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Interpersonal Difficulty, Affective Problems, and Ineffectiveness as Predictors of Eating Disordered Attitudes and Behavior

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INTERPERSONAL DIFFICULTY, AFFECTIVE PROBLEMS, AND

INEFFECTIVENESS AS PREDICTORS OF EATING DISORDERED ATTITUDES AND

BEHAVIOR

Paige L. Marmer

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DEPARTMENT OF PSYCHOLOGY

Dissertation Approval

This is to certify that the thesis presented to us by Paige L. Marmer on the 1st day of June 2012,

in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been

examined and is acceptable in both scholarship and literary quality.

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Abstract

The goal of this study was to better understand the relationships between psychological variables (i.e., interpersonal problems, affective problems, and ineffectiveness) and factors (i.e., previous hospitalizations, self-harm, and length of stay) related to disordered eating. A set of psychological variables and ED-related symptoms from the EDI-3 were examined within an inpatient eating disorder treatment center. Data were analyzed from an existing dataset consisting of 1,331 female participants, ranging in age from 14-65.

Multiple linear regression analyses were conducted to test the hypothesis that the independent variables would predict ED-related symptoms (i.e., bulimia, body dissatisfaction, and drive for thinness). Regression models for bulimia and body dissatisfaction were significant, however, the regression model explained only 5% of the variance in bulimia and only 1% of the variance in body dissatisfaction. The regression model was not significant for drive for thinness. There were also findings that were inconsistent with the hypotheses. Though the research demonstrated a relationship between affective problems with bulimia and body dissatisfaction, the results demonstrated weak and inverse relationships between them (as affective problems increased, bulimia and body dissatisfaction decreased and as affective problems decreased, bulimia and body dissatisfaction increased). Based on these results, future research is necessary to better understand these relationships and to determine other potential predictors and risk factors of eating pathology.

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Chapter 1: Introduction

Statement of the Problem

Whereas the prevalence of Anorexia Nervosa (AN) has been relatively stable over the past decade, Bulimia Nervosa (BN), and Eating Disorder NOS diagnoses have been steadily increasing over recent years (Hoek, 2006). Efforts to understand the origin, development, and maintenance of eating disorders have been challenging due to various characteristic traits that tend to coincide with eating disordered presentations. Moreover, the pervasive and underlying emotional component, psychological maladjustment, and comorbidity that often co-occur with these disorders create a difficult challenge to the treating clinician, despite treatment objectives aimed at decreasing symptoms and improving overall functioning. Despite the relative rarity of eating disorders (ED) (American Psychiatric Association, [*DSM-IV-TR*], 2000), further investigation is critical for a better understanding of how maladaptive psychological traits may predispose individuals to eating disorders. This information may have implications for treatment adherence and outcomes among individuals with eating disorders.

Unfortunately, many clinicians still remain largely unaware of the developmental course of eating disorders and the reasons why they are so difficult to overcome. Part of this issue is complicated by the differing opinions among clinicians about the reasons why eating disorders develop and what factors might cause them. However, it is generally accepted that eating disorders do not actually develop from a simple aversion to food. One interpretation is that they, instead, are an extreme response to the perception or reality of losing a sense of control in all or any given area of one's life (Patching & Lawler, 2009). Disordered eating patterns, then, become an extreme compensatory response to that real or perceived deficit. Other researchers have argued that childhood trauma is largely responsible for the development of eating disorders

(Kong & Bernstein, 2009). Hooker and Convisser (1983) believe that women turn to disordered eating as a way of coping with painful feelings that are associated with difficult aspects of their lives such as relationships, self-image, life plans, and other major life events that cause distress for the individual.

Regardless of the specific cause, individuals with eating disorders are driven by powerful underlying mechanisms that have served a functional purpose, such as a method of coping or a form of self-nurturance (Sherwood, Crowther, Wills, & Ben-Porath, 2000). In addition to the risk factors of EDs such as trauma (Kong & Bernstein, 2009), poor family dynamics (Fornari, Wlodarczyk-Bisaga, Matthews, Sandberg, Mandel, & Katz, 1999), or genetic influences (Culbert, Burt, McGue, Iacono, & Klump, 2009), those with EDs often progress through life with a distorted perception of reality. This is likely based on an inability to identify and process emotions correctly (Stein & Corte, 2007), which may cause these individuals to misinterpret social cues. Research indicates that individuals with eating disorders may at times interpret their social environments and experiences in distorted ways (Cooper, 1997). For example, they may see the world (or their own emotions) as threatening and dangerous and may feel disconnected from it (Ioannou & Fox, 2009). They may also feel undeserving of getting their needs met and thus an extreme sense of guilt and/or shame in general, and may also feel the need to constantly please others, yet ignoring their own needs (Berghold & Lock, 2002; Hayaki, Friedman, & Brownell, 2002). These experiences can be particularly troubling and these authors suggest that ED clients manage the associated discomfort by engaging in eating disordered behaviors and/or thoughts.

Individuals with EDs also frequently experience comorbid disorders and are often diagnosed with other Axis I and/or Axis II disorders, including but not limited to, mood

disorders, anxiety disorders, substance abuse disorders, and personality disorders. Despite the existing wealth of support linking specific psychological or personality characteristics that are commonly found among individuals with eating disorders (Lilenfeld, Wonderlich, Riso, Crosby, & Mitchell, 2006), research accounting for the degree to which each variable has caused or maintains eating disorder symptomatology remains speculative at best. Although extensive research has offered various explanations for the development and maintenance of eating disorders, few studies have specifically examined the combined contribution of interpersonal difficulties, affective problems, and ineffectiveness. Many studies have examined these constructs separately or in conjunction with other variables. As a result, further research would help not only to understand if these factors are predictive of disordered eating patterns, but also how to address them.

This study will examine if interpersonal problems, affective problems, and ineffectiveness (low self-esteem and poor sense of one's own identity), as defined and measured by the Eating Disorder Inventory-3 (EDI-3; Garner, 2004), are predictive of eating disordered attitudes and behaviors, while controlling for baseline eating attitudes and behaviors (bulimia, body dissatisfaction, and drive for thinness). It also seeks to investigate whether or not a history of hospitalizations, self-harm behavior, and length of stay are predictors of eating pathology, while controlling for bulimia, body dissatisfaction, and drive for thinness. Significant knowledge can be gained by examining how and why these experiences can contribute to eating pathology. This research may enhance an understanding of potential predictors of inpatient treatment outcome among individuals with eating disorders.

Although the current study was an examination of the connections between eating disorders and psychological variables, history of hospitalizations, self-harm behavior, and length

of stay, these variables constitute only a fraction of the potential predictors of eating disorders. The current study was designed to enhance the existing knowledge of risk factors and predictors of eating disorders for early detection, to develop preventative strategies, and to improve interventions aimed at treating them more effectively, while acknowledging that there are many other predictor variables not included that contribute to eating pathology.

Purpose of the Study

The purpose of the present study was to examine the predictive nature of the relationship between psychological factors and dysfunctional eating. It was also designed to explore whether or not other variables including number of previous hospitalizations, self-injurious behavior, and length of stay are also predictive of eating pathology. The study investigated whether or not clients with eating disorders endorsed elevated scores on three of the EDI-3 composite scales (Interpersonal Problems, Affective Problems, Ineffectiveness) at admission and whether or not responses were predictive of eating disordered symptoms at discharge from inpatient treatment at The Renfrew Center. In addition, self-reported hospitalization history, self-injurious behavior, and length of stay were analyzed to determine whether or not these variables were predictive of eating disordered thoughts, attitudes, and behaviors at discharge.

Eating disordered thoughts, attitudes, and behaviors are captured by the Eating Disorder Risk Composite Scale (EDRC) from the EDI-3. It provides a global measure of eating and weight concerns with equal weighting for each of the three contributing scales (Bulimia, Body Dissatisfaction, and Drive for Thinness). More specifically, it indicates the extent to which the respondent has extreme eating and weight concerns that consist of fear of weight gain, desire to be thinner, binge eating tendencies, and body dissatisfaction (Garner, 2004).

The specific scales that were examined for this study included variables that comprise composite scores on the Eating Disorder Inventory – 3rd edition. The Interpersonal Problems composite (consisting of the Interpersonal Insecurity subscale and the Interpersonal Alienation subscale), the Affective Problems composite (consisting of the Interoceptive Deficits subscale and the Emotional Dysregulation subscale), and the Ineffectiveness composite (consisting of the Low Self-Esteem subscale and the Personal Alienation subscale) were analyzed as predictor variables. In addition, the subscales that compose the Eating Disorder Risk composite (consisting of the Bulimia subscale, the Body Dissatisfaction subscale, and the Drive for Thinness subscale) were also analyzed at discharge as dependent variables. The EDRC is made up of items that assess attitudes and behaviors concerning weight, eating, and body shape and is not a measure of whether or not an individual is at risk for developing an eating disorder. It has been suggested that elevations on this particular scale are indicative of an individual suffering from ED traits. It is not clinically appropriate, however, to diagnose an individual with an eating disorder using only the EDI-3, nor can it be assumed that an individual endorsing an elevated score on EDRC necessarily meets clinical criteria for an eating disorder. However, it is likely that individuals with elevated scores on this scale experience some degree of eating pathology (Garner, Olmstead, & Polivy, 1983).

A deeper understanding of the relationships between eating disorders and interpersonal problems, mood, and intrapersonal problems - specifically whether or not these variables are predictive of ED behaviors/attitudes - will guide clinicians on how to intervene and develop more appropriate and tailored treatment protocols for individuals in treatment. It is widely known that individuals suffering from eating disorders experience significant psychosocial maladjustment and have difficulty in certain areas of functioning (Bardone-Cone, Harney,

Maldonado, Lawson, Robinson, Smith, & Tosh, 2010). However, it would benefit researchers and clinicians alike to further explore the predictive nature of interpersonal, mood, and intrapersonal variables on EDs because it may lead to an increased understanding of how these factors impact the course of the illness, treatment, prevention efforts, and follow-up care. Ongoing research in this area allows clinicians to translate the research and apply it to the clinical setting. It affords the opportunity to implement best treatment practices and approaches that are supported by empirically-based research.

It was hypothesized that high levels of interpersonal difficulty, affective problems, and low self-esteem among individuals with EDs at admission would be predictive of dysfunctional attitudes and behaviors regarding weight and shape following inpatient treatment. It was also expected that a greater number of hospitalizations, self-harm behaviors, and a longer length of stay would be predictive of bulimia, body dissatisfaction, and drive for thinness. Intake information was gathered from The Renfrew Center's Patient Information Intake Form and the Eating Disorder Inventory, 3rd edition (Garner, 2004); outcome data were obtained by the EDI-3 only. At discharge, clients completed only the EDRC items of the EDI-3 and this outcome data revealed whether or not patients reported impairment or dysfunction on the following scales that compose EDRC: Bulimia, Body Dissatisfaction, and Drive for Thinness.

