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# Perfectionism and Eating Disordered Psychopathology: Examination Through a Stress Generation Perspective

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PERFECTIONISM AND EATING DISORDERED PSYCHOPATHOLOGY: EXAMINATION  
THROUGH A STRESS GENERATION PERSPECTIVE

by

SARAH ASHLEY MELLO

(Under the Direction of Jeff Klibert)

ABSTRACT

Current research on eating disorders identifies a close correlation with perfectionism. However, little is understood about the complexities of this relationship, and some studies have demonstrated a stronger relationship between these variables when compared to others. This research sought to investigate the role of stress, in particular adverse life events, as a mediator in order to more robustly explain the relationship between eating disorder features and self-evaluative perfectionism, a higher order component of perfectionism consisting of concern over mistakes, need for approval, rumination, and perceived parental pressure. Three hundred and five college women volunteered to complete a series of self-report surveys online. Participants completed the Perfectionism Inventory, Inventory of College Students' Recent Life Experiences, Eating Attitudes Test-26, Eating Disorder Examination Questionnaire 6.0, and the Body Shape Questionnaire. Results suggest European Americans report higher levels of self-evaluative perfectionism as well as eating disorder symptoms as compared to their African American peers. Consistent with expectation, bivariate correlations revealed that eating disorder symptoms were positively related to self-evaluative perfectionism and adverse life events. Adverse life events mediated the relationship between self-evaluative perfectionism and eating disorder pathology. The clinical implications of these findings are explored in the context of cognitive-behavioral interventions.

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B.S., Clemson University, 2009

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## CHAPTER 1

### INTRODUCTION

#### Rationale

Current literature suggests that the lifetime prevalence rates for eating disorder pathology are between 0.5 - 4% in the United States. Further, the age of onset for both anorexia nervosa and bulimia nervosa has steadily declined over the last 25 years, making it a salient issue within adolescence and emerging adulthood (Favaro, Caregaro, Tenconi, Bosello, & Santonastaso, 2009). The average age of onset for eating disorders generally transpires during early to late adolescence, with some data indicating that the average age of onset for anorexia nervosa is 14-25 years and 16-18 years for bulimia nervosa.

Eating disorder pathology is consistently more common in women, who make up approximately 85-95% of the population diagnosed (Andersen, 1995). Although there are several hypotheses as to why eating disorders predominantly occur in women, the literature overwhelmingly suggests that sociocultural factors play a key etiological role. In Western cultures, men highly value appearance when choosing a romantic partner (Feingold, 1990), and female preoccupation with attractiveness has been strongly correlated to low body mass index (BMI; Wilson, Tripp, & Boland, 2005). Further, self-evaluations of appearance in women are often associated with their self-esteem (Wade, 2000) which is not surprising given the sociocultural pressures to be thin.

Research suggests that eating disorder pathology is at least somewhat culturally bound, with studies indicating that rates in Western countries, such as the United States, far exceeds rates in non-Western cultures, such as Africa and the Middle East (Cogan, Bhalla, Sefa-Dedeh, & Rotblum, 1996; Nasser, 1986). It is likely the prevalence is higher in Westernized regions due

to a number of sociocultural factors, including social pressure to be thin, factors of attractiveness, upper-socioeconomic dictions on body weight, and the shrinking ideal female body since the 1950s (Striegel-Moore & Bulik, 2007). Further, Caqueo-Urizar and colleagues (2011) have found eating disorder behaviors and attitudes are on the rise in non-Western cultures with increased exposure to Western cultural ideals.

Difficulties pertaining to eating disorders are particularly salient on college campuses. A poll conducted by the National Eating Disorder Association (2006) found approximately 20% of college women suspected suffering from an eating disorder at some point in their life. Further, of those who reported eating disorder pathology, 75% reported never receiving treatment. A study by Pyle and colleagues (1986) indicate up to 33% of college women and 12% of college men engaged in some type of purging behavior. In a study examining mental health of college women, 91% reported having attempted to control their weight through dieting, with 22% indicating dieting “often” or “always” (Kurth, Krahn, Nairn, & Drewnowski, 1995). Clearly, eating disordered cognitions and behaviors are pressing mental health concerns that are under-identified on college campuses.

*Consequences Associated with Eating Disorder Pathology.* Women ages 15 to 24 years suffering from anorexia nervosa display a mortality rate 12 times higher than any other cause of death for individuals in that age range (Sullivan, 1995) and has the highest mortality rate of any mental illness (Arcelus, Mitchell, Wales, & Nielsen, 2011). In general, women suffering from anorexia nervosa are also more susceptible to developing comorbid psychopathology. For example, suicide, not starvation, is the most common cause of death in this population (Pompili, Mancinelli, Girardi, Ruberto, & Tatarelli, 2004). Further, eating disorders are frequently comorbid with depression (O’Brien & Vincent 2003) and anxiety (Swinbourne & Touyz, 2007).

In addition, eating disorder pathology is related to other debilitating conditions including suicidal ideation and attempts (Franko & Keel, 2006), self-injurious behavior (Syirko & Hawton, 2007), impulsivity (Waxman, 2009), alcohol use disorders (Gadalla & Piran, 2007), negative self-evaluation (Cervera, et al., 2003; Vanderlinden, Kamphuis, Wigboldus, Pieters, & Provst, 2009), obsessive-compulsive disorder (Halimi, 2005), bipolar disorder (Mcelroy, Kotwal, & Keck Jr., 2006), and interpersonal problems (Fairburn, Cooper, & Shafran, 2003; Schmidt & Treasure, 2006) to name a few. Overall, it appears that eating difficulties are associated with a wide range of emotional and behavioral disorders. Considering the prevalence and potency of eating disorder pathology, it is important that researchers identify relevant risk factors that will aid in the development of effective prevention and intervention programs.

*Identifying Salient Risk Factors.* Identifying dispositional risk factors associated with eating disorder pathology has been addressed in numerous empirical investigations (e.g., Cassin, & von Ranson, 2005; Godt, 2008; Podar, Hannus, & Allik, 1999; Sansone, Levitt, & Sansone, 2006). One general trend within the eating disorder literature is a focus on identifying dispositional factors that contribute to the onset and exacerbation of eating disorder pathology. Theorists have argued that dispositional risk factors have significant predictive power compared to more transient factors such as mood or attitudes because of the shared durability and pervasiveness components that underlie eating disorder pathology (Dennis & Sansone, 1997). In fact, one study determined that 61.8% of individuals diagnosed with an eating disorder suffer from comorbid personality pathology (Diaz-Marsa, Carnisc, & Saiz, 2000).

Although dispositional risk factors predict unique amounts of variance in eating disorder risk and pathology, some theorists argue that eating disorder risk and pathology is a complex

concept that cannot be understood through one mechanism. Instead, these theorists clamor for the development of models that robustly identify processes that contribute to the development and maintenance of eating disorder risk and pathology. One model that may help bridge the gap between dispositional risk factors and eating disorder pathology is the Stress Generation Hypothesis (Hammen, 1991). This model suggests individuals with certain vulnerable or dispositional traits actively generate more stressful circumstances in their lives and are more likely to perceive stress in innocuous situations. Because characterological difficulties (i.e., perfectionism) are associated with more emotionally and cognitive depleting mechanisms (Liu & Kleiman, 2012), it is possible that they may engender and magnify more stressful circumstances that are known to precipitate eating disorder risk and pathology. Although stress generation models have been utilized to explain difficulties associated with mood and substance abuse (Liu, 2013), there is little empirical evidence that stress generation pathways predict eating disorder risk and pathology. As a result, it is important for future research to consider the relationships between perfectionism and eating disordered features in the context of stress generation.

#### Purpose

The purpose of the current study was to examine the relationships among adverse life events, perfectionism, and measures of eating disorder risk and pathology. To this end, the current study sought to confirm the direct relationships between maladaptive forms of perfectionism and eating disordered risk and psychopathology. In accordance with the stress generation hypothesis, the current study also evaluated the mediating effects of adverse life events in explaining the relationships between maladaptive forms of perfectionism and eating disorder risk and psychopathology.

