect was able to predict the use of thought suppression (Wegner & Zankakos, 1994). When individuals are presented with negative life event or failures there are adaptive and maladaptive ways of handling these emotions. It has been shown that those who are struggling with ED's are more likely to partake in maladaptive emotional regulation when presented with negative emotions (Danner, et al., 2015; Erskine & Georgiou, 2010; Barnes & Tantkeff-Dunn, 2010). Similarly, negative affect was found to be predictive of self-handicapping. This finding is also consistent with the notion that those with ED deficits are more likely to implement these maladaptive behaviors as a means to regulate their emotions (Berglas & Jones, 1978).

Self-handicapping was a significant predictor of ED tendencies. This finding implies the act of self-handicapping may predict ED incremental to previously researched thought suppression. Those with ED tendencies may be more likely to partake in an ego-protecting strategy over suppressing their feelings in order to protect their self-esteem. Self-handicapping did mediate the relationship between self-prescribed perfectionism and ED tendencies although, not in a positive manor. Self-handicapping was negatively associated with self-prescribed perfectionism, which was not consistent with previous findings (Stewart & George-Walker, 2014). It has been previously found that maladaptive forms of perfectionism are associated with the implementation of self-handicapping techniques in order to protect threats to self-esteem (Stewart & George-Walker, 2014). Our results indicated that scoring higher on self-prescribed perfectionism means that individuals are less likely to partake in self-handicapping and evidenced the implementation of thought suppression as a means to regulate their emotions. This could be because those who are perfectionistic are less likely to report self-handicapping because they deem themselves as not needing to claim handicaps.

Consistent with the existing literature, thought suppression was significantly related to ED (Hewit & Flet, 1991; Halmi et al., 2000). However, this association fell below the level of significance in the presence of self-handicapping, which suggests that self-handicapping is a more robust predictor of ED than thought suppression. Given the dearth of work that examines self-handicapping in relation to ED, this finding should be seen as tentative. However, as both thought suppression and self-handicapping reflect common forms of avoidant emotion regulation responses, and

were found to robustly correlate with one another in this study, these results suggest that the role of self-handicapping in ED risk warrants further investigation.

The second hypothesis, that self-handicapping would mediate the relationship between perfectionism, negative affect, and implicit association of caloric foods, was not supported. Results indicated that perfectionism, negative affect, self-handicapping, and thought suppression, were unable to predict and subsequently not correlated with the Implicit Association Test. The novel food Implicit Association Test that was used has not previously been compared to other measures of ED risk and may mean that the associations being tested may not relate to ED deficits or maladaptive forms of emotional regulation. There is also a lack of psychometric properties in Implicit Association Tests therefore no speculation can be made about why there was a lack of relationships between all other measures administered.

5.1 Limitations

The sample for the study was comprised of undergraduates, which limits the ability to generalize the findings from this study to clinical populations. Another limitation is that the study was administered anonymously online. Thus, it is unclear to what extent the participants put their best effort into completing the study surveys and the Implicit Association Test. Also, treatment histories of ED were not assessed in this study, thus leaving the possibility that this study contains a mixture of clinical and sub-clinical populations. Thus, it is feasible that some associations hypothesized in this study (e.g., positive associations between perfectionism and self-handicapping, as well as perfectionisms and negative affectivity) may be reversed or nullified if they do not hold across the two groups. Finally, this study employed a novel Implicit Association Test of

food preferences, which has unknown psychometric properties. Therefore the food Implicit Association Test. may not have been a reliable measure for observing if an individual was food conscientious.

5.2 Recommendations for Future Research

The design of the study reveals several limitations that could be addressed in the future. The first is recruiting from the clinical population in the hopes of examining the clinical implications of the proposed model. The second is gathering more concrete information on treatment that participants may have received for their disorders. Lastly, there is room for more research-involving novel Implicit Association Tests in order to examining if they have any clinical implications in regards to ED deficits.

5.3 Strengths and Clinical Implications

The present study was able to examine a potential model by which perfectionism, negative affect, self-handicapping, thought suppression, and ED symptoms interact. The findings of this study further support previous research on self-handicapping and how it is predictive of ED symptomology incremental to heavily researched thought suppression. This finding, if replicated in a clinical sample, can add to the plethora of potential risk factors that could lead to ED's along with aid in treatment of those who are currently struggling with these life-threatening disorders.

Table I.