Relevance to Goals of the Program

The objective of this study is supported by the overarching goal of enhancing the broad and general knowledge of clinical psychology graduate students as outlined by the Philadelphia College of Osteopathic Medicine (PCOM). The study will facilitate the professional growth of practitioner-scholars who possess an appreciation and understanding of the extensive and comprehensive knowledge base that informs the field and profession of psychology. It seeks to

demonstrate the substantial understanding of scientific psychological research and the implications this has on clinical practice. The findings of this dissertation may offer important information to the study of eating disorders and inform clinical practice for the advancement of treatment efforts, as well as the ability to identify and implement preventive measures.

The study will investigate if psychological factors predict ED behaviors and dysfunctional attitudes about eating, shape, and weight. It will also reveal pertinent information regarding the number of previous hospitalizations, self-harm behaviors, and length of stay to determine the predictive nature of those relationships. Gathering knowledge related to how psychological factors impact ED thoughts and behaviors may facilitate the prevention and early detection of eating disorders. This may also inform specifically where and how treatment efforts should be directed.

Chapter 2: Review of the Literature

Prevalence Rates of Eating Disorders

Caucasian females appear to suffer more frequently from EDs in comparison with other ethnic minorities in part because the thin ideal is so heavily valued in American culture (Austin & Smith, 2008). It is difficult to estimate the prevalence rates of eating disorders among various ethnic groups mainly because the research is so limited on this topic, although it has been noted that the rate of minorities seeking treatment in clinics is very low (approximately 3-5%) (Cachelin, Rebeck, Veisel, & Striegel-Moore, 2001). Until recently, the general belief was that eating disorders are primarily an issue affecting only females from western cultures (Cachelin et al., 2001). Because of this, the bulk of eating disorder research has focused primarily on Caucasian, middle-upper class women (Gentile, Raghavan, Rajah, & Gates (2007).

Additionally, Ray (2004) argued that specific prevalence rates among males are difficult to determine and may in fact be higher than expected due to the stigma and secretive nature of the disorder. However, it has been estimated that males account for approximately 5-15% of the ED population (Walcott, Pratt, & Patel, 2003). Gentile and colleagues (2007) analyzed a sample of 884 college freshmen and found that 7.3% were male and that the majority of these subjects identified as Latino or "other" and that Caucasians actually received the fewest diagnoses. Despite this, most of the research is limited to convenience sampling consisting of participants that are disproportionately white and female (Cachelin et al., 2000). Both males and ethnic minorities have been neglected in research studies because Caucasians do tend to compose most of the ED population (Ray, 2004; Gentile et al., 2007), thus risk factors for these groups are not well understood.

Studies exploring EDs across ethnically diverse groups have historically been limited; however, the research has expanded to include these individuals. The majority of the literature remains heavily unbalanced in favor of Caucasians, although minority groups have gained increasingly more clinical attention in recent years (Walcott et al., 2003). Research has demonstrated that rates of AN tend to be higher among Caucasians, when compared with African Americans (Zhang & Snowden, 1999). However, other research has found that African Americans were more likely to exhibit eating disordered symptoms than women of other ethnic groups (Langer, Warheit, & Zimmerman, 1992; Warheit, Langer, Zimmerman, & Biafora, 1993). Interestingly, another study demonstrated that African American women who binge eat suffer similar emotional problems as do Caucasian women who binge eat (Striegel-Moore, Wilfley, Pike, Dohm, & Fairburn, 2000), suggesting that minority groups may be at risk for similar patterns of ED pathology as the majority group.

According to the sociocultural model, adolescent girls receive consistent messages from their social environment (i.e., parents, peers, and the media) that a thin physical body is attractive and desirable (Stice & Shaw, 2002). However, many women are unable to achieve the thinness they desire (due to genetic influence), and because of this they become dissatisfied with their weight and shape (Austin & Smith, 2008). Recent research on the thin ideal has directly focused upon internalization of the thin Western ideal in minority populations (Austin & Smith, 2008). A study that investigated the influence of the thin ideal internalization on body dissatisfaction and disordered eating among Mexican girls, found that the risk of developing ED symptoms in response to the sociocultural model was also apparent for this population (Austin & Smith, 2008). As the younger generations of ethnic groups adopt Western concepts of beauty and detach from their own ethnic identity, they grow more dissatisfied with their bodies, and are then

are at greater risk of developing maladaptive eating patterns and disorders (Walcott et al., 2003).

Although these studies have established important findings regarding relationships between

eating pathology among multicultural groups, additional research aimed at investigating the links

between risk factors is needed.

One possible explanation for the lack of research involving minority groups may be due

to the fact that the characteristic features of EDs (weight obsession, drive for thinness, and fear

of weight gain) that are commonly reported among Caucasians are relatively low or nonexistent

among other ethnic groups (Hall, 1995; Rand & Kuldau, 1990). Another issue that impedes the

detection of eating pathology among ethnic groups is due to the social stereotype that being

overweight is "normal" for African Americans, Hispanics, and Asian Americans (Walcott et al.,

2003), and that there is a greater acceptance (and even encouragement) of larger body weights

among Asian cultures (Cunningham, Roberts, Barbee, Druen, & Wu, 1995; Lee, 1991). Another

possibility is that women with eating disorders from minority groups are not as likely to seek

treatment, and if they do, they may not receive an accurate diagnosis (Cachelin et al., 2000). As

a result, minority groups have been and continue to be underrepresented in the literature in

comparison with Caucasians. This is a major barrier that prevents researchers from gaining a

clear understanding of what leads diverse populations to develop EDs in the context of cultural,

societal, biological, and psychological challenges. This limitation must be addressed if

researchers seek to narrow this gap in the research.

In addition to the limited research among ethnic minorities in general, men are also not

well represented in the literature. Although the male population is beginning slowly to seek

treatment, this group has largely been ignored in the research, despite reports of male incidence

over the past several decades (Ray, 2004). Aside from the shame and the tendency not to report

eating problems among men, they are also excluded from the research because they technically cannot meet criteria for AN, given the fact that they do not experience amenorrhea (one of the clinical criteria of AN) (Walcott et al., 2003) Among the male population, athletes tend to be more highly at risk for developing eating problems (Walcott, et al., 2003; Ray, 2004); however, the age of onset tends to be higher (Carlat & Camargo, 1991). Research has also demonstrated that sexual orientation (those who identified as homosexual in particular) and co-morbid diagnoses were also risk factors (Walcott et al., 2003; Ray, 2004) for males.

ED research on men, in comparison with women, indicates similarities and differences in risk factors. For example, men with EDs exhibited less harm avoidance than women, had less intense drives for thinness scores, less impulse regulation, and less body dissatisfaction (Fernandez-Aranda et al., 2004). It has also been shown that men tend to be less concerned with perfectionism than women (Woodside et al., 2004). In contrast to the typical ED criteria of any clinical ED presentation among women, men are typically more seriously concerned with larger muscle mass as opposed to a smaller frame (Ricciardelli & McCabe, 2004). However, some studies have found the risk factors to be similar, including self-esteem, negative affect, perfectionism, drug use, and societal pressure to lose weight (Braun, Sunday, Huang, & Halmi, 1999; Garcia-Grau, Fuste, Miro, Saldana, & Bados, 2004). Despite these similarities and differences, the research in this area remains limited and mixed. More research is needed to understand the frequency of risk factors and whether or not other risk factors pose similar threats to the male population and also to what degree.

Given this gap in the literature regarding ethnic minorities and males with eating disorders, it is difficult to obtain a clear picture of risk factors and symptomatology of eating problems across such populations. There is a strong need to understand whether or not the

predictors of eating disorders for Caucasian females present similar obstacles for ethnic minorities and the male population, especially because both of these groups are gaining more clinical attention (Gentile et al., 2007). This information may aid clinicians in early detection of dysfunctional eating, preventative strategies, and better treatment objectives.

Core Features of Eating Disorders

In order to understand the development and potential factors contributing to the onset of eating disorders, becoming familiar with the diagnostic criteria of each of the three disorders is essential. The three main eating disorder diagnoses outlined in the *Diagnostic and Statistical Manual – 4th edition (DSM-IV-TR)* include Anorexia Nervosa (AN), Bulimia Nervosa (BN), and Eating Disorder Not Otherwise Specified (EDNOS) (American Psychiatric Association, APA, 2000).

Anorexia Nervosa is characterized mainly by the refusal to maintain body weight at or above a minimally normal weight for age and height (less than 85% of that expected), an intense fear of gaining weight or becoming fat (even though underweight), disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight (*DSM-IV-TR*, 2000). Anorectic females also must experience amenorrhea (the absence of at least three consecutive menstrual cycles). Two types of anorexia exist. An individual suffering from the restricting type severely limits his/her caloric intake and will be referred to as AN-r throughout this paper. Anorexia binge-eating/purging type, referred to as AN-bp, is characterized by binge eating followed by purging, either in the form of self-induced vomiting, over-exercise, laxative use, enemas, diuretics, or ipecac.

The mortality rate for individuals diagnosed with anorexia is greater than any other psychiatric disorder and has shown to be as high as 15% (American Psychiatric Association, 2000). Button and colleagues (2010) found that those with AN show approximately a ten-fold risk of premature death due to conditions related to extremely low body weight, substance abuse, and suicide. Although the research is limited for mortality rates among bulimia and eating disorder not otherwise specified, researchers suggest that greater attention must be directed toward these diagnostic categories, given the fact that these diagnoses account for the majority of the ED population (Button, Chadalavada, & Palmer, 2010).

Bulimia Nervosa (BN) is differentiated by recurrent episodes of binge eating followed by compensatory strategies. Binge eating is classified by eating, in a discrete period of time, an amount of food that is definitively larger than most people would eat during a similar period of time and under similar circumstances, as well as a sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating). Compensatory strategies (or purging) are used to prevent weight gain after the binge episodes; these include self-induced vomiting, misuse of laxatives, diuretics, enemas, or other medications, fasting, or excessive exercise. Similar to AN, self-evaluation is overly influenced by body shape and weight.

Eating Disorder Not Otherwise Specified (EDNOS) is a diagnosis given when full criteria has not been met for either AN or BN, but when the individual is still suffering from associated eating disturbances. It is noteworthy to mention that the next edition of the DSM (DSM V), scheduled for publication in 2013, has proposed changes related specifically to the EDNOS category. The committee responsible for modifications to the manual has decided to include Binge Eating Disorder (BED) as its own diagnostic code ("APA DSM V Development," 2012).