### Significance

Beyond filling important gaps in the literature, the current study also aimed to advance theory and several areas of practical application. One primary goal of the current study was to advance the etiological theory of eating disorders, specifically how dispositional features are linked to and foster the eating disorder pathology. Another aim of the current study was to further clinical assessment practices. To this end the current study sought to identify how measures of perfectionism and stress concurrently predict variation in eating disorder pathology. These results provide insight into how practitioners may garner a more holistic and robust clinical picture of an individual suffering from eating disorder cognitions and behaviors.

The final benefit of the current study was the potential to obtain clinically relevant insight into the treatment of eating disorder pathology, specifically as it relates to stress modulation techniques. By uncovering the role of stress in the relationship between dispositional traits and eating disorder pathology, treatment practices may become more tailored and individualized. Results yielded a more comprehensive understanding of the role stress plays in the pathology of eating disordered populations, thus leading to an opportunity for more efficient treatment of that individual. Further, as stress was proven to play a key mediating role in this relationship, findings will help to establish more specific stress modulation techniques for this population in future research.

### Definition of Terms

Below is a list of terms that were used in the examination of the identified research questions. Each variable was operationally defined within the context of the aims of the study.

*Eating Disorder Symptoms.* Eating disordered cognitions and behaviors as described in the current study reflected psychopathology that is congruent with an eating disorder (either anorexia nervosa or bulimia nervosa). However, it is important to note that an individual who

endorses a pattern of responses on a self-report inventory consistent with an eating disorder may or may not actually have a diagnosis of an eating disorder. Therefore, for the purposes of this study, a differentiation was not made between fully diagnosable individuals and individuals that endorsed sub-threshold pathology. Instead, the current study was interested in assessing for robust patterns of eating disorder symptoms based upon the frequency of endorsement of items that reflected eating disorder risk and pathology. In addition, the study was interested in examining total eating disordered risk and psychopathology with little consideration for how different types of pathology differentiate the presence of anorexia nervosa versus bulimia nervosa. In the current study, estimates of eating disorder risk and psychopathology acted as outcome(s) variables.

*Perfectionism.* Perfectionism is traditionally conceptualized throughout psychological literature as a multifaceted dispositional trait. Perfectionism as referenced in the current study referred to a personality component which reflects a heightened value for concern over mistakes and approval from others as well as the propensity to perceive parental pressure and ruminate (Hill et al., 2004). In the current study, estimates of self-evaluative perfectionism acted as the predictor variable.

*Adverse Life Events.* Adverse life events were operationally defined according to Hammen's (1991) stress generation hypothesis, which indicates that individuals who suffer from increased psychopathology perceive adversity as more stressful than individuals without psychopathology. Further, this theory suggests that individuals with psychopathology report experiencing more adverse life events which further exacerbate their psychopathology. In the current study, adverse life events were examined through the frequency by which participants reported experiences associated with stressful life events in college. For the purposes of the



current study, estimates of the frequency by which participants report experiencing adverse life events acted as the mediator variable.

## CHAPTER 2

### PERFECTIONISM AND EATING DISORDERED PSYCHOPATHOLOGY: EXAMINATION THROUGH A STRESS GENERATION PERSPECTIVE

#### Literature Review

Eating disorders, although always considered psychologically complex diagnoses, are often simultaneously anomalous. In the DSM-IV, three diagnoses existed to capture this pathology; anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (American Psychiatric Association, 2000). With the advent of the DSM-V, a new diagnosis (binge eating disorder) emerged. This new diagnosis represents a shift in diagnostic category (from Eating Disorders to Disorders of Feeding and Eating), as well as slight diagnostic criterion changes to anorexia nervosa (elimination of the required amenorrhea) and bulimia nervosa (reduction of the frequency of binge eating and compensatory behaviors from twice per week to once per week; American Psychiatric Association, 2013). Given this shift, it is important that future research examine multiple indices of eating disorder pathology.

Both classic and modern theorists have attempted to explain the pathology of eating disorders, through expansion of preexisting theory as well as pushing the frontier of new research. Although the etiology of eating disorders could quite possibly be extracted from every psychological and sociological orientation, two main theories currently dominate the literature: cognitive-behavioral theory and psychodynamic theory.

Cognitive-behavioral theory is the most widely recognized and well researched theory when considering the current literature on eating disorder psychopathology. Christopher Fairburn, a leading researcher in cognitive-behavioral treatment for individuals suffering from eating disorders, created a sub-theory, cognitive-behavioral therapy enhanced (CBT-E),

particularly addressing the unique facets underlying eating disorder pathology (2008). According to Fairburn (2008), eating disorders at their core are a cognitive disorder. Fairburn elaborates on this theory acknowledging that, while the behavioral symptoms as well as their severity vary across anorexia, bulimia, and eating disorder not otherwise specified, the “core psychopathology” is consistently cognitive in nature across diagnoses. Fairburn and colleagues appreciate the utility of the diagnostic categories, however, theoretically, the criteria between these disorders is considered arbitrary. This is particularly salient when examining individuals with eating disorders longitudinally. Cognitive-behavioral theory perceives the development of an eating disorder as migratory, with most individuals meeting criteria for all three DSM-IV-TR diagnoses over the course of time. Cognitive-behavioral theory questions whether this deliberate and predictable pattern is actually reflective of recovery from one disorder and development of another or is it more indicative of a single eating disorder that changes its course throughout time. People with eating disorders judge their self-worth largely, or even exclusively, in terms of their shape and weight and their ability to control them. These judgments are by nature cognitive processes. The way these cognitions manifest behaviorally varies across individuals. Common behavioral traits associated with eating disorders include: obsessively checking weight, actively avoiding knowing weight, intense dietary restriction, excessive exercise, purging, and food avoidance. Often, these behaviors tend to reinforce the already established cognitions, as individuals feel satisfaction from carrying out these behaviors, thus perpetuating the original dysfunctional cognitive preoccupations (Fairburn, 2008).

Theoretically, CBT-E is identical to CBT in that the majority of focus is on the processes which maintain the pathology and less on those that initially caused the pathology. The maintenance of the disorder is predominantly viewed as fueled by a dysfunctional scheme for

self-evaluation (the other behaviors and cognitions are theorized to stem from this central feature). As stated previously, CBT-E appreciates and utilizes the DSM-IV criteria for diagnostic purposes, however, in regards to treatment, finds the labels arbitrary. Instead, all eating disorder pathology is conceptualized as a cyclical process in which an individual experiences over-evaluation of shape, weight, and their sense of perceived control, which leads to compensatory behaviors (severity and type dependent on diagnosis). These compensatory behaviors tend to result in binge eating (to a greater or lesser degree, based on diagnosis). This continual rehearsal of this process often reinforces the stimulated cognition leading to further distortion in over-evaluation of oneself (Fairburn, 2008). Further, Fairburn theorizes that extraneous factors, such as environmental stressors or mood, may exacerbate this cycle (2008). However, the degree to which stress promotes, maintains, or exacerbates eating disordered cognitions and behaviors is unclear. As a result, it is important that future research consider the role of adverse life events in the prediction of eating disorder features.

Starkly contrasted from the modern CBT-E theory, psychodynamic theory offers an etiologically focused perspective on eating disorders. Unlike CBT-E, psychodynamic theorists are generally more concerned with factors involved in the development of psychopathology and less interested in maintaining factors. Further, due to the long-standing history of psychodynamic theory throughout the existence of modern psychology, there has been an evolution in how psychodynamic theorists explain the onset of eating disorders. Therefore, there is not one universally accepted theory of eating disorder pathology, but rather, a conglomeration of hypotheses, case studies, and research throughout the literature, which paints a complex, multidimensional, and individualized picture of these disorders.

Early psychoanalytic clinicians were less concerned and therefore less attentive to eating problems as a psychological disorder. At that time, the origin of the pathology was still convoluted; eating disorders were yet to be completely teased apart from physical ailments such as hypothyroidism. In a letter to colleague Wilhelm Fliess, Sigmund Freud iterated that he believed anorexia to be “a melancholia where sexuality is underdeveloped,” (Freud, 1895). Later in Freud’s career, he hypothesized that the symptoms of eating disorders were likely a result of an aversion to sexuality closely related to Oedipal issues (Freud 1905; 1908; 1918). This theory was further developed by Freud’s contemporaries, who suggested that anorexia is simply the avoidance of growth and change (Rose, 1943) and the fight against maturation, with the goal of remaining a pre-pubescent, non-menstruating girl (Sandler, 1989). Early psychodynamic theorists also began to identify a significant link which exists between the mother-daughter relationship and the development of anorexia (Waller, Kaufman, & Deutsch, 1940), eventually leading to the discussion on the role of parental attachment.