Descriptive statistics and Intercorrelations Between Study Variables

Measure	Means	SD	1	2	3	4	5	6	7	8
1. Age	19.60	2.84	-							
2. BMI	25.14	5.65	.11	-						
3. SO-Perfectionism	69.42	15.14	.03	-.02	-					
4. NA	24.68	8.23	.03	.07	.09	-				
5. WBSI	55.25	10.09	-.04	-.02	.20*	.39**	-			
6. SHS	83.55	11.63	.04	.24**	-.19*	.46**	.50**	-		
7. EAT-26	12.69	9.66	-.03	.24**	.26**	.25**	.31**	.30**	-	
8. Food-IAT	.56	.43	.25*	.04	-.11	.00	-.03	.04	.04	-

Note. The Self Oriented Perfectionism Scale was abbreviated to SO-Perfectionism, the Negative Affect Scaled was abbreviated to NA, the White Bear Thought Suppression Inventory was abbreviated to WBSI, the Eating Attitude Test- 26 was abbreviated to EAT-26 . **p < .01* p < .05

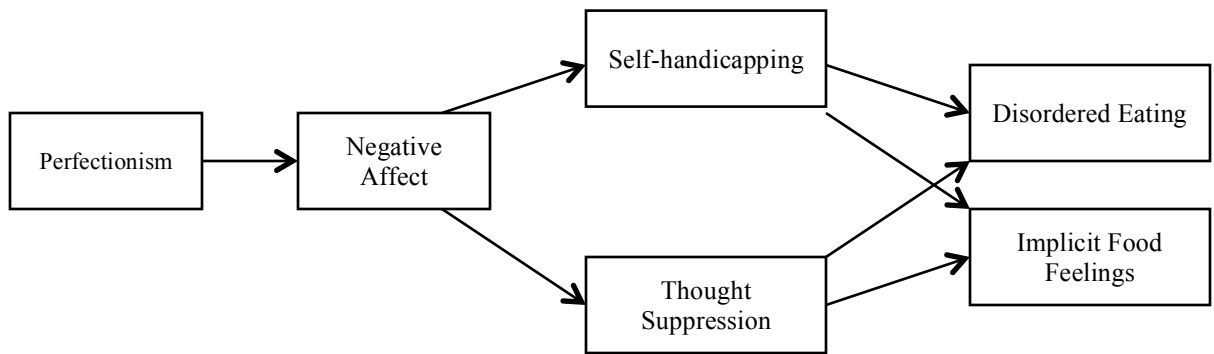


Figure 1. Restricted mediation model of self-handicapping on perfectionism, negative affect, and disordered eating symptomology.

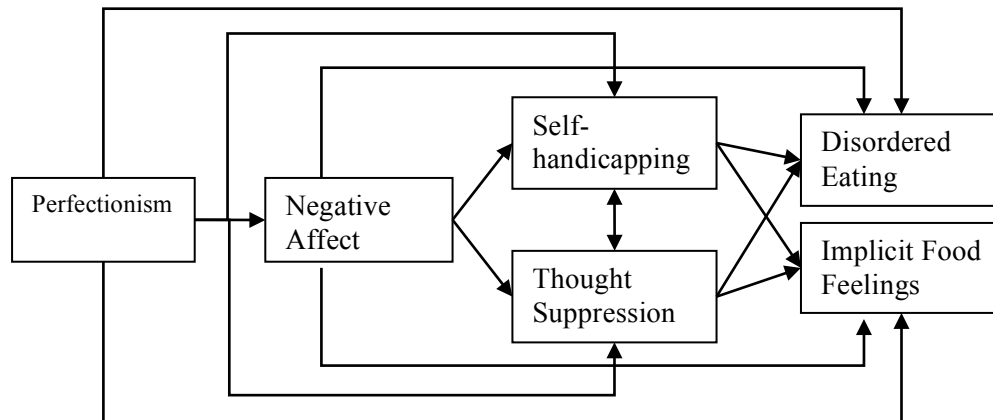


Figure 2. Fully saturated model of self-handicapping on perfectionism, negative affect, and disordered eating tendencies.

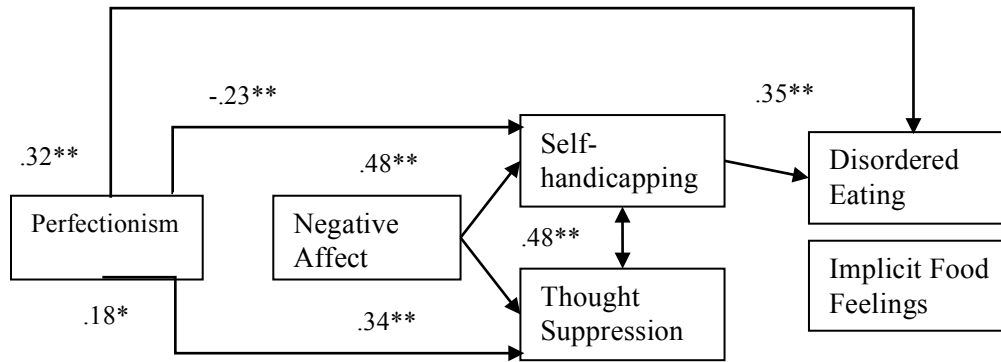


Figure 3. Significant pathways in the fully saturated model of self-handicapping on perfectionism, negative affect, and disordered eating tendencies. Note. ** $p < .01$ * $p < .05$

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