BED differs from BN because purging is not used as a compensatory strategy following binge eating episodes, and dieting is not considered a necessary precursor to the symptom of binge eating (White, 2000). This is an important revision for the field of eating disorders because it will acknowledge and accept BED as a psychiatric disorder that warrants psychological treatment and insurance coverage. Individuals suffering from this disorder will now be recognized as a population separate from the EDNOS category, which may help this group gain more clinical attention. This is also an important development in terms of establishing the ability to appropriately compare treatment outcome studies. For example, further narrowing the EDNOS category and implementing a standard set of diagnostic criteria will enable researchers to compare a more homogenous sample with a similar set of symptoms across individuals suffering from this disorder, as opposed to comparing individuals who present with other various and differing symptoms that also compose the EDNOS category. As a result, this change will allow for improved treatment precision and will enhance the existing knowledge regarding this population. This modification also separates this group from individuals who are physically obese without the emotional component that BED includes.

Although eating disorders are organized by differing sets of behavioral criteria, the diagnostic features and motivating forces behind each of them are quite similar in nature. For example, each of the three disorders includes an intense fear of gaining weight and being or becoming fat, disturbance in the way in which one's body weight or shape is experienced, and excessive influence of body weight or shape on self-evaluation.

Aside from the clinical descriptors of eating disorders, other related features of the disorders are commonly experienced, although they are not entirely captured by the diagnostic criteria. For example, many women report shame and guilt associated with eating and may feel

undeserving of getting their needs met. In many cases, eating disorders are driven by emotional

factors, meaning that people feel urges to or engage in ED behaviors when they are experiencing

such events as negative affect (Presnell, Stice, Seidel, & Madeley, 2009), traumatic past

memories (Kong & Bernstein, 2009), uncomfortable interpersonal situations (Ambwani &

Hopwood, 2009), and/or overall internal distress (Courtney, Gamboz, & Johnson, 2008). The

eating disorder serves as a coping strategy to distract from the painful, feared, or negative

emotional experiences that are not otherwise healthily managed by the individual with an ED

(Sherwood et al., 2000; Hooker & Convisser, 1983; Casper & Zachary, 1984). ED thoughts,

attitudes, and/or behaviors are a substitute for adaptive coping when an individual lacks a sense

of control to cope appropriately with the situation.

Another relevant feature consistent with EDs is the drive for thinness. Among women

with EDs, the strong desire to be "skinny" results from body dissatisfaction and poor body image

(Karpowicz, Skarsater, & Nevonen, 2009). Patients with EDs have a strong tendency to define

themselves exclusively by their body appearances and because of this fact, these individuals

believe that if they become satisfied with their body appearances, they will have more

confidence (Karpowicz et al., 2009). Many strive for the idealization of thinness because of the

belief that it is associated with confidence, a positive self-image, happiness and success.

Unfortunately, this rarely occurs. Far more common is the reality that once these individuals

reach their weight goal, they realize their self-esteem has not changed and thus they strive to lose

more weight. This perpetuates the belief that one can never achieve enough weight loss or be too

thin. Subsequently, the individual with an eating disorder strives harder and harder to lose

weight in order to alleviate negative body image and thus improve self-esteem, desperately

believing that this is the key to happiness. Not surprisingly, those not reaching the desired

weight loss must then manage their shame, related to the lack of self-discipline, which further compounds poor self-esteem (Karpowicz et al., 2009). This situation helps to clarify the notion that there are underlying problems associated with eating disorders and this particular link highlights the relationship between poor self-esteem and eating pathology.

It is critical to examine the role of body image disturbance and how it also contributes to the syndrome, especially because negative body image is strongly correlated with poor self-esteem. Kearney-Cooke and Striegel-Moore (1997) have applied the schema construct in their work with those who experience negative and distorted body image. Once the schema is formed, it serves a powerful, detrimental function. It maintains body image distortion because it dictates what is salient for that individual, what they focus on, and what they choose to attend to (Padesky, 1994 in Kearney-Cooke & Striegel-Moore, 1997). Padesky (1994) explains:

A woman who believes "I am not attractive; thus, I am not lovable" will notice and remember negative comments about her body more readily than positive reactions. She will focus on bodily defects, flaws, and errors, noticing these more than strengths. She will attribute her successes and failures to her appearance. She will tend to surround herself with others who are obsessed with their appearance. She will tolerate negative comments about her appearance because they fit her view of her body. Once formed, a negative body schema is maintained in the face of contradictory evidence through processes of not noticing, distorting, and discounting information. (p. 295-296).

Individuals suffering from EDs selectively attend to information in the environment that confirms the existing negative beliefs they hold about themselves and the world. It remains unclear why certain individuals exposed to similar conditions are more at risk, yet others exhibit resilience to the development and obsessionality of body dissatisfaction. It is also not well

understood why some individuals experience variable shifts in their body images, but others maintain a more stable one.

As mentioned previously, numerous factors have been consistently linked to eating pathology.   The variables of particular interest for the current study include interpersonal difficulty, affective problems, ineffectiveness (feelings of low self-esteem or self-alienation), previous hospitalization, self-harm behavior, and length of stay. Interpersonal difficulty can be defined in several ways; however, for the purpose of this study, it is measured by both interpersonal insecurity and by interpersonal alienation: the degree to which ED patients feel insecure in their interpersonal encounters as well as the extent to which they feel disconnected to others. Affective problems are conceptualized as a combination of interoceptive deficits (i.e., an unawareness of feelings and having a response to feelings that falls out of the normal range of how others in the same situation might react) and emotional dysregulation (difficulty identifying and tolerating negative mood states). Ineffectiveness is assessed by low self-esteem, by having a poor self-image, and by personal alienation, feeling as though one has a poor or underdeveloped identity.

Eating Disorders and Interpersonal Difficulty

Much of the literature supports the link between interpersonal problems and eating disorders. Evans and Wertheim (2005) argued that disordered eating has long been associated with interpersonal difficulties. Interpersonal problems have been found to precipitate binge eating among high restraining/dieting individuals (Tanofsky-Kraff, Wilfley, & Spurrell, 2000), eating dysfunction among college women (Jackson, Weiss, Lunquist, & Soderlind, 2005) as well as the onset of bulimic symptoms (Lacey, Coker, & Birtchnell, 1986). Despite this presentation of tendencies across all forms of eating disorders, specific responses to interpersonal stress may

differ among individuals who exhibit disordered eating. Whereas some may engage in binge eating to cope with feelings of abandonment, others may restrict food intake to manage feelings of powerlessness (Brown, 1985).

Interpersonal difficulty may be experienced in several variations. For example, some individuals might report dissatisfaction with their existing interpersonal relationships; some may feel paralyzed to build new and meaningful ones, and others may view interpersonal encounters inaccurately or through a negative lens. In a study examining bulimic patients and their satisfaction with interpersonal relationships over time, Thelen, Kanakis, Farmer, and Pruitt (1993) found that bulimic symptomat ology among women was associated with lower ratings of satisfaction with male relationships. The behavior of those with eating disorders is often motivated by assumptions they make of interpersonal interactions, the specific individual with whom they are interacting, and/or by negative appraisals of themselves. Clients often report the need to "people please," believing that others will like and accept them if they put the needs of others first. They may also feel undeserving of acknowledging and honoring their own needs and/or wants. This exchange poses strains on the interpersonal relationship because the individual with an ED is sacrificing her own needs and/or wants for the perceived benefit of others. This example further implies that ED patients struggle with being overly critical of themselves, which is why they may see the needs of others as more important than their own. Bjork and colleagues (2003) found that, compared with those with other eating disorders, people with bulimic features tended to be more self-critical, suggesting that maladaptive social cognition influenced bulimic pathology. With this distorted view of themselves and others, those with EDs often have the tendency to compensate through the perpetual self-punishment of bulimic behavior.

Björko and colleagues (2003) also argue that the term "interpersonal" can theoretically be delineated in terms both of its external behavioral antecedents as well as its internal consequences for a person's images of self and others. The continuous reciprocal interaction of these forces can be said to constitute the dynamic of a person's interpersonal world. Effective interpersonal relationships may be measured not only by how satisfied individuals are in social exchanges with others, but also may be based on whether or not interpersonal goals were achieved. For example, Horowitz (2004) proposed that psychological distress and behavioral dysfunction occur when interpersonal goals are not achieved. Because people vary in respect to such goals, Horowitz reasoned that different types of interpersonal problems may precipitate maladaptive behavior for different people, even if those people are diagnosed with the same psychiatric disorder. This pattern of functioning may have significant clinical implications for those with disordered eating styles. It is thus critical for clinicians to understand how patients meeting the same clinical criteria respond to the same interpersonal experiences in differing ways. With that particular understanding, treatment efforts may then be directly aimed at individualizing treatment and addressing the specific problems with which they present.

Another concept related to interpersonal problems is known as *sociotropy*. Sociotropy is the state of being highly dependent on others, but also having the excessive need to please them (Jackson et al., 2005). These researchers argue that eating disturbances have been linked with a sociotropic personality style. Other research examining self-reported sociotropy (Friedman & Whisman, 1998; Narduzzi & Jackson, 2000, 2002), need for approval (Katzman & Wolchik, 1984), and fears of abandonment (Becker, Bell, & Billington, 1987) have been found to have significant relationships to eating disturbances. Boyce and Parker (1989) define interpersonal sensitivity as "an unwarranted and excessive awareness and responsiveness to the feelings and

actions of others" (p. 125). Hamann, Wonderlich-Tierney, and Vander Wal (2009) posit that fear of negative evaluation and sociotropy are closely related constructs that may further compound the relationship between interpersonal problems and eating pathology.

In their attempts of pleasing others, it is likely that these individuals are misperceiving the thoughts, actions, and/or behaviors of others, which creates more confusion and distance in the interpersonal relationship. As a result, clients with EDs are often left feeling depleted, unworthy, and may then isolate to prevent having subsequent negative interactions with others. The above-mentioned study illustrates the important roles that low self-opinion, fear of negative evaluation, and the perception that thinness leads to acceptance will play in ED maintenance (Hamann et al. 2009).

Cognitive theories of anxiety and depression (Beck, Emery, & Greenberg, 1985 in Cooper, 1997) emphasize information processing errors among individuals suffering from these disorders. They suggest that patients commonly make the error of interpreting social situations in terms of their own concerns when there may be various alternative explanations. Similarly, cognitive theories of anorexia and bulimia (Garner & Bemis, 1982; Fairburn, Cooper, & Cooper, 1986 in Cooper 1997) also stress the importance of information processing errors because these biases may maintain ED symptoms.

Patients with EDs frequently interpret ambiguous situations in terms of their concerns about weight and shape (Vitousek & Hollon, 1990). For example, Cooper explains, "A patient who noticed her boyfriend was rather cold and distant interpreted his behavior as evidence that he was unhappy with her shape and size rather than, more correctly, as evidence of preoccupation with concerns related to his job" (p. 619). Patients with EDs also appear to misinterpret social situations in terms of concerns about personality deficits, which likely has a

strong influence on ED pathology as well (Garner & Bemis, 1982). For instance, the same

patient who experiences her boyfriend as cold and distant may attribute his behavior to her

perception that she is weak and unintelligent. The individual with BN who finds herself

repeatedly dissatisfied in her social encounters may blame herself for social awkwardness and

failed relationships and may regulate that associated discomfort by bingeing and purging

(Hamann et al., 2009). Errors in information processing appear to be specific to judgments

related to the self and reflect errors of personalization and self-reference (Vitousek & Hollon,

1990). These internal experiences that accompany these errors in information processing serve

to perpetuate the symptoms of eating disorders.