Mara Selvini Palazzoli (1974) and Hilde Bruch (1966; 1973), two psychodynamically trained clinicians, were the first pioneers to work toward the development of specific theory regarding eating disorder pathology from a psychodynamic perspective. Both theorists identify issues early in infancy and childhood as seminal in the development of eating disorder pathology. Namely, mothers who inappropriately attend to their children’s needs resulted in dependent and enmeshed attachments styles. When the child reaches puberty, this lack of autonomy (described as personality disturbance) is overwhelming, and the child uses control over food and their body for contrary purposes. Specifically, the exertion of control was seen as a way to achieve autonomy from the mother and avoid fear of separation.

Some modern psychodynamic theorists argue that classical perceptions of eating disorder pathology, such as those proposed by Bruch and Palazzoli, may place too much emphasis on parents and too little focus on interpersonal, cultural, contextual, and biological factors. These theorists instead appreciate psychodynamic perspectives on eating disorder pathology which seek to incorporate a more holistic picture of eating disorder development. One recently proposed theory by Tasca and Belfour (2014) heavily emphasizes the role of attachment theory in the development and maintenance of eating disorder pathology. The stages of development of attachment in the child have led to increased understanding of the halting at various developmental levels. They suggest that insecure attachment style is associated with impaired reflective functioning, which in turn leads to poor affective regulation. Depending on the individual's insecure attachment style, different means of affective regulation, such as hyperactivation of emotions in a preoccupied individual, take shape and lead to anxiety. Therefore, the individual turns to eating disorder behaviors as a means of coping with their existing features of anxiety. In this way, eating disordered behavior acts as an immature defense mechanism.

Overall, eating disordered features have been examined thoroughly through cognitive-behavior and psychodynamic perspectives. However, it is important to note that these theories fail to consider a number of concepts that appear important in the onset of eating disorder pathology. Specifically, research has consistently suggested that personality traits (see Cassin & von Ranson, 2005 for a review) and the activation of stress (Berge, Loth, Hanson, Croll-Lampert, & Neumark-Sztainer 2012; Grilo et al., 2012; Welch, Doll, & Fairburn, 1997) are two important risk factors to future eating disorder behavior. Given the scarcity of interactive models that consider dispositional and stress-oriented components, it is important that future researchers

continue to develop new models that strengthen our understanding of how eating disorders features are developed, maintained, and exacerbated, especially among vulnerable populations such as college women.

### Eating Disorders and Perfectionism

Perfectionism is a personality characteristic that drives an individual toward setting excessively high standards (Flett & Hewitt, 2002; Frost, Martin, Lahart, & Rosenblate, 1990). It is often accompanied by critical and harsh self-evaluations when such standards are not reached. Researchers agree that perfectionism is a multidimensional construct, with many positive as well as maladaptive components (see Enns & Cox, 2002 for a review). Individuals who are perfectionistic are often praised in Western culture for their motivation to achieve and their attention to detail. In contrast, perfectionists may be driven to set unachievable goals, resulting in elevated levels of negative emotional outcomes including frustration, disappointment, and despair. Several studies have correlated perfectionistic traits with psychopathology (e.g., Bieling, Israeli, & Smith, 2003; Steele, Corsini, & Wade, 2007), suggesting that perfectionism may be important risk factor to negative outcomes.

Based on the current literature, perfectionism appears important in the activation of eating disorder risk and pathology (e.g., Boone, Soenens, Vansteenkiste, & Braet, 2012; Steele, O'Shea, Murdock, & Wade, 2011). To date, perfectionism has been most strongly associated with eating disorders, especially when compared to other types of psychopathology (Bulik et al., 2003). Eating disorder pathology and perfectionism are connected through multiple theoretical perspectives. For example, psychodynamic theory conceptualizes individuals suffering from eating disorders as having a disrupted or false self-concept, which implies that these individuals consider themselves as unacceptable in some important characterological manner (Lane &

Tolman, 2008). In response to feelings of inadequacy, these individuals compensate by projecting perfect façade/mask/impression to the outside world. Thus, individuals suffering from an eating disorder utilize perfectionism to distance themselves from the features of their psyche deemed undesirable (Patterson, Wang, & Slaney, 2012). Hilde Bruch, a pioneer in eating disorder research and psychodynamic interventions for eating disorders further indicated that young, patients diagnosed with anorexia strived to fulfill “every parent’s and teacher’s idea of perfection,” and demonstrate “pleasing superfection,” (Bruch, 1973, p. 39; 58).

More recently, the link between perfectionism and eating disorder features has been documented in the cognitive-behavioral literature. Fairburn and colleagues (2003) identified perfectionism as a “maintenance mechanism” that may help to account for the persistent nature of eating disorder pathology. Patients with anorexia nervosa who also had higher levels of perfectionism were associated with dropping out of treatment (Sutandar-Pinnock, Blake Woodside, Carter, Olmsted, & Kaplan, 2003) and poorer prognosis at 5-10 years post-inpatient admission (Bizeul, Sadowsky, & Rigaud, 2001). Additionally, in a review of personality and eating disorder pathology, it was concluded that perfectionism may be a predisposing personality trait that increases the risk for the development of an eating disorder (Lilenfeld, Wonderlich, Riso, Crosby, & Mitchell, 2006).

Several theoretical links connect eating disorders, and specifically, self-evaluative perfectionism. According to Hill and colleagues (2004), self-evaluative perfectionism was hypothesized to conceptually overlap with the five-factor model construct of neuroticism, which has since been confirmed in a preliminary study (Cruce, Pashak, Handal, Munz, & Gfeller, 2012). Overall, neuroticism is the most consistently associated personality trait with eating disorder diagnoses (Diaz-Marsa et al., 2000; Ghaderi & Scott, 2000) and sub-clinical eating



disorder pathology (Miller, Schmidt, Vaillancourt, McDougall, & Laliberte, 2006). Clearly, neuroticism could be the common denominator when comparing perfectionism and eating disorders.

In sum, prevailing theory and empirical evidence support the position that perfectionism dimensions are highly associated with eating disorder risk, features, and psychopathology. However, little is known about the nature of these relationships. For instance, is perfectionism directly related to eating disordered features or could it be indirectly related through intervening variables? Given ambiguity over the nature of the relationship, it is important that future research examine how the perfectionism and eating disordered features are connected.

### Mediation Modeling

A relationship between two variables often is complex, suggesting it could be best understood through at least one, if not numerous, intervening variables. An intervening variable, or a mediator variable, accounts for some of the covariance between the two variables that have an established relationship (MacKinnon, 2008). When studying complex psychological concepts, and in particular, when trying to devise effective treatment, the direct relationship is only a small part of the picture to be considered. More salient, however, is gaining an understanding of the process and to answer *why* the relationship exists rather than simply reporting on its existence. This is accomplished by examining indirect effects through mediator variables. Overall, mediation effects translate into more developed theories and important insights regarding treatment selection and implementation.

As aforementioned, the relationship between perfectionism and eating disorder pathology is quite pronounced and appreciated throughout the literature. However, some researchers have begun to explore this relationship deeper, by identifying mediating factors. Anxiety (Egan et al.,

2013), negative affect (Bardone-Cone, 2007), and shape and weight overvaluation (Joyce, Watson, Egan, & Kane, 2012) have all been found to partially mediate this relationship. However, partial mediation indicates that intervening factors only account for a limited amount of covariance and that there are other factors that may account for an equal or larger proportion of variance. One factor that has yet to be considered as a mediator is stress.

#### Stress as a Mediator

Stress processes are hypothesized to be closely associated with psychopathology. Hewitt and Flett (2002) proposed four stress mechanisms, including stress generation, stress anticipation, stress perpetuation, and stress enhancement. For the current study, stress generation will be the central focus of the proposed mediation model. Stress generation is defined as the inclination to strive for unrealistic goals, thereby creating a more stressful environment or situation for oneself. Theoretically, there are some personality orientations that are more likely to engage in this behavior. Hewitt and Flett (2002) suggest that perfectionists activate stress generation processes, which in turn may explain why they are at a greater risk to report psychopathological conditions.