Interpersonal problems may also be specific to family relationships. Some studies that

examined eating pathology in response to family dynamics have reported higher parental discord

among individuals with EDs and their parental figures (Fornari et al., 1999; Schmidt, Tiller, &

Treasure, 1993), and continued family conflict and dysfunctional family roles further complicate

the issue. The clinical presentation is compounded by perceptions of negative, rejecting, and

conflictual relationships with family members (Humphrey, 1986), and is suggestive of less

secure attachments with parents. On the other hand, experiences of intact and positive

interpersonal relationships might protect individuals from adopting unhealthy dietary practices

and dysfunctional attitudes and behaviors around food, eating, weight, and shape.

Individuals with EDs who develop dysfunctional eating patterns in response to

interpersonal problems inadvertently connect negative interpersonal experiences with external

body appearances. For example, consistent teasing or bullying at school due to weight or body

shape may interfere with positive social integration and adjustment. When the adolescent girl

learns that she does not fit in, she may inaccurately conclude that it is strictly because of the way

she appears in comparison with others. Regardless of the reason, she may attempt to lose weight

or alter her body in hopes of being accepted by others and to prevent further bullying. This

behavior may create a platform for more severe maladaptive eating styles in response to various

other types of unpleasant interpersonal experiences. A practical target of treatment, then, is to

identify interpersonal styles among clients interacting with the social environment and to create

strategies to help navigate through various social settings.

Interpersonal difficulty can have significant negative treatment implications. For

example, it is widely known that many clients with EDs discontinue treatment prematurely

(Woodside, Carter, & Blackmore, 2004). This pattern may in part be due to weak therapeutic

alliances with the therapist because of unexamined interpersonal goals or simply because

individuals lack the motivation or drive to improve. Individuals who report interpersonal

difficulty in general may perhaps struggle in the therapeutic setting because of the existing

beliefs that potentially dictate their discomfort. Because interpersonal patterns in therapy have

major implications on treatment outcomes, it is critical that treating clinicians understand and

respect clients' goals in order to enhance therapeutic alliances and reduce premature

terminations. Anorexic clients in particular are also generally resistant to the prescribed

treatment goals and expectation to gain weight, which places further strain on the interpersonal

relationship between client and therapist. In order to build a strong therapeutic and working

alliance, there must be reciprocal trust and positive regard, which begins with the development

and nurturance of an interpersonal relationship (Woodside et al., 2004). Hopwood, Clarke, and

Perez (2007) noted that once we obtain a better understanding of how interpersonal factors

negatively impact treatment, specific techniques can then be implemented to address relational

issues, such as matching therapist and client based on identified individual needs.

Whether or not interpersonal problems precede or result from dysfunctional eating patterns remains in dispute. However, many researchers argue that certain psychological variables place individuals at risk for future development of eating pathology. For example, research has consistently demonstrated that bulimic symptoms in particular are associated with interpersonal problems and that these problems persist many years following an initial diagnosis of an eating disorder (Keel, Mitchell, Miller, Davis, & Crow, 2000). It has also been found that people with the same ED diagnosis might vary in the nature of their interpersonal problems in terms of development and presentation (Ambwani & Hopwood, 2009). The role that interpersonal problems play in the development and presentation of EDs is largely dependent on exposure to certain risk factors (i.e., the social environment in which one lives and interacts). Another confounding factor in understanding the variables associated with EDs is the fact that the degree to which people suffer from disordered eating may vary. Despite the complexity inherent in understanding EDs, it has been demonstrated in the literature that eating disorders are related to psychological functioning (Spindler & Milow, 2007). As such, the focus of the present research will be on the predictive abilities of psychological variables on ED behaviors and dysfunctional attitudes.

Eating Disorders and Affective Problems

Most experts agree that eating disorders are rarely, if ever, independently diagnosed without an associated comorbid mood or anxiety disorder (Lawson, Emanuelli, Sines, & Waller, 2008). Research supports the link between eating pathology and depression (Courtney, et al., 2008; Dunkley & Grilo, 2007; Godart et al., 2007) and there is also evidence of a strong association between eating disorders and anxiety (Pallister & Waller, 2008). Godart et al. (2007) reviewed the literature on comorbidity studies over the past two decades and found that

the lifetime prevalence of mood disorders varies significantly, from 24.1% to 90% (Hatsukami et al., 1984a; Hudson et al., 1988) in subjects with bulimia nervosa, and from 31% to 88.9% in those with anorexia nervosa (Laessle et al., 1987; Fornari et al., 1992). Patients diagnosed with EDs typically report depressive and/or anxious symptoms both prior to the development of an eating disorder, as well as in response to it.

Although the comorbidity between bulimia and depression has been well-established, the temporal order of the onset of the two disorders and the respective processes that strengthen the comorbidity are less clear. Experts hold differing opinions regarding the sequence of psychiatric problems, namely which problem caused what, if they developed independently, or if the issues are concurrent. One possible explanation of comorbidity is that one disorder may be a risk factor for the other. For example, theorists have speculated that depression increases the risk for developing bulimic pathology (Leon, Fulkerson, Perry, & Early-Zald, 1995; McCarthy, 1990). An alternative explanation is that co-occurrence is the result of sharing common risk factors (Kraemer, Stice, Kazdin, & Kupfer, 2001).

Polivy & Herman (1993) argued that negative affect is undoubtedly the most widely cited precipitant of binge-eating episodes. Binge eating appears to be associated with a decrease in negative affect, although only temporarily by distracting the individual from these aversive emotional states. Similarly, other research shows that some women who binge have learned to use this behavior as a coping mechanism for short-term relief from painful or uncomfortable emotions (Arnow, Kennedy, & Agras, 1992). Dysfunctional eating patterns, such as bingeing, are related to an increased use of problematic coping skills and decreased use of adaptive functioning (Troop, Holbrey, Trowler, & Treasure, 1994). Binge eaters in particular may lack certain emotion regulation strategies, placing them in more vulnerable positions to experience

urges to binge eat either in response to negative mood states or following extreme food restriction (Wiser & Telch, 1999).

In theory, the binge-purge cycle fosters feelings of guilt, shame, and dysphoria, which has been found to increase the risk of depressive symptoms (Stice, Hayward, Cameron, Killen, & Taylor, 2000). On the other hand, these researchers use the *negative affect model* to argue that depressed individuals binge eat because they believe it provides comfort and distraction from negative emotions. Following this behavior, they might also use compensatory strategies such as self-induced vomiting both to reduce the anxiety around weight gain and also for use as a method of emotional catharsis. In support of this model, negative affect has been found to predict the future onset of bulimic symptomatology (Killen et al., 1996; Stice & Agras, 1998), and exacerbate the existing behavior if the individual already presents with bulimia (Cooley & Toray, 2001; Stice, 2001).

Recent evidence suggests that emotion dysregulation or difficulties in the expression of emotional experience may represent an important factor in the etiology and maintenance of BN (Rottenberg & Gross, 2003). The inability to regulate or tolerate emotions may cause individuals extreme discomfort, which they may manage through the use of ED symptoms. For example, Chawla and Ostafin (2007) found that individuals with EDs adopt a separate, yet related, style of maladaptive coping, known as *experiential avoidance*, the unwillingness to remain in contact with unpleasant cognitive, physical, and emotional processes for fear that these experiences cannot be adequately tolerated. This research also indicates that this concept is particularly relevant to eating pathology. For example, negative mood states are considered precipitants of eating disturbances among binge eaters. In order to regulate or manage unwanted emotions, binge eaters engage in bingeing episodes to regulate negative emotional experiences. Those with

eating disorders typically exhibit fewer emotion regulation skills, specifically the ability to identify and understand emotions and alter negative moods, compared with healthy controls (Chawla & Ostafin, 2007).

The assessment measure relevant to this study is the EDI-3, which specifically defines affective problems by its subscales of interoceptive deficits and emotional dysregulation. Interoceptive deficits are characterized by the unawareness of feelings, difficulty identifying and expressing feelings, and the inability to differentiate feelings from bodily sensations (Lane, Sechrest, Riedel, Shapiro, & Kaszniak, 2000). These authors define alexithymia as impairment in the ability to recognize emotion when both the stimulus and the response are nonverbal. This suggests that alexithymia is not only a verbal phenomenon but instead a cognitive processing deficit in emotion that may be best understood as an impairment in the capacity to consciously experience emotional feelings in situations that warrant emotional arousal (Lane et al., 2000).

A study analyzing alexithymia in patients with eating disorders showed that individuals with eating disorders demonstrate higher levels of alexithymia than normal controls (Speranza et al., 2005). This is a complex deficit found among individuals with EDs and can be quite confusing to the individual. The inability to identify and assign a feeling in response to an emotional state can yield negative consequences. For instance, the failure to recognize an emotion in oneself might preclude the ability to engage in appropriate response behaviors. In addition, it places the individual at risk for not understanding his or her emotional experiences and thus, of having no knowledge of how he or she may feel in response to a real or perceived threat. This deficit may not only be confusing, but it is also often disorganizing for the individual and perhaps frustrating, causing a feeling of alienation from themselves and others.

This is particularly troubling because alexithymic individuals may lack the ability to adequately protect themselves against abusive relationships due to the detachment from feelings.

The link between depression and eating pathology is worsened by the mediating effect of poor interoceptive awareness and emotional dysregulation. Because ED patients commonly experience a lack of interoceptive awareness and have difficulty regulating emotions, they are not equipped with the necessary tools to adjust, adapt, and/or cope with stressful events and negative emotional states. Consequently, these individuals who report deficiencies in these areas may suffer from depressive symptoms and are likely at risk for developing disturbances in eating as well. Because depressed mood has been related to eating problems and low self-esteem, improving mood and affective problems should be at the forefront of treatment. Given the clinical relevance of the link between eating and mood disorders, a greater understanding of this relationship will inform best practices in ED treatment.