There are some obvious parallels between perfectionistic traits and stress generation. As stated previously, perfectionists create and strive to accomplish unrealistic goals. Hewitt and Flett (2002) point out that by engaging in such behavior, perfectionists actively create more stress in their lives. For instance, continuous perceptions of failure and stringent self-evaluation processes often precipitate greater levels of frustration, work-strain, and rigidity in everyday life. Even when perfectionists reach a goal, research indicates that they tend to be less satisfied with their overall performance (Hewitt & Flett, 2002) or the way in which they reached their goal (e.g., taking too much time, resources, effort in the process; Frost & Henderson, 1991).

Therefore, stress is evoked as a result of the inflexible and stringent expectations which plague individuals who exhibit high perfectionism traits.

Empirical evidence supports the position that perfectionism is positively related to stress. For example, perfectionists are assumed to generate stress for themselves by engaging in stringent self-evaluations and focusing on the negative aspects of ordinary events, which in turn, can be interpreted as threatening stressors (Hewitt & Flett, 1993). One study demonstrated that the maladaptive components of perfectionism (i.e., neuroticism, self-criticism) are positively correlated with overall stress levels (Rice & Van Arsdale, 2010). In another study, Dunkley and colleagues (2000) reported that self-criticism, an important facet of perfectionism, was highly correlated to emotional reactivity to stressors that implied failure, loss of control, and criticism from others. Clearly, there is a well-established relationship between stress and perfectionistic traits.

Incidentally, stress generation processes have also been linked to reported estimates of psychopathology throughout the literature (Connolly, Eberhart, Hammen, & Brennan, 2010; Mazure, 1998); however, far fewer studies have examined the role of stress generation in eating disorder pathology. Thus, there is evidence to support a specific relationship between stress generation and the development and relapse of eating disorders (Bodell et al., 2012; Grilo et al., 2012). Specifically, Grilo and colleagues (2012) found that higher work stress and social/friendship related stress to triggering relapse for women in remission from bulimia nervosa and eating disorders not otherwise specified.

In addition, there are numerous empirical investigations that suggest the experience of stress is positively related to eating disordered symptoms and risk factors. In one study by Bodell and colleagues (2012), eating disorder symptoms predicted negative life events; however, they

did not predict life stressors above and beyond depression. In another, more narrow investigation, academic examination stress was determined to be significantly related to eating disorder symptomatology amongst a sample of college women (Costarelli & Patsai, 2012). Further, the stress of parental divorce has also been correlated to increase eating disorder pathology (Boumann & Yates, 1994; Shisslak et al., 1998). Individuals with bulimia nervosa as well as binge eating disorder have been found to report a greater number of stressful major life events prior to the onset of their eating disorder (Pike et al., 2006) while daily stress has been linked to binge eating behavior in clinical and sub-clinical samples of women (Smyth et al., 2007). Even racial and gender stressors specific to women and minority groups have been hypothesized to play a role in the etiology of eating disorder psychopathology (Talleyrand, 2006). Overall, research supports the idea that eating disorder features and psychopathology are highly associated with stress and stress generation processes.

According to theory, a viable mediator variable must be associated with both the predictor and outcomes variables (Baron & Kenny, 1986). In the previous section, the proposed mediator variables (stressful events) demonstrated positive relationships with the predictor variable (perfectionism) and the outcome variables (eating disordered features). Given this pattern of findings, it is expected that estimates of stressful events will mediate the relationships between self-evaluative perfectionism and multiple indices of eating disorder risk and pathology.

#### Current Study

*Rural Differences in Eating Disorder Features.* Very little research exists in the literature on the prevalence rates of eating disorders in rural versus non-rural residents. The studies which have considered this factor have been focused on populations outside of the United States, and have presented mixed results. For example, in both Japan (Kuboki, Nomura, Ide, Suematsu, &

Araki, 1996) and Malaysia (Buhric, 1981), urban dwellers were found to be more likely to have eating disorders as compared to their rural counterparts. However, other studies of westernized countries, such as Italy (Rathner & Messner, 1993), the Netherlands (Hoek, Bartelds, Bosveld, & van der Graaf, 1995; van Son, van Hoek, Bartelds, van Furth, & Hoek, 2006), and Turkey (Kugu, Akyuz, Dogan, Ersan, & Izgic, 2006) revealed no significant difference in eating disorder pathology when comparing rural and urban individuals. Thus far, there does not seem to be a study specifically investigating eating disorders amongst rural versus non-rural Americans, and therefore, the current study aims to investigate these constructs. The current study investigated potential differences as an exploratory component because no specific hypotheses can be generated from the current literature.

*Ethnic Differences in Eating Disorder Features.* Unlike rural and non-rural differences amongst individuals with eating disorders, ethnic and racial differences have been thoroughly examined throughout the literature. Originally, the majority of research was focused on European American women (Garner, 1993) from high socioeconomic backgrounds (Brumberg, 1988), who were from families that had high achievement expectations (Stern et al., 1989). Peterson and colleagues (2000) determined that, among European American college women, high levels of ethnic identity were predictive of high drive for thinness and increased body dissatisfaction. Conversely, the findings were the exact opposite amongst African American college women in the same study. A study by Kronenfield and colleagues (2010) explains that African American and Latina women have different cultural standards of beauty, and therefore, researching constructs such as drive for thinness may be inappropriate when examining eating disorder pathology amongst minority women. For example, African American and Latina women experience binge eating rates at approximately the same rates as European American women

(Alegria et al., 2007; Striegel-Moore, Wilfley, Pike, Dohm, & Fairburn, 2000), while Asian American women tend to experience similar or higher rates of body dissatisfaction as compared to European American women (Kronenfield et al., 2010). In summation, eating disorder pathology has innumerable components that are tightly connected with societal perceptions of beauty. Because there are clear ethnic and cultural differences in ideal body size and the convoluting factor of worldwide westernization, ethnic differences in eating disorder pathology is a complex issue, in need of further investigation.

*Hypotheses.* One exploratory feature of this study involved examining rural and ethnic differences in how college women reported a wide range of eating disorder features. In addition, the current study had a number of hypotheses specifying how we analyzed our findings. Based on the current body of research, it was expected that estimates of self-evaluative perfectionism were positively related to multiple indices of eating disorder features. In addition, it was expected that the frequency of reported adverse life events were positively related to both self-evaluative perfectionism and eating disorder features. Finally, it was expected that adverse life events would mediate the relationship between self-evaluative perfectionism and eating disorder features.

## CHAPTER 3

### METHODOLOGY

#### Participants

We collected data from a sample of college women attending a large university in a rural community in the southeast region of the United States. Thirty-four student survey responses were removed from the final sample tally because their data violated catch item question and overall response rate standards. The final sample of 305 students consisted of 148 freshmen, 81 sophomores, 50 juniors, and 26 seniors. The ages of the sample ranged from 18 to 26 with an average age of 19.53 and standard deviation of 1.51 years. Additionally, 177 participants identified themselves as being from a rural area (58%), 127 identified as being from a non-rural area (41.6%), and one participant did not provide a response for the rurality item. The majority of the sample self-identified as either African American ( $n = 95$ , 31.1%) or European American ( $n = 176$ , 57.7%). Participants received research credit for participating.

#### Measures

The study entailed the completion of an online survey, which included the following measures: demographic form, Perfectionism Inventory, Inventory of College Students Recent Life Events Scale, Eating Attitudes Test-26, Eating Disorder Examination Questionnaire 6.0, and Body Shape Questionnaire Revised 10.

*Demographics Form.* Participants completed a demographic form designed to assess for participants' age, gender, race, marital status, sexual orientation, and academic classification. Demographic information based on geographic location of the participant was also assessed. Rurality was measured using three demographic questions: (1) "Of these terms, [metropolitan, urban, suburban, rural] which best describes the area that you currently live?" (2) "Of these

terms, [metropolitan, urban, suburban, rural] which best describes the area in which you grew up?” and (3) “What is the five digit zip code (e.g., 30458) of the city/town you were raised?”

*Perfectionism Inventory* (PI; Hill, et al., 2004). The PI is an empirically derived self-report assessment of perfectionism. Respondents are asked to rate their perceptions of themselves on 59 items using a 5-point Likert scale (with 1 representing strongly disagree and 5 representing strongly agree). The inventory is comprised of eight subscales which include concern over mistakes, high standard for others, need for approval, organization, perceived parental pressure, planfulness, rumination, and striving for excellence. Two component scales have also emerged through the factor analytic work. These component scales include conscientious perfectionism and self-evaluative perfectionism. Considering the purpose and goals of the current study, only the self-evaluative perfectionism component scale was examined. The self-evaluative component score contains 32 items. Total scores for the self-evaluative component range from 32 to 160 with higher scores indicating greater levels of self-criticism associated with perfectionistic traits. The self-evaluative perfectionism score has demonstrated solid internal consistency ( $\alpha = .79$ ) with college student populations (Hill et al., 2004). In addition, the self-evaluative perfectionism score has demonstrated excellent convergent validity with other validated measures of perfectionism including the Frost Multidimensional Perfectionism Scale and Hewitt Multidimensional Perfectionism Scale (Hill et al., 2004).

*Inventory of College Students' Recent Life Experiences* (ICSRLE; Kohn, Lafreniere & Gurevich, 1990). The ICSRLE is a 49 item self-report scale that is designed to assess the frequency of adverse life events associated with life. Each item on the ICSRLE is measured on a 4-point Likert scale (from 1= *Not at all part of my life* to 4=*Very much a part of my life*) with total scores ranging from 49-196. Higher scores indicate greater experiences with adverse life



events. The ICSRLE has been found to have good internal consistency ( $\alpha = .88$ ; Kohn et al., 1990) with college student samples. The ICSRLE has also demonstrated excellent construct validity as evidenced by high correlations with other measures of stressful life events (Kohn et al., 1990).

*Eating Attitudes Test-26* (EAT-26; Garner & Garfinkel, 1979). The EAT-26 is a 26 item self-report measure of problematic cognitions and behaviors associated with eating. Participants respond to each item on a 6-point Likert scale ranging from 1 (never) to 6 (always). Total scores can range from 26 to 156. Higher scores indicate more debilitating cognitions and behaviors associated with eating. The EAT-26 is the most widely used assessment of eating disorder pathology (Nasser, 1997). Although originally developed to measure thoughts and behaviors related to anorexia nervosa, the EAT-26 has now been accepted throughout the literature as a general screening measure for all recognized eating disorders. The EAT-26 has been normed and standardized on a population of college women. It has high internal consistency ( $\alpha = .90$ ) and excellent construct validity with measures of self-perception and chronic mood difficulties (Morris, Parra, & Stender, 2011).

*Eating Disorder Examination Questionnaire 6.0* (EDE-Q 6.0; Fairburn & Beglin, 2008). The EDE-Q 6.0 is a 28-item, self-report version of the Eating Disorder Examination (EDE), a well-established guided interview for the clinical assessment and diagnosis of eating disorders (Fairburn & Beglin, 1994). Some questions are measured on a 7-point Likert scale, ranging from 0 (minimal eating disorder pathology) to 6 (severe eating disorder pathology), while others are fill-in-the-blank. Higher scores are generally representative of a greater vulnerability to eating disorder pathology. Two of the fill-in-the-blank items ask for the respondent's height and weight. Although the EDE-Q 6.0 has multiple underlying dimensions, only the total score was examined

within this study. The EDE-Q 6.0 is described as a psychometrically sound self-report measure, and has been normed on an undergraduate, female population (Luce & Crowther, 1999). Reported internal consistency coefficients are adequate to excellent (ranging from  $\alpha = .67-.90$ ; Fairburn & Beglin, 1994). In addition, the EDE-Q 6.0 has demonstrated excellent validity, reflected by its ability to discriminate well between individuals with diagnosable eating disorders and individuals with eating related concerns (Terence Wilson & Smith, 1989).

*Body Shape Questionnaire – Revised – 10* (BSQ-R-10; Mazzeo, 1999). The BSQ-R-10 is a 10-item instrument designed to assess for body image disturbance. It was developed from the original BSQ (Cooper, Taylor, Cooper, & Fairburn, 1987) in order to create a unidimensional assessment of body image preoccupation with high psychometric properties. The BSQ-R-10 consists of 10 items that are measured on a 6-point Likert scale ranging from 1 (never) to 6 (always). The total score is the sum of all the responses and ranges from 10 to 60, with higher scores reflecting greater levels of body image preoccupation and distortion. The BSQ-R-10 is a psychometrically sound instrument with high levels of internal consistency ( $\alpha = .96$ ) and has reported excellent construct validity with measures of weight dissatisfaction (Mazzeo, 1999).

### Procedures

Participants were recruited through the SONA system. SONA is an interactive website that provides a list of available studies being conducted in the Department of Psychology. Students visited the SONA website, viewed the available studies, and subsequently determined which research opportunities interest them. Students who signed up for the study had access to a link that took them to the survey. The survey was located at SurveyMonkey.com, which is an approved, online data collection site. The link took participants directly to the informed consent portion of the study. Individuals who sought to participate after reading through a description of

the study were asked to electronically sign the informed consent page. Participants were notified that they could discontinue taking the survey at any time without penalty and skip any questions that made them feel uncomfortable. After giving their consent to participate in this study as a volunteer, participants were directed to the survey. After completing the survey, participants were directed toward a debriefing page that further explained the goals of the research and provided information regarding accessible mental health services and hotlines. The final page of the survey provided directions on how to contact the primary researcher in order to obtain credit for participation. Having the participants contact the primary researcher after completing the survey through email is considered a secure means of ensuring anonymity and an efficient way for the researcher to distribute credit.

*Data storage.* SurveyMonkey stored all entered data in an SPSS file. The primary researcher retrieved the data from SurveyMonkey once the survey was closed. Data were then saved onto a secure hard drive. Once all data were saved, the primary researcher deleted all data responses from SurveyMonkey. Data within the SPSS file were password protected, encrypted, and will be stored on a secure hard drive for seven years.

### Statistical Analysis

In order to determine whether ethnic and rural differences exist in reported estimates of eating disorder pathology, a 2 (European American vs. African American) x 2 (Non-rural vs. Rural) Factorial MANOVA was analyzed. Bivariate correlations were conducted to determine if significant relationships existed among reports of perfectionism, adverse life events, and eating disordered pathology. Finally, path analysis using Preacher and Hayes (2004) macro were analyzed to determine if measures of stress mediated the relationships between dimensions of perfectionism and eating disorder pathology. In the models, the dimensions of self-evaluative

perfectionism served as the predictor variable, adverse life events served as mediating variable, and the three indices of eating disorder pathology served as the outcome variables. In total, three path analytic models were analyzed.

Preacher and Hayes's (2004) bootstrap method of modeling was used to construct the mediation models. Preacher and Hayes posit that when looking at the effects of mediators, more accurate statistical results may be achieved using their bootstrap approach of analyzing data when compared to more traditional approaches, such as Baron and Kenny's (1986) linear regression approach. Traditional models of mediation often fail to consider the impact of non-normality and skewness on the interpretation of findings. To this end, use of traditional methods of mediation often present greater risk of making a Type I or Type II error depending upon the sample size of the model. Instead, mediation methods that employ bootstrapping are more robust to violations of non-normality. By bootstrapping data, difficulties with small sample sizes and power may be avoided and, as a result, a more powerful analysis of the data will be possible (Preacher & Hayes, 2004). In the models that were reviewed, 10,000 bootstrap samples were analyzed. Determination of significant effects was estimated by 99% bias corrected confidence intervals. Essentially, mediated effects are thought to exist if zero does not exist between the lower and upper bound range of the confidence intervals.

## CHAPTER 4

### RESULTS

#### Preliminary Analyses

Demographic and body mass index (BMI) information was analyzed. Height and weight data from the EDE-Q 6.0 were used to calculate BMI. Participants appeared to fall into different categories of weight: normal BMI ( $n = 226$ , 74.1%), obese BMI ( $n = 62$ , 20.3%), and underweight BMI ( $n = 12$ , 3.9%). Of the individuals with obese BMI weight status, a disproportionate number self-identified as African American ( $n = 29$ , 46.8%). Additionally, 53.2% ( $n = 33$ ) of the individuals with obese BMI weight status indicated that they were reared in a rural area, while the other 48.6% ( $n = 29$ ) indicated they were reared in a non-rural area.