Eating Disorders and Ineffectiveness

Ineffectiveness, defined by low self-esteem and personal alienation (Garner, 2004), has also been examined in conjunction with both mood and eating disorders. Low self-esteem has long been associated with eating pathology (Frederick & Grow, 1996). These experts argue that women in western societies cope with intrapersonal distress resulting from unfulfilled needs and low self-esteem by focusing attention on body-related concerns. Therefore, physical appearance is considered a viable way to define personal value and self-worth among women with distorted cognitions. The achieving of an ideal physical shape often results in positive attention and praise from others (Littrell, Damhorst, & Littrell, 1990). This enables individuals with EDs to feel a renewed, yet fleeting, sense of self-worth and control. However, because such praise is conditional upon external reinforcement of one's appearance, it does not truly fulfill self-esteem

needs or autonomy (Kasser & Ryan, 1996). As a result, once women become obsessed with body-related issues, they may be at high risk of developing behaviors consistent with eating pathology (Garner, Olmstead, & Polivy, 1983). Frederick and Grow (1996) provide a poignant example:

A young woman who grows up in an environment that fails to support her needs for autonomy may learn to shift her focus from satisfying her own needs to satisfying the needs of others. Thus, she may believe that she is valued not as a separate, worthwhile individual but rather for what she does to make others happy (e.g., being responsible or having an attractive appearance). By learning to be "perfect" and seemingly in control, the girl subsequently fails to develop a separate sense of self-esteem because her feelings of worth are contingent upon her behaving to please others, rather than on who she is as an individual. (p. 224-225).

The tendency for individuals with EDs to 'people please' may also give rise to dysfunctional interpersonal relationships. Because there is a high need among them to deem their own needs as secondary to the needs of others, they behave according to their perceptions of what they believe others expect from them (Schembri & Evans, 2007). This may also lead patients to isolate in order to avoid the pressure of pleasing others, which can further perpetuate depressive symptoms. Eating pathology is often noted during adolescence in particular because of the sociocultural emphasis on the thin ideal as a measure of perfectionism (Lee, 1989 in Frederick & Grow, 1996). Thus, a major focus of treatment for EDs is highlighting the potential problems associated with the loss of individuation and the rigidity and control over eating as compensation for low self-esteem.

There is also a clear link between the combination of low self-esteem, depressiveness, and eating pathology (Courtney et al., 2008). In a study analyzing problematic eating behaviors in adolescents with low self-esteem and elevated depressive symptoms in a primary care setting, low self-esteem was implicated as a possible precursor to the onset of problematic eating behaviors indicative of eating pathology (Courtney et al., 2008). Thus, adolescents with low self-esteem may be more vulnerable than those with higher self-esteem to developing disturbances in normal eating behavior.

Because low self-esteem is among the criteria for depression, it is likely that those who suffer from depression report low self-esteem and vice versa. Moreover, those with low self-esteem who meet criteria for both major depressive disorder and an eating disorder may report more difficulty in treatment, and thus have poorer treatment outcomes, as compared with individuals without low self-esteem (Courtney et al., 2008). These researchers also found that depressive symptoms mediated the relationship between low self-esteem and problematic eating behaviors even after baseline eating problems were held constant. Consideration must be given to the role of depressive symptoms and its relation to self-criticism, low self-esteem, and over-evaluation of shape and weight because of the strong association between depression and EDs (Herzog et al., 1992).

Fairburn and Wilson (1993) suggested that adolescents who suffer from low self-esteem become more self-conscious and self-critical, making them more susceptible to developing an eating disorder. Thus, patients experiencing both depressive symptoms as well as low self-esteem may benefit from treatment aimed at restoring self-esteem and improving depression. Self-criticism may be a compensatory result of perfectionism. Perfectionism is a common feature both in eating patterns as well as in other areas of one's life (Fairburn, Cooper, &

Shafran, 2003). When individuals feel defeated or inadequate, they may try attaining perfection in order to increase their moods and compensate for the associated negative feelings. Dunkley and Grilo (2007) argued that in the context of eating disorders, the extreme over-evaluation of shape and weight can be conceptualized as an attempt to compensate for being overly critical of oneself. They suggested that there is likely a bidirectional relationship between over-evaluation of weight and shape, low self-esteem and depressive symptoms. More specifically, they proposed that self-criticism might lead to over-evaluation of weight and shape through attempts to compensate for low self-esteem and depressive symptoms.

On the other hand, over-evaluation of shape and weight might create vulnerability to self-criticism, low self-esteem, and depressive symptoms, especially when one fails to meet the high standards of control over body appearance. Fairburn and colleagues (2003) agreed that low self-esteem is one of the most frequently reported, predisposing factors among those with EDs. Eating disorder research in adolescent samples has suggested that personal appearance is a critical factor in formulating self-esteem during the adolescent period (Geller, Srikameswaran, Cockell, & Zaitsoff, 2000). Perhaps this solidifies and perpetuates the link between low self-esteem and body dissatisfaction, thus reinforcing excessive focus on appearance and disordered eating patterns. Kasser, Ryan, Zax, and Sameroff (1995) demonstrated that adolescents raised in less nurturing parental environments were especially likely to value extrinsic goals concerning others' evaluations of them, as opposed to intrinsic goals involving their own needs.

Another related point is that eating disorders have been described as "ego-syntonic" syndromes, meaning that the individual suffering from an ED tends to be rigid and exhibit restrictive thinking styles. As a result, these individuals rarely believe that their maladaptive behaviors are problematic and are therefore resistant to implementing change. Commonly these

individuals have difficulty identifying and challenging negative automatic thoughts and

maladaptive core beliefs (Mountford & Waller, 2006). Fluctuations in motivation and periods of

being "stuck" in the eating disordered cycle are often a result of the ego-syntonic nature of the

disorder. Low self-esteem is commonly reported prior to the development of the disorder and

throughout the duration of it (Frederick & Grow, 1996), although with proper treatment,

individuals may improve despite the ego-syntonic nature.

It is important to assess for low self-esteem because it may result in the perpetual pursuit

of perfectionism. A perfectionistic style among individuals with EDs is characterized by

extreme beliefs of imperfection or deficits and the compensation of perfectionistic standards to

increase self-esteem (Sassaroli, Gallucci, & Ruggiero, 2008). Striving for a "perfect" body

appearance allows these individuals to feel a sense of control and overall perfection, in which the

individual may experience temporary feelings of success. It is important to note that regardless

of reaching one's ideal weight or shape, the individual with an eating disorder is rarely satisfied

when that weight or shape has been reached. This perpetual discontentment is indicative of the

low self-esteem nature of these individuals.

Although clients reporting low self-esteem may feel hopeless about their future and their

ability to recover from the illness, it is important to note that self-esteem is a personality

construct that is amenable to change. Despite the fact that not all clinicians and researchers

agree that self-esteem is a dynamic variable, others have demonstrated that it is not static. For

example, Troop and colleagues (2000) conducted a study examining the changes in self-esteem

before treatment of bulimia and 18 months later. They found that women who had recovered

from BN reported a significant increase in self-esteem following treatment. Because self-esteem

is so strongly related to EDs, attention to it is a critical component of ED treatment. Treatment

efforts should be directed away from body-focused goals, and instead, should be centered on building self-worth and guiding clients on how best to get their emotional needs met.

History of Hospitalizations

It has been argued that those with a greater number of treatment hospitalizations tend to represent more chronic cases of ED pathology (Steinhausen, Grigoroiu-Serbanescu, Boyadjieva, Neumarker, & Metzke, 2008). This suggests that perhaps they have more difficulty using positive coping skills, or have more pervasive and chronic illness presentations, or are treatment resistant, or lack motivation to improve their health status. Another potential reason for subsequent hospital admissions is due to inadequate treatment. Regardless of the reason, a primary goal of treatment is to help empower individuals and equip them with the necessary tools to increase functionality and prevent the need for further inpatient support.

However, despite positive treatment efforts indirectly aimed at the prevention of rehospitalization, it is important to note that certain clients will nonetheless require further support at some point during recovery. Because many clients do need this support, researchers must begin to address the reasons why patients require further support and consider how to reduce the amount of subsequent hospitalizations. The literature supports the idea that those requiring rehospitalization reflect a more chronic course of symptomatology and also suggest the risk of poor future psychosocial and psychiatric outcomes (Steinhausen et al., 2008). Because it occurs relatively frequently for this particular population, rehospitalization should be considered as an indicator both of the severity of the illness and of the goodness of fit between the individual's needs and the quality of the treatment.

Researchers have also found that there is some indication that the increasing trend for briefer hospital stays and the insufficient weight gain at discharge is largely responsible for

additional hospital admissions (Wiseman, Sunday, Klapper, Harris, & Halmi, 2001; Howard, Evans, Quintero-Howard, Bowers, & Andersen, 1999). It is also possible, however, that the reason for poor treatment outcomes and subsequent hospitalizations is instead related to inadequate treatment. In their multisite study, Steinhausen and colleagues (2008) found that approximately 45% of anorexic subjects required at least one readmission to the hospital and the significant predictors of readmission were largely due to patient-related variables. Examples included paternal alcoholism, history of AN in the family, eating disorder in infancy, periodic over-activity, lower weight increase at first admission, and lower BMI at first discharge. Additionally, they found that patients with repeated admissions had less favorable long-term outcomes and had higher rates of persisting psychopathology at follow-up.

This construct relates specifically to the present study because history of hospitalization has been found to be indicative of more severe, chronic courses of an ED illness. In other words, those who report a higher amount of hospitalizations tend to have more complex presentations, psychological maladjustment, and a greater need for more support. Often times and for various reasons, clients are offered only a brief length of stay in the hospital, which may inhibit the potential for successful outcomes. The brevity of treatment may pose barriers toward positive outcomes and may require the need for future rehospitalization.

Self-Injurious Behavior and ED Risk

Patients with EDs have also been found to utilize other strategies in addition to ED behaviors such as self-injury in order to mediate or distract from negative mood states. Suyemoto (1998) provides a clear definition of self-injury that differentiates self-injurious behavior (SIB) from suicidal attempts. She explains that self-injury is "a direct, socially unacceptable, repetitive behavior that causes minor to moderate physical injury; when injuring, the individual is in a

psychologically disturbed state but is not attempting suicide nor responding to a need for self-stimulation or a stereotype behavior characteristic of mental retardation or autism" (p. 532). Self-injurious behavior may take many forms and commonly manifests as cutting, burning, scratching, picking, bruising, banging, and breaking bones.

SIB has been noted among clients who also simultaneously suffer from eating disorders (Claes, Vandereycken, & Vertommen, 2001; Solano, Fernandez-Aranda, Aitken, Lopez, & Vallejo, 2005). ED symptoms and SIB function as emotion regulation strategies and also help individuals manage negative emotional experiences, which may offer at least one explanation for the reasons why ED patients also rely on SIB for coping. Research suggests that the rates of self-injury tend to be quite high among a subset of individuals with select psychiatric disorders including eating disorders, especially bulimia nervosa (Anderson, Carter & McIntosh, 2002; Claes, Vandereycken & Vertommen, 2001). The latter researchers have found rates of SIB to be approximately 30-52%, depending on the specific subtype of the eating disorder. Although these rates are somewhat alarming, they are representative of a subset of individuals with EDs who self-harm in response to emotional triggers, much like the motivation behind ED symptoms.

Another study conducted by Solano and colleagues (2005) found that a sample of ED patients who injured themselves showed an eating disorder of greater severity than those who did not. In addition, their results confirmed the high prevalence of SIB among ED clients, because 32% of their sample reported SIB across patients diagnosed with AN and BN. Finally, they concluded that these clients present with greater symptomatology and severity of the eating disorder. Because of this, research should continue to explore risk factors for SIB among EDs, including the chronic nature of these conditions.