Estimates of internal consistency from the five self-report measures were also analyzed. The PI ( $\alpha = .94$ ), ICSRLE ( $\alpha = .94$ ), EAT-26 ( $\alpha = .87$ ), EDE-Q 6.0 ( $\alpha = .96$ ), and BSQ-10-R ( $\alpha = .98$ ) demonstrated good internal consistency.

#### Factor Analyses

An exploratory principal component analysis was analyzed with the three eating disorder variables (eating disorder risk, body image perception, and eating disorder symptoms) to obtain component scores reflecting unique, non-overlapping features of eating disorder pathology. Using Kaiser's (1960) recommendation for factor selection, only components scores with a minimum eigenvalue of 1.0 were retained. With these criteria, the analysis resulted in one factor that accounted for 86.7% of the total variance among individual measures as depicted in Figure 1. The identified factor consisted of primary loadings on all three eating disorder measures and was termed *eating disorder symptoms*.

### Race and Rurality Differences

As part of the exploratory focus of the study, rural vs. non-rural differences were evaluated on the main variables. Rural and non-rural status was derived from participant reports of the community to which they were reared. A two (race) by two (rurality) MANOVA on self-evaluative perfectionism, stressful life events, and eating disorder symptoms yielded a significant main effect for race, ( $\lambda = .91$   $F(3, 264) = 8.73, p < .01, \eta^2 = .09$ ) although the main effect for rurality was non-significant ( $\lambda = .97$   $F(3, 264) = 2.11, p > .05, \eta^2 = .02$ ). Additionally, the race by rurality interaction was non-significant ( $\lambda = .99$   $F(3, 264) = .85, p > .05, \eta^2 = .01$ ).

Independent ANOVAs revealed significant racial differences in reports of self-evaluative perfectionism and eating disorder symptoms. Specifically, significant main effects were revealed for self-evaluative perfectionism,  $F(1, 266) = 4.59, p < .05, \eta^2 = .02$  and eating disorder symptoms,  $F(1, 266) = 16.54, p < .01, \eta^2 = .06$ . As anticipated, European American students reported more self-evaluative perfectionism ( $M = 103.34, SD = 23.66$ ) and eating disorder symptoms ( $M = 181.59, SD = 83.04$ ) than did African American students, respectively ( $M = 97.78, SD = 17.43$ ) and ( $M = 141.24, SD = 73.98$ ).

With regard to rurality, there was a significant main effect for stressful life events,  $F(1, 266) = 4.720, p < .05, \eta^2 = .017$ . This finding suggests that women from rural areas endorsed experiencing more stressful life events as compared to their non-rural counterparts. Significant interaction effects among the three dependent variables were not detected. See Table 1 for means and standard deviations. While not tabled, similar patterns of scores were found when evaluating differences in participant reports of current rural status and zip-code.

### Bivariate Correlations

Bivariate correlations were conducted to determine the relationships among self-evaluative perfectionism, stressful life events, and eating disorder symptoms in college women. As expected, eating disorder symptoms were positively correlated with self-evaluative perfectionism ( $r = .38$ ) and stressful life events ( $r = .36$ ). These results suggest that students who endorse high levels of eating disorder symptoms are likely to report greater self-evaluative perfectionism traits as well as more stressful life events. Additionally, stressful life events and self-evaluative perfectionism were also positively correlated ( $r = .39$ ) which indicates that individuals who endorse more perfectionism traits are more likely to also experience more stressful life events. A correlation matrix outlining all of the inter-relationships among the study's variables is located in Table 2.

### Mediation Model

Using Preacher and Hayes' (2004) mediation approach, a direct, positive relationship (labeled  $c$ ) between self-evaluative perfectionism and eating disorder symptoms was revealed,  $b = 1.45$  ( $SE = .21$ ),  $t = 6.83$ ,  $p < .01$ . This result indicates that, as expected, increased self-evaluative perfectionism is associated with greater reports of eating disorder symptoms. Next, we examined the indirect (mediated) effects of stressful life events on the self-evaluative perfectionism-eating disorder symptoms relationship. Again, we used the multiple mediation software created by Preacher and Hayes (2004) to determine indirect pathways between self-evaluative perfectionism and eating disorder symptoms. Figure 1 displays the mediation model examined.

When considering the mediator, the unstandardized relationship between self-evaluative perfectionism and eating disorder symptoms decreased from 1.45 to 1.08 (i.e., the latter being

labeled  $c'$ ); the effect remained significant,  $t = 1.08$ ,  $p < .01$ . To determine if stressful life events mediated the direct path between self-evaluative perfectionism and eating disorder symptoms, Preacher and Hayes' macro generated the estimate of the indirect effect, the lower and upper bounds for the 99% bias corrected confidence intervals, and the 99% bias corrected and accelerated confidence intervals. Importantly, if the 99% CIs for the bootstrapped estimate do not contain zero, then the mediator is significant at  $p \leq .01$ . The mediational effects for stressful life events ( $b = 0.369$ ;  $SE = .109$ ; 99% BCA confidence interval: 0.13 – 0.69) revealed that the path was statistically significant. In total, stressful life events appear to be a partial mediator in the relationship between self-evaluative perfectionism and eating disorder symptoms. In addition, these results provide preliminary empirical evidence for the theory that stressful life events are important in explaining how self-evaluative perfectionism is related to the experience and expression of eating disorder symptoms.



## CHAPTER 5

### DISCUSSION

#### Review of Purpose

The purpose of the current study was to better understand the relationship between perfectionism and eating disorder symptoms through a stress-generation context. In order to do so, we attempted to answer the following questions: (a) does a positive relationship exist between self-evaluative perfectionism and eating disorder symptoms? and (b) do adverse life events at least partially mediate the relationship between self-evaluative perfectionism and eating disorder symptoms?

#### Rural Differences in Eating Disorder Symptoms

Examining rural differences among adverse life events, perfectionism, and eating disorder symptoms was an exploratory component of the current study. Analysis of mean differences in reports of adverse life events revealed significant results, suggesting that women from rural backgrounds report more stressful life events when compared to their non-rural peers. Mean difference analyses for self-evaluative perfectionism and eating disorder symptoms, however, yielded non-significant results, indicating women from rural backgrounds report similar levels of perfectionism and eating disorder symptoms to women from non-rural backgrounds.

Of particular interest was the lack of rurality differences associated with reports of eating disorder symptoms. Oddly, concerns with body image, a construct related to eating disorder symptoms, is shown to be higher amongst urban women (Bagley, Character, & Shelton, 2003). Alternatively, our findings are inconsistent with the notion that individuals in rural areas are more prone to psychopathology than those in non-rural areas (Cohn, & Hastings, 2013;

Hauenstein, 2008; Reed, Messler, Coombs, & Ouevillon, 2013; Robinson et al., 2012). Overall, our results appear inconsistent with different lines of thinking regarding differences in reports of eating disorder symptoms.

There are several possible explanations as to why the results of the current study fail to support the predominant literature in the area of rurality and its relationship to psychopathology. One explanation is that participants were classified as rural or non-rural based on self-report, without being provided a concrete definition of “non-rural” and “rural.” It is likely that participants perceive what constitutes rural or non-rural differently and subsequently, responded based on their experiences rather than factors traditionally used to define these terms, such as population density or access to services. Therefore, future research focused on these factors should either organically collect participants from places that are deemed exclusively rural and non-rural, or at least provide a concrete definition of the demographic terms so that the participants are all comparing the location in which they were raised using the same standards.

In addition, education likely plays a role in the results of the current study, as all participants were college students. Bagley and colleagues (2003) posit that education level and eating disorders are highly related. Their study found that women in the majority culture with higher education are at higher risk for eating disorders. The current study, however, did not have a diversity of education levels, as all participants were matriculating through college. As a result, a lack of consideration for difference in education level may have altered the direction and strength of our findings. In the future, researchers should consider women from different educational contexts to better determine if eating disorder symptoms vary by geographic location.

### Ethnic Differences

Given previous research regarding mixed results of ethnic differences on reports of eating disorder pathology (e.g., Loeb, Wilson, Gilbert, & Labouvie, 2000; Lovejoy 2001), we considered ethnicity (African American vs. European American) in determining if and how reports of eating disorders symptoms fluctuate across different groups. Significant differences in reported eating disorder symptoms and self-evaluative perfectionism were identified. The results indicate European American women report significantly greater self-evaluative perfectionist attitudes as well as more eating disorder symptoms when compared to their African American peers. These results are consistent with historical perspectives that eating disorders primarily impact White women (Crago, Shisslak, & Estes, 1996; Silber, 1986). However, these findings stand in contrast to more recent theory depicting more complex and multifaceted fluctuations in eating disorder pathology across ethnic and racial groups. Specifically, recent empirical evidence highlights little or no differences in eating disorder prevalence across ethnic groups (Forbes & Frederick, 2008; Franko, Becker, Thomas, & Herzog, 2007; Shaw, Ramirez, Trost, Randall, & Stice, 2004; Striegel-Moore et al., 2000; White & Grilo, 2005). Overall, based on the findings in the current study, we contend that eating disorder symptoms appear to fluctuate in and among different racial and ethnic groups of women.

The interaction between the geographic make up and acculturation practices may explain our findings. The literature indicates that Black women are less affected by sociocultural influences to be thin compared to their White peers (Debate, Topping, & Sargent, 2001; Rhea, 1999; Roberts, Cash, Feingold, & Johnson, 2006) and subsequently perceive a larger body size to be more appropriate (Croll, Neumark-Sztainer, Story, & Ireland, 2002; Rhea, 1999; Striegel-Moore & Smolak, 2000; Yates, Edman, & Aruguete, 2004). A simple explanation for this is not

that there is something about race that is protective against eating disorder pathology, but that acculturation with the majority culture leads to greater body dissatisfaction. Research supports this, as African American women who either more closely identified with or simply had increased exposure to White culture experienced higher levels of disordered eating (Cachelin, Veisel, Barzegarnazari, & Streigel-Moore, 2000; Cattarin, Thompson, Thomas, & Williams, 2000; Cusumano & Thompson, 1997; Henrickson, Crowther, & Harrington, 2010; Stice, 1994) while African American women who more highly identified with their ethnicity exhibited fewer eating disorder behaviors (Shuttlesworth & Zotter, 2011). Considering African American students in our study are likely from diverse areas, as they were drawn from a state with a high population of African American residents, they may have less exposure to acculturated ideals associated with thinness. Subsequently, this may explain why they were less likely to report high levels of eating disorder symptoms.

#### Direct Relationships (Perfectionism and ED)

The results of the current study indicate that self-evaluative perfectionism is positively and directly associated with reports of eating disorder symptoms. This indicates that women who experience more self-evaluative perfectionism also report increased eating disorder symptoms. These results are consistent with previous literature demonstrating a strong relationship between indices of perfectionism and eating disorder pathology (e.g., Boone et al., 2012; Bulik et al., 2003; Steele et al., 2011).

Due to restrictions on the research design, the current study cannot speak to a causal pathway between self-evaluative perfectionism and eating disorder symptoms. In order to better clarify the role of self-evaluative perfectionism in the development and exacerbation of an eating disorder, future studies should utilize longitudinal and experimental research designs. More

specifically, future researchers should ascertain whether self-evaluative perfectionism is a risk factor or a vulnerability factor to eating disorder symptoms. The distinction between the two is important when considering effective treatment plans for individuals suffering from eating disorder pathology. Ingram and colleagues (2011) define vulnerability as the susceptibility to emotional pain while risk factors are the extent to which individuals have an increased likelihood of developing a psychological disorder. As such, risk factors speak to the probability, or predisposition, associated with developing a disorder while vulnerability is directly related to the mechanisms that cause the disorder (Ingram et al., 2011). Therefore, by establishing whether self-evaluative perfectionism is a vulnerability factor or a risk factor could significantly impact the theory, prevention, and intervention as it relates to eating disorder pathology, creating a broader and more holistic conceptualization of a complicated psychological disorder.

Future researchers should ascertain whether self-evaluative perfectionism is a static or a dynamic trait, as determining such would shape the theoretical conceptualization and treatment planning of eating disorder pathology. Currently, the literature on perfectionism is mixed; typically, perfectionism is reported as a relatively stable personality characteristic (Cox & Enns, 2003; Hewitt & Flett, 1991; Rice & Aldea, 2006). However, it has alternatively been found that perfectionism can change over time and is influenced by environment and experience (Blatt, 1995). Boone and colleagues (2012) found that both perfectionism and drive for thinness (i.e., preoccupations regarding weight) fluctuate significantly, and are highly correlated, within persons from day to day. As such, future research should examine whether stable, trait perfectionism or these daily fluctuations more greatly impacts eating disorder pathology. If, as Boone and colleagues (2012) suggest, these daily fluctuations are significantly more maladaptive, future research needs to determine what constitutes these daily changes and how

they shift throughout the lifespan, particularly during adolescence and young adulthood when eating disorders typically develop. Again, such findings could significantly impact theory, prevention, and intervention as these relate to eating disorders.

#### Indirect Relationships (Stress Generation Models)

Through the use of multiple mediation model analysis (Preacher & Hayes, 2004), the current study examined stressful life events as a part of the multiple mediation process. Results indicated that stressful life events partially mediates the relationship between self-evaluative perfectionism and eating disorder symptoms. These results are consistent with literature suggesting that higher perceived stress has been correlated with eating disorder attitudes and behaviors (Ball & Lee, 2002; Crowther, Sanftner, Bonifazi, & Shepherd, 2001; Freeman & Gil, 2004; Smyth et al., 2007) as well as with perfectionism (e.g., Dunkley, Mandel, & Ma, 2014). Such analysis provides very specific information regarding the covariance shared between self-evaluative perfectionism and eating disorder symptoms, specifically, how perceived stress can further explain how stressful life events are related to eating disorder symptoms. Overall, these findings present preliminary evidence for the importance of considering indirect pathways by which self-evaluative perfectionism is related to eating disorder symptoms.

Despite these significant indirect effects, the nature of this research design was correlational and cross-sectional. Therefore, our ability to make causal interpretations is limited with regard to how stressful life events contribute to the onset and exacerbation of eating disorder symptoms. Experimental and longitudinal research further examining this relationship is thereby necessary. Further, complex structural equation modeling from a longitudinal perspective is needed to determine if self-evaluative perfectionism activates or worsens the

perception of stressful life events, subsequently influencing the development of eating disorder symptoms.

It is also important to note that stressful life events only partially mediated the relationship between self-evaluative perfectionism and eating disorder symptoms. This suggests there may be other factors that equally or potentially better explain the relationship between self-evaluative perfectionism and eating disorders. One factor that may be important in explaining the relationship between self-evaluative perfectionism and eating disorder symptoms is coping style. Maladaptive coping styles have been linked to body dissatisfaction and disordered eating behaviors (Cash, Santos, & Williams, 2005; Sulkowski, Dempsey, & Dempsey, 2011) as well as poorer ability to adapt to stressful circumstances, while adaptive coping styles help to engage in behavior to overcome a negative situation (Mahmound, Staten, Hall, & Lennie, 2012).

#### Practical Implications

The results indicate that when an individual has increased self-evaluative perfectionism traits, it is important to help them conceptualize adverse life events in a moderate and rational way in order to prevent symptoms of an eating disorder from emerging or being exacerbated. Everyone experiences circumstances in their lives that generate stress; however, the perception of such circumstances is unique for each person, depending on psychological and environmental factors. For an individual with elevated self-evaluative perfectionism, a negative life event may cause stress far exceeding the circumstances and may interfere with daily functioning. It would be futile to advise such an individual to avoid or eliminate all stressful life events; instead, helping them to understand and respond to their adverse life events in a rational and appropriate way may be the most realistic intervention. Cognitive-behavioral therapy (CBT) offers interventions that help to identify and modify dysfunctional thought patterns (Beck, 1995). This

would be a useful intervention for self-evaluative perfectionistic individuals who perceive stressful life events in an overly negative way as they would learn techniques to think more rationally about themselves as well as their circumstances. For example, CBT labels specific types of cognitive distortions such as all-or-nothing thinking (e.g., viewing a situation in only two categories instead of on a continuum), catastrophizing (e.g., predicting the future negatively without considering other, more likely outcomes), magnification (e.g., unreasonably magnify the negative in a situation), and tunnel vision (e.g., only seeing the negative aspects of a situation), which may be patterns of thought in a perfectionistic individual who becomes overly distressed due to adverse life events. For example, an individual who receives a failing test grade may have a catastrophic thought such as, “Now I am going to fail the rest of college and never get a job,” rather than using coping strategies such as evaluating his or her grade and study habits in a logical manner. Through cognitive restructuring, exposure activities, and stress management techniques, therapists can work with individuals to approach stressful situations in a balanced and thoughtful way. In sum, CBT can be used to equip individuals with coping strategies that would decrease the stress generated from adverse life events, thereby reducing the expression of eating disorder symptomatology.