According to Herpertz (1995), SIB is associated with overwhelming affect, including dysphoria, anger, despair, anxiety, etc. that cannot be controlled or effectively managed. She believes that these behaviors are a form of affect regulation. This is a particularly important point for this study because it highlights the similar functions that SIB and EDs serve for the individual attempting to regulate affect. Another interesting finding is the strong degree to which self-injuring individuals show proclivity toward self-criticism, which also specifically relates to the present study (Claes et al., 2003). Understanding the relationship between eating disorders and self-injurious behavior might reveal specific implications for mood regulation, as well as the potential to learn the relevant affective antecedents and consequences of SIB and EDs.

Length of Stay

Length of stay (LOS) is an important clinical indicator of severity of illness for individuals with eating disorders. Acuity of illness can be measured in part by length of stay because course of treatment is typically outlined by the severity of one's clinical presentation. However, LOS may be influenced by a number of factors, and thus may not always represent an accurate picture of a patient's course of illness. Some examples of staff-initiated premature terminations from inpatient programs include lack of progress, which could be due to lack of weight gain, failure to stop purging, and repeated violation of program rules (Woodside, Carter, & Blackmore, 2004). Other patient-related terminations include dropout against medical advice, which can be quite common among the ED population, given the fact that weight gain is often a primary goal of treatment. Other related factors of dropout can be due to a false sense that one has recovered, or a feeling of hopelessness that the ED will resolve, impulsivity, and the presence of a personality disorder (Woodside et al., 2004).

In the United States, the average length of stay in an inpatient setting for a patient with anorexia is approximately 3 months (Lievers Curt, Wallier, Perdereau, Rein, Jeammet, & Godart, 2008). The AN population tends to require longer lengths of stay due to the medical state in which these clients present, which is often compromised or unstable. Efforts to reduce hospitalization stays are ongoing due to cost concerns, which can be detrimental to patient care (Wiseman, et al., 2001). Therefore, there is a need to find a balance between effective treatment and the overall improvement of cost-effectiveness. The goal is to improve cost-effectiveness by reducing LOS, and in doing so, reduce the acute phase of the illness, and yet avoid any negative consequences related to a patient's prognosis.

Researchers have found a collection of factors to be associated with length of stay for anorexia. They are organized into three categories and consist of factors related to the health care system, to the patient, and to the treatment (Huntley, Cho, Christman, & Csernansky, 1998). Healthcare-related issues are concerned with cost of treatment, and patient factors consist of minimum body weight after treatment, age of admission, BMI at admission, and number of previous inpatient admissions. Treatment factors include the efficacy of the interventions. Lievers and colleagues (2009) designed a study to investigate those patient factors that predict LOS, apart from the well-established patient factors listed previously (minimum body weight after onset, age of admission, BMI at admission, and number of previous inpatient admissions) and clinical characteristics among a sample of patients prior to hospitalization from a previous study. They found that LOS is best understood by the duration of AN at admission, the use of tube-feeding during the stay, the presence of a comorbid disorder during hospitalization, and the achievement of the therapeutic weight contract. The only variable preceding the hospitalization was the actual anorexia diagnosis, suggesting that LOS can be most accurately predicted during

the actual hospitalization stay, because the other remaining variables coincided with the treatment.

In general, an illness requiring a longer length of stay is considered to be more psychologically complex and will be less sensitive to therapeutic intervention (Agras, Brandt, Bulik, Dolan-Sewell, Fairburn, Halmi, Herzog, et al., 2004) and these patients are more likely to have a longer history of ineffective treatment attempts. Other key findings in the study were the relationships found among LOS and achieving weight targets, and LOS and comorbid disorders. Longer length of stay was strongly correlated with the inability to meet a target weight expectation.

Patients who remained in the hospital for a long period of time without weight gain were prematurely discharged, which highlights the need for longer lengths of stay when the nature of the illness is more chronic and pervasive. Similarly, patients are typically viewed as more difficult to treat when more than one diagnosis is given. Thus, a longer LOS is indicated for these cases because the existence of a comorbid condition slows weight gain even further (Lievers, et al., 2009).

It should also be noted, however, that there are circumstances under which a patient is prematurely forced out of treatment, having little to do with patient-related variables. In the interest of cutting costs, managed care companies often limit coverage for the treatment of EDs, leaving individuals responsible for their own care once medical stabilization has been achieved (Kaye, Kaplan, & Zucker, 1996). Regardless of the reason, premature termination will inevitably require future hospitalizations due to insufficient treatment length, which further impedes the economic situation.

Contributing Factors of Eating Disorders

In an effort to better understand predictors and risk factors of eating disorders, extensive research has explored potential variables that may play a role in the development of eating pathology. In many cases, the causal factors of an ED are similar to, or the same as, the maintaining factors even years later. Unfortunately there is no perfect equation for determining the extent to which risk factors cause eating disorders across each individual case, though more qualitative explorations of EDs may help to broaden and enhance a more holistic understanding of the illness (Patching & Lawler, 2009).

A broad conceptual risk factor model has served as the prevailing framework for understanding factors that contribute to the development and maintenance of eating disorders (Garner, 2004). The use of risk factor categories has facilitated the organization of findings from the wealth of literature investigating and reporting the risk factors associated with EDs (White, 2000). Garner (2004) notes several categories of broad and specific risk factors that have received the greatest empirical support. The broad variables include individual/psychological, individual developmental, adverse life events, parental, and sociocultural risk factors. This study examined specifically the individual and psychological factors. The remaining categories, which are also critical components to examine as potential predictors of EDs, are beyond the scope of this research.

An empirical review of the literature provides evidence of extensive research suggesting that certain psychological traits may be predisposing factors that predict the future onset of an ED (Lilenfeld et al., 2006). As mentioned throughout this paper, psychological traits such as perfectionism (Hewitt, Flett, & Ediger, 1995), low self-esteem (Frederick & Grow, 1996), social anxiety (Mayer, Muris, Meesters, & Beuningen, 2008), depression (Stice, Burton, & Shaw,

2004), and an inability to regulate emotions (Hayaki, 2009), to name just a few, have been associated with eating pathology. Lilenfeld and colleagues (2006) compiled several studies that offer contrasting models and theories proposing how the relationship between eating disorders and personality traits can be conceptualized. They discuss different types of models that are used in order to understand the risk factors associated with eating disorders.

Of the compiled methodological research on personality traits and the risk they may pose for developing an eating disorder, the identified traits include negative emotionality, poor interoceptive awareness, perfectionism, ineffectiveness, and obsessive-compulsive personality traits (Lilenfeld et al., 2006). These are among some of the specific predisposing factors of ED onset and are also associated with negative treatment outcome. Other common traits found among those with EDs, related to mood and anxiety problems include low self-esteem, personal ineffectiveness, dichotomous thinking, interpersonal difficulty, and emotional dysregulation; these traits may exacerbate comorbid mood and/or anxiety problems as well (Chen, Matthews, Allen, Kuo, & Linehan, 2008). These authors also argued that these characteristics continue to perpetuate the ED cycle and keep patients stuck in the pattern of maladaptive eating styles.

The most effective strategy for evaluating whether or not premorbid personality traits increase the risk of developing an eating disorder is by conducting a prospective study. One prospective study found that poor interoceptive awareness (the ability to identify one's emotions) predicted eating disorder risk status one year later among a non-clinical sample of junior high and high school students (Leon, Fulkerson, Perry, & Early-Zald, 1995). Another similar study found that negative affect predicted increased ED risk status after a 3-4 year follow-up period (Leon, Fulkerson, Perry, Keel, & Klump, 1999). In a study examining a non-clinical sample of college-age women, the personality trait of ineffectiveness (low self-evaluation and emotional

emptiness) was associated with a worsening of disordered eating symptoms (e.g., dieting, bingeing, purging) from the beginning to the end of their freshman year (Striegel-Moore, Silberstein, French, & Rodin, 1989).

Countless studies have examined the etiology behind eating pathology, including the drive to be thin (Penas-Lledo et al., 2009), body dissatisfaction (Wade, George, & Atkinson, 2009), and the maladaptive eating behaviors (i.e., bingeing, purging, restricting) used to alleviate negative emotion (Hooker & Convisser, 1983; Sherwood et al., 2000). It has been well-supported in the research that symptoms of eating disorders develop as a response to manage the discomfort associated with negative emotionality and as a form of self-nurturance (Sherwood et al., 2000), among other non-food related reasons. The identification of individual differences that contribute to risk and relapse across eating disorders is crucial, given the complexity and the potential harm they cause to the health of both body and mental states. Therefore, the underlying issues that maintain eating pathology are entrenched and pervasive and thus cannot be discounted in the treatment of eating disorders.

Eating Disorders as Coping Skills

As mentioned previously, individuals use EDs as coping strategies to manage the difficult and uncomfortable emotions associated with, yet not limited to, interpersonal conflict, intrapersonal discomfort, and the trigger of past memories (Hooker & Convisser, 1983). These variables do not have direct or innate associations with food; however, when these factors become overwhelming, the patient with an eating disorder finds that by focusing on food, he/she can avoid feeling the negative emotions associated with these experiences. However, later in life this coping style proves only to be maladaptive and thus negatively impacts the functionality of the individual suffering from an ED. As they progress through life with a skewed perception of

reality based on early childhood experiences, their intrapersonal and social experiences remain

biased as well. These patients quickly discover that the eating disorder symptoms provide the

comfort of gaining a sense of control that might disappear when they are, for instance,

experiencing unwanted emotions over which they have limited or no control. Instead of

adopting an adaptive coping style, ED patients engage in maladaptive coping styles that prevent

them from effectively handling problems and managing related negative emotions in functional

ways.

It is noteworthy to mention the connection between psychological variables as predictors

of EDs and the ED as a coping method. Hooker and Covisser (1983) argued that many women,

regardless of their size, often turn to eating as a way to cope with unwanted feelings that are

related to difficult aspects of their lives, including relationships, work, and self-concept, among

other things. In the context of societal demands, a sense of a loss of control, and poor self-

concept, some women are primed to develop a dysfunctional relationship with food. The current

ideal of beauty is characterized by extreme thinness and fitness, which represents modern values

of self-control, success, and acceptance in the U.S. (Bergeron & Senn, 1998; Cunningham et al.,

1995). The media "convinces" the public that those who work hard by dieting and exercising

will achieve a perfect body. However, many women fail to recognize that weight is largely

influenced by genetic predisposition. Adolescents in particular who refuse to accept this

limitation may experience distress and rely on drastic measures to attain unrealistic "ideal

selves" (McKenzie, Williamson, & Cubic, 1993; Nowak, 1998).