#### Limitations

There are several limitations of this study pertaining to the sample, measures, and research design. For one, the findings of this study can only be generalized to African American and European American women of normal or obese BMI who are undergraduate students. Future researchers should aim to re-examine the study’s questions to determine if the noted findings are generalizable to other ethnic groups, ages, education levels, and underweight women. Future researchers may also want to examine the impact current and childhood socioeconomic status



has on the study's questions. Additionally, the measures used in the current research were self-report instruments, which are largely subjective and may be influenced by response bias and social desirability. Future researchers might opt to use behavioral, observational, or even archival data to analyze this study's questions. Further, considering the correlational nature of the analysis used in the current study, a number of limits can be inferred. Correlation does not imply causation; therefore, future research should aim to use experimental and/or longitudinal designs to determine if stressful life events contribute to the onset or exacerbation of eating disorder symptoms. Also, this study was carried out by way of a cross-sectional design, which prohibits any inferences regarding the temporal structure of relationships among self-evaluative perfectionism, stressful life events, and eating disorder symptoms. Cole and Maxwell (2003) suggest using mediation models that examine these relationships through autoregressive equations that would measure these factors in a three wave longitudinal study. This method allows more thorough inferences to be drawn regarding the temporal nature of the variables examine within the current study.

### General Conclusions

The results of the current study uncovered interesting information about the unique pathway between self-evaluative perfectionism and eating disorder symptoms. The finding that stressful life events partially mediated this relationship is important because it highlights a potential vulnerability that may underlie the development, maintenance, and exacerbation of eating disorder pathology. Subsequently, this finding may facilitate the development of better assessment measures and help clinicians create more tailored treatment approaches addressing stressful life events in therapy.

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Table 1

*Means, Standard Deviations, and Minimum and Maximum Scores for Self-Evaluative Perfectionism, Stressful Life Events, and Eating Disorder Pathology in Rural and Non Rural European American and African American College Students*

Grouping Variable		Perfectionism	Stressful Events	Eating Disorder
Race				
	AA (n = 95)	97.78 (17.42)	102.12 (22.69)	141.24 (73.98)
	EA (n = 175)	103.34 (23.66)	98.06 (24.30)	181.59 (83.04)
F Statistic		4.586	.719	16.538
p-value		.033	.397	.000
$\eta^2$		.017	.003	.059
Rurality				
	Rural (n = 154)	100.70 (22.21)	101.97 (24.58)	163.24 (80.47)
	NonRural (n = 116)	102.28 (21.31)	96.20 (22.35)	172.91 (84.31)
F Statistic		.000	4.720	.009
p-value		.999	.031	.926
$\eta^2$		.000	.017	.000

Table 2  
*Inter-correlations among Self-Evaluative Perfectionism, Stressful Life Events, and Eating Disorder Symptoms for College Women Attending a Southeastern University*

Variables	SEP	SLE	EDS
SEP	---	---	---
SLE	.39**	---	---
EDS	.38**	.36**	---

Note: \*\* Correlation is significant at the .01 level

SEP – Self-Evaluative Perfectionism (PI), SLE – Stressful Life Events (ICSRLE), EDS – Eating Disorder Symptoms (EAT-26, EDE-Q 6.0, BSQ-R-10)

Figure 1. Factor Component Structure for Eating Disorder Constructs.

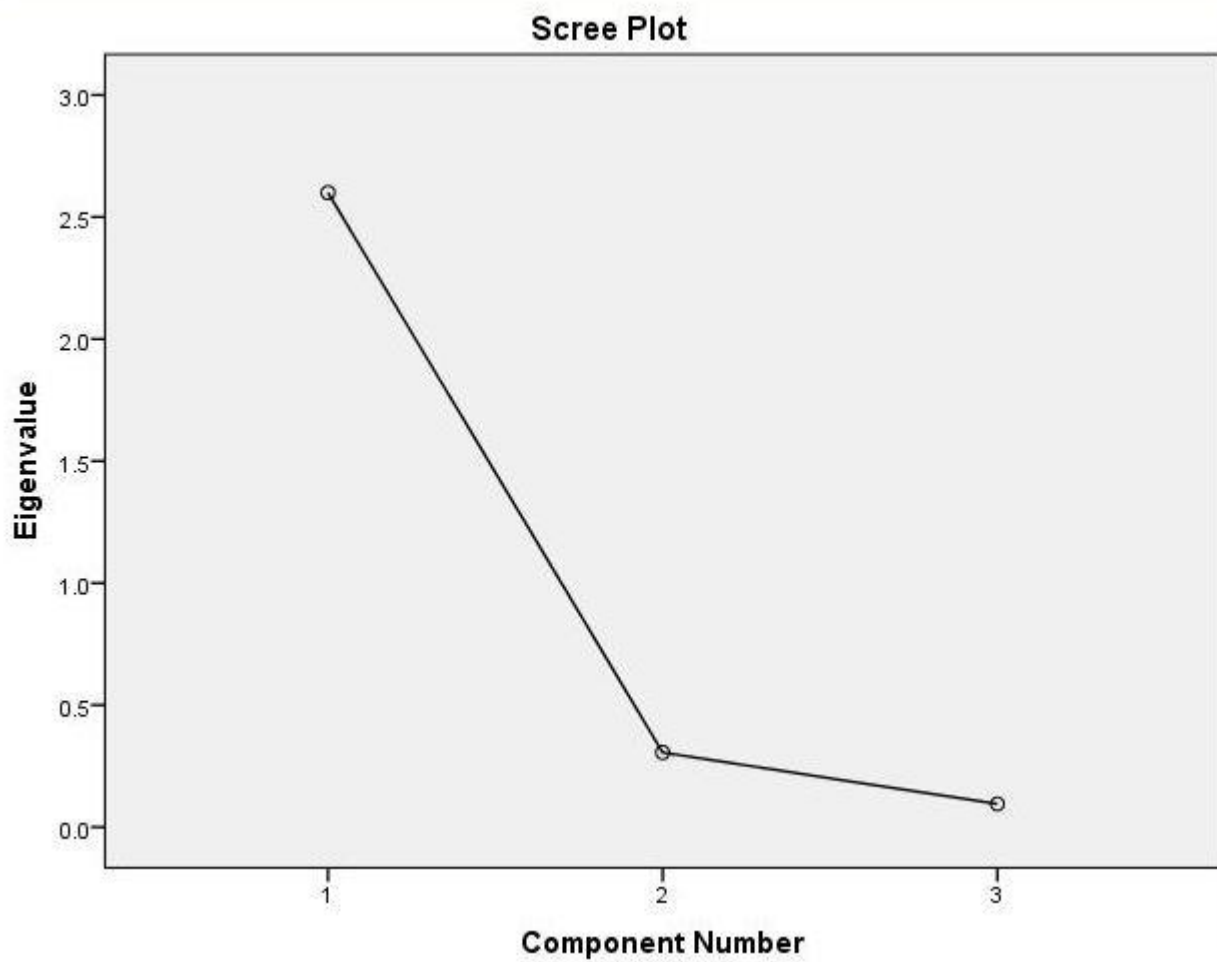


Figure 2. Self-Evaluative Perfectionism – Eating Disorder Symptom Mediation Model: illustrates the direct and indirect relationship between self-evaluative perfectionism and eating disorder symptoms. Stressful life events is the mediating variables. Standardized beta coefficients are depicted on each path of the model.