The media promotes the unrealistically thin ideal for both men and women, especially

adolescents and young adults and this is thought to be a major contributor to body dissatisfaction

(Walcott et al., 2003). Researchers investigating the role of media and its relationship to eating

disorders among women found that the more that young people adopt their society's view of beauty, the more likely they were to be unhappy with their own body type, and were also more likely to engage in disordered eating (Stice, Schupak-Neubert, Shaw, & Stein, 1994). This may be due partly to becoming convinced that they are defective in some way and they may avoid the underlying issues by focusing their attention on body appearance (Hooker & Convisser, 1983). When eating disorders develop in response to or as a result of psychological variables (and complicated by the media and sociocultural pressures), the ED symptoms are often used as a way of coping, albeit maladaptive and unhealthy.

Eating disordered symptoms often develop in response to feeling as though one has lost control (Sassaroli, Gallucci, & Ruggiero, 2008). In many ways, the eating disorder serves as a protective coping mechanism that enables clients to maintain a sense of control in an otherwise uncontrollable world (Sassaroli et al., 2008). When clients experience their environments as chaotic, threatening, or unpredictable – an environment which they cannot tolerate or manage – the ED serves to provide a sense of control. Patients rely on their symptoms as a way to reestablish the feeling that one can regain power, even if all other areas in their lives are uncontrollable.

Many women with EDs use food for the following reasons: to numb intense feelings (using food as an anesthetic), to avoid difficult issues by escaping reality (dissociation), to feel comforted when emotional needs are not met, to fill a void/emptiness, to avoid responsibility, to punish oneself, or to feel rewarded (Hooker & Convisser, 1983). Dietary restriction, a key feature of both AN and BN and for some with EDNOS, is described as a way to "cover-up" the feeling of powerlessness and ineffectiveness (Hooker & Convisser, 1983). It is a way to distract them from overwhelming life problems and the intensity of those difficulties. It is a strategy of

avoidance and denial of feelings, protecting restrictors from facing the responsibilities and

unpredictable events of everyday life. It is essentially an attempt to gain power, autonomy, and

control in a perceived or real chaotic or threatening world (Casper & Zachary, 1984). Patients

with anorexia believe that losing weight will miraculously alleviate their suffering and help them

to "fit in" (Garner & Bemis, 1982). Distressed by a pervasive sense of inadequacy, they are

relieved to discover that that their bodies and appetites are among the few things over which they

can exercise control, and they are ecstatic by their self-discipline (Garner & Bemis, 1982).

Binge episodes are triggered by an event or an emotional state that spurs an individual to

"stuff down emotions" without appropriately processing them. This pattern takes place because

of an inability to tolerate the negative emotional state, and food is used as a distraction and

method of coping, although it provides only a temporary sense of relief. Following this

behavior, bulimic individuals will soon experience guilt over the extreme food intake for fear of

weight gain (Berghold & Lock, 2002). To avoid this, they engage in compensatory strategies for

eliminating the food and preventing weight gain. Similar to bingeing, purging is also only a

transient relief of tension and does not directly or adequately address any problem or issue in a

functional or adaptive way.

Identifying maladaptive coping styles that perpetuate distress and disordered eating offers

a way to prioritize treatment objectives. Fostering a greater sense of control (when possible) and

acceptance may help clients to adjust to their environments in healthier ways. In addition,

offering alternative solutions for more appropriate coping is clinically indicated for patients

whose coping styles further complicate the ED constellation. By examining their stressors, their

behavioral responses to them, their needs, and feelings, patients with eating disorders can

discover the role that food plays in their lives and how they can more effectively cope. This is

especially important if clients aim to develop more realistic attitudes about the relationship between life stressors and food. Although coping style is a learned process, it can be modified with proper intervention focused on challenging the client's beliefs about how to best manage conflict and get his or her needs met.

Treatment Considerations

Given what is known about the well-established relationships between EDs and psychological variables, it is critical that treatment efforts be aimed at addressing the underlying issues that trigger them. Although symptom presentation as well as causal and maintaining factors may often appear similar across patients, the mechanisms of management and coping often differ. Nevertheless, the similarities among ED causal and maintaining factors are commonly fueled by history of trauma (Kong & Bernstein, 2009), negative mood (Godart et al., 2007), intrapersonal problems, (Karpowicz et al., 2009) interpersonal difficulty (Ambwani & Hopwood, 2009), poor family dynamics (Fornari et al., 1999), and a host of other issues.

According to Fairburn (2008), *enhanced cognitive behavioral therapy* (CBT-E) is the latest version of the leading, empirically supported treatment for eating disorders. He organizes CBT-E into two types of categories known as "focused" and "broad." The clinical decision to utilize one over the other will depend largely on the types of problems with which the patient presents. Although the focused version concentrates on and exclusively targets eating disorder psychopathology, the broad version is designed to address processes that are peripheral to the core of the eating disorder that contribute to its maintenance in various patients. These factors include clinical perfectionism, low self-esteem, and interpersonal difficulties, which are of specific interest in the present study and believed to be strong predictors of ED thoughts and behaviors. The goals of the broad version are to challenge and correct perfectionistic thinking,

foster and strengthen self-esteem and confidence, and to build functional and meaningful

relationships (Fairburn, Cooper, Shafran, Bohn, & Hawker, 2008). These authors emphasized

the value in addressing the internal mechanisms that contribute to and exacerbate the eating

disorder and noted that the patient will respond better to treatment with this enhanced component

of clinical attention.

Because of the strong proclivity toward low self-esteem and high self-criticism, treating

individuals with eating disorders can be difficult because motivation may frequently fluctuate.

Should they choose to pursue treatment, which in many cases they refuse, they face conflicting

challenges that may complicate the course of treatment and outcome. Of primary concern is the

consequence of weight gain, which typically evokes an adverse reaction and may cause

noncompliance with treatment recommendations. Further complicating the issue is that some

patients may not be in treatment on their own accord and thus may display manipulative

behavior throughout their courses of treatment. In addition, if patients are in fact suffering from

interpersonal difficulty, affective problems, and low self-esteem, they may choose to avoid

facing these issues because the safety and comfort of the ED initially seems more appealing.

Therefore, building a strong therapeutic alliance and trust with clients is a critical element of

effective treatment. Therapists must adopt a nonjudgmental attitude, roll with resistance, and

support clients throughout their journey of recovery.

Treatment as Usual at The Renfrew Center

Examining the therapeutic approach of The Renfrew Center may help to explain the

course of treatment that clients are exposed to upon consenting to treatment. Lowe and

colleagues (2001) explain that, historically, Renfrew's clinical programming has not emphasized

CBT or other directive therapeutic strategies but has, instead, focused on issues of therapeutic

engagement, social support, and increasing self-assertion within the context of relationships.

This relational focus has been a core Renfrew value. Upon admission, each client is assigned to

a treatment team consisting of a clinical psychologist, a psychiatrist, a master's level primary

therapist, a registered nurse, a dietician, a family therapist, and art and movement therapists

(Lowe, Davis, Annunziato, & Lucks, 2003). Individual therapists schedule sessions with clients

approximately four to five times per week, during which an integration of psychodynamic,

interpersonal, and cognitive-behavioral strategies are used. Patients also participate in weekly

group meetings which emphasize themes relevant to self-esteem, nutrition, sexual trauma, body

image, eating patterns, interpersonal relationships, and cognitive restructuring (Lowe et al.,

2003).

Lowe and colleagues (2011) described the treatment orientation of The Renfrew Center

in greater depth by explaining that the therapists at The Renfrew Center help the clients to

understand the negative emotional precipitants of restricting, bingeing, and purging. Group and

individual therapy sessions typically address the relational precipitants for ED behaviors, seeking

to link interpersonal problems and disconnections with the individual's feelings about her body,

her weight, and her relationship to food. In this model, the treatment community offers secure

relationships, which provide the safety necessary to take new risks with food. The groups and

individual treatment provide informal, nonsystematic directives regarding some of the cognitive

and emotional antecedents to eating disordered behaviors. The clinical emphasis is the on the

therapeutic relationship and on the links between negative emotional reactions and eating

disordered behaviors.

These researchers further explained that, "In contrast to a more formal cognitive

behavioral model, the Renfrew model focuses on the role of the eating disorder symptoms in

managing relationships, internal distress, and the challenges of maturation" (p. 11). Renfrew believes that symptoms reflect difficulties in a variety of areas including self-assertion and the identification and articulation of emotions. Thus, much attention is directed toward containment of stress and the profound ambivalence many patients experience when they contemplate letting go of their eating disorder.

At the inpatient level of care, restoration of nutritional health is one of the primary goals, especially for clients diagnosed with AN. However, weight gain is insufficient as a sole mean of improvement. Nutritional health allows for the individual to begin addressing emotional, relational, and self-regulating functions of her eating disorder (Lowe et al., 2011). With the support of a relationally-focused therapeutic environment, patients can start to consider the role of their eating disorder in their relational and psychological lives. This understanding helps to improve internal motivation and commitment to treatment.

Barriers to Successful Treatment Outcomes

Factors that may negatively influence successful outcomes, in addition to the psychological factors explained previously, must also be considered. When compounded with eating disorders, other variables, such as self-injurious behavior (Anderson, Carter & McIntosh, 2002; Claes, Vandereycken & Vertommen, 2001) add complexity to an already complex set of criteria. Taken into consideration is the tendency for patients to underreport or conceal their true symptom presentation on self-report measures. This problem can seriously interfere with the validity of such measures and should always be presented as a potential study limitation. Therefore, obtaining information in other ways, such as diagnostic interviews and the use of more objective measures is vital (Tury, Gulec, & Kohls, 2010). If clients are misrepresenting or ignoring the severity of their illnesses, they may continue to experience more symptoms. As a

result, they may have a proclivity toward an increased number of previous hospitalizations and other related complications.

For a variety of reasons, ED patients may exhibit the tendency to manipulate their responses both on intake and outcome measures. For one, adolescent patients in particular may be forced into treatment against their will, which may cause them to falsify their responses in order to minimize their ED-related problems. According to Garner (2004), adolescents and younger children rarely seek treatment on their own accord and can present at an assessment with anger, with superficial or questionable compliance, or with genuine cooperation. Second, ED clients may also minimize their responses on outcome measures in hopes of an early discharge to prevent further weight gain. Another typical explanation for feigning responses may be due to the embarrassment of admitting to the use of humiliating ED symptoms such as self-induced vomiting and other weight-related control strategies.

Work with eating disorders demands patience, flexibility, understanding, sensitivity, and an ability to provide unwavering support even in the face of frustration. Therefore, this type of work can be quite challenging and exhausting for both therapists and clients. Successful treatment, then, must first begin with considering the obstacles that may prevent effective outcomes. First and foremost, motivation for change must be assessed, especially in a population that is known to be treatment resistant. When motivation is low, it is in the best interest of the therapist to focus on building a strong therapeutic relationship that fosters trust, warmth, and support. The clinician must be careful not to convince or persuade the patient of what would be best for them. Clinicians should maintain honesty at all times with their clients regarding each aspect of therapy; they should be candid about what it will entail and also about the agenda (i.e., goals of weight stabilization, sharing of emotional material) (Garner & Bemis,

1982). This technique disarms clients and allows them a sense of autonomy to proceed at their own pace and to have some sense of control over their recovery.

Psychoeducation is also a valuable piece of therapy and helps to garner more insight and transparency about what can be expected from the diagnosis and treatment of symptoms. Once trust is established, therapists must demonstrate a careful ability to challenge distorted beliefs yet also remain supportive, sensitive, and understanding of the nature of the illness. Taking into consideration the resistance, reservations, concerns, and fears that clients express throughout recovery may help to reduce the barriers to successful treatment outcomes.

Summary

Taking into account the various risk factors believed to influence the development and maintenance of eating pathology would allow for a more precise and comprehensive understanding of what contributes to the growing problem. Given the need for early identification of risk factors, studies focusing not only on the potential predictors, but also on possible protective factors can inform course of illness and treatment among those diagnosed with eating disorders. Ongoing research will afford the opportunity to create better assessment and screening strategies for those who present with various risk factors across a broad range of domains (i.e., sociocultural, biological, environmental, and developmental) in order to help prevent the onset of and protect the individual from developing serious eating problems.

Chapter 3: Hypotheses

Justification for Hypotheses

A wealth of literature has emphasized the associated challenges that ED patients face when struggling with interpersonal difficulty, affective problems, and feelings of ineffectiveness (low self-esteem and self-alienation). There is also a considerable amount of research examining the relationships between eating disorders and history of previous hospitalizations, self-injurious behavior, and length of stay. Based on the current literature outlining the impact of these factors in relation to EDs, this research will help to build on and enhance the identification of risk factors and predictors of eating pathology to better address this issue effectively.

The purpose of the present study is to explore those factors which predict eating disorder attitudes and behavior (bulimia, body dissatisfaction, and drive for thinness). The goals are to evaluate if psychological processes, as well as other potential risk factors, predict ED symptomatology among ED patients in a residential treatment center. Those psychological variables include interpersonal difficulty, affective problems, and ineffectiveness (low self-esteem and self-alienation). The other risk factors include the number of previous hospitalizations, self-injurious behavior, and length of stay. It is predicted that higher scores on interpersonal problems, affective problems, and ineffectiveness will predict bulimia, body dissatisfaction, and drive for thinness. The aims of the study are threefold and are briefly outlined in the paragraphs that follow.

Hypothesis One

High levels of the independent variables (interpersonal difficulty, affective problems, ineffectiveness, previous hospitalizations, self-harm behavior, and length of stay) among

study participants will predict the dependent variable of bulimia at discharge, while

controlling for baseline scores of bulimia.

Hypothesis Two

High levels of the independent variables (interpersonal difficulty, affective problems,

ineffectiveness, previous hospitalizations, self-harm behavior, and length of stay) among

study participants will predict the dependent variable of body dissatisfaction at discharge,

while controlling for baseline scores of body dissatisfaction.

Hypothesis Three

High levels of the independent variables (interpersonal difficulty, affective problems,

ineffectiveness, previous hospitalizations, self-harm behavior, and length of stay) among

study participants will predict the dependent variable of drive for thinness at discharge,

while controlling for baseline scores of drive for thinness.

Chapter 4: Methodology

Overview

This retrospective study will utilize archival data on a sample of 1,331 patients receiving inpatient treatment from The Renfrew Center in Philadelphia between the years, 2006-2009. The goal and purpose of the study is to explore if elevations in psychological factors such as interpersonal difficulty, affective problems, and ineffectiveness at admission are predictive of bulimia, body dissatisfaction, and drive for thinness at discharge. It seeks to discover whether or not these psychological variables in conjunction with variables known to affect ED risk (i.e., previous hospitalizations, self-injurious behavior, and length of hospital stay) together, as a model, add significant predictive power. The measures that will be analyzed for this study include The Renfrew Center patient information intake form and the Eating Disorder Inventory 3rd edition (EDI-3).

Design and Procedure

The archival data used in the current study were extracted from the Philadelphia inpatient location of The Renfrew Center. The design of the study is a retrospective archival analysis that will examine predictors of eating disorder attitudes and behavior. Subjects who met DSM-IV-TR criteria either for anorexia nervosa, bulimia nervosa, or eating disorder not otherwise specified and whose symptoms were severe enough to warrant inpatient hospitalization to Renfrew were considered for inclusion in this study. Upon admission, all Renfrew clients completed an intake form of demographic and other questions related to history of hospitalizations and self-harm behaviors. In addition to that form, patients also completed the Eating Disorder Inventory - 3rd edition (EDI-3). From the EDI-3, the Interpersonal Problems Composite, Affective Problems Composite, and Ineffectiveness Composite scores at admission

were analyzed. At discharge (which varied across patients), the clients completed items from

only three subscales of the EDI-3; Bulimia, Body Dissatisfaction, and Drive for Thinness. These

were completed in order to determine the extent to which clients were experiencing ED

behaviors, dysfunctional attitudes regarding weight and shape, and the drive to be thin, post

treatment.

The study investigated whether or not interpersonal problems, affective problems, and

ineffectiveness among study participants were predictive of bulimia, drive for thinness, and body

dissatisfaction. In addition, number of previous hospitalizations, self-injurious behavior, and

length of stay were examined to determine whether or not these variables are also predictive of

bulimia, drive for thinness, and body dissatisfaction. Following the collection of questionnaires

that clients completed upon admission, data were then entered into a database.

The Renfrew Center has agreed to provide the dataset following approval from the

Institutional Review Board. The data shared by The Renfrew Center were de-identified prior to

granting access to the dataset to ensure the confidentiality of sensitive and private information.

Each client was assigned a case number to replace identifying information, including name and

date of birth. The Renfrew Center provided a dataset including demographic information, raw

scores on all of the 91 EDI-3 items, and other clinical information regarding the number of

previous hospitalizations, whether or not individuals engaged in self-harm, and the length of stay

in days. The raw scores from the EDI-3 were converted to T-scores, using the EDI-3 manual

rubric as a reference. Subjects were eliminated from the analysis if they failed to provide

complete data on the majority of the items on the EDI-3. Analysis of this research design began

after the dissertation proposal was approved by both Institutional Review Boards of The Renfrew

Center and the Philadelphia College of Osteopathic Medicine (PCOM).

Participants

A clinical sample of 2,467 adolescent and adult female patients who received treatment at the residential program of The Renfrew Center between the time period of 2006-2009 was analyzed in the current study. Each participant included in this research study ranged in age from 14-65 years old. The mean age of participants was 25.41 years ($SD = 9.59$). Each subject met criteria for anorexia nervosa, bulimia nervosa, or eating disorder not otherwise specified and was diagnosed by the site psychiatrist upon an intake assessment. Recruitment efforts were unnecessary for the design of this study because an existing dataset of archival information were utilized. Among the sample, 240 (18%) subjects were diagnosed with Anorexia Nervosa, Restricting Type; 240 (18%) were diagnosed with Anorexia Nervosa, Purging Type; 584 (44%) were diagnosed with Bulimia Nervosa, and 267 (20%) were diagnosed with Eating Disorder Not Otherwise Specified.

Inclusion Criteria

Inclusion criteria consist of female patients from the Philadelphia inpatient location; however, clients come from neighboring and distant regions as well. Patients met diagnostic criteria either for anorexia nervosa, bulimia nervosa, or eating disorder not otherwise specified between the ages of 14 and 65, who completed a full course of residential treatment indicated by and administered at The Renfrew Center between the years, 2006-2009.

Exclusion Criteria

Subjects were excluded if they failed to complete the questionnaires in their entireties at admission and/or discharge. Subjects with missing data on any of the psychological variables of interest and outcome measures (i.e, bulimia, drive for thinness, and ineffectiveness) were excluded from the analysis, leaving the sample size at 1,331 total subjects. An examination of

excluded versus non-excluded cases revealed slight differences among these groups. Several

independent t-test analyses were conducted to determine differences between them. Significant

differences were noted across age, thus the mean age for those excluded was 22.75 years (SD =

9.59), and the mean age for non-excluded was 25.43 years (SD = 9.61); (t (2465) = 6.90, $p <$

.000), two-tailed, d = .28, a small effect size. Significant differences were also observed within

self-harm, such that those excluded showed a mean score of 1.38 (SD = .50), and non-excluded

had a mean of 1.45 (SD = .49) conditions; (t (2428) = 3.88, $p < $ .000), two-tailed, d = .16, a small

effect size. This indicates that those who were not excluded were slightly more likely to self-

harm than those who were. Therefore, this should have strengthened the predictive power;

however, this was not demonstrated in the model. In other words, because a significant

difference was noted between the excluded and non-excluded groups, this should have

strengthened the likelihood of self-harm being a significant predictor of the dependent variables,

although this was not the case.

In addition, t-tests revealed no significant differences across ethnicity (t (2397) = .618, p

= .537), length of stay (t (2433) = 1.23, p = .220), and previous hospitalizations (t (2434) = 1.30,

p = .192). Missing data were noted among ethnicity and self-harm, indicating that for unknown

reasons, certain subjects chose not to respond to those items, although these cases were not

eliminated.

Potential Benefits to Inclusion

The proposed research project will not offer any direct benefits to subjects; however, the

objective of the study is to enhance broad and general knowledge in the field of psychology,

specifically in the area of eating disorders. This particular study seeks to discover if

psychological factors are predictive of ED behaviors, dysfunctional attitudes about eating, shape,

and weight. It will also reveal whether or not the amount of previous hospitalizations, self-harm behaviors, and length of stay are predictive of bulimia, body dissatisfaction, and drive for thinness as well. This knowledge may facilitate the prevention of as well as early intervention for the treatment of eating disorders and may also inform clinical practice by indicating where and how clinicians should intervene in advanced cases of eating disorders.

Measures

The Renfrew Center Patient Information Intake Form. The Renfrew Center patient information intake form was developed by The Renfrew Center and is a Renfrew-specific questionnaire that asks the client to complete demographic information, as well as information regarding age of onset of ED, number of years with ED, number of months with ED before initially seeking any treatment, number of previous hospitalizations, length of stay of the first hospitalization (if applicable), dates of previous hospitalizations (if applicable), whether the client currently smokes, and questions about self-harm (i.e., Client is asked to place a checkmark next to the behavior he or she uses: "Cutting," "Burning," "Scratching/picking scabs," "Bruising/breaking bones," "multiple tattoos/piercings," or "other"). The information from this form that is relevant to this study involves questions regarding previous hospitalizations and self-injurious behavior. Objective discharge weight information for each client will be provided by The Renfrew Center's existing dataset. In addition, weight and height were measured in order to calculate and track body mass index (BMI).

Eating Disorder Inventory-3 (EDI-3). The EDI-3 is the 3rd edition of a widely used 91-item self-report test used to measure psychological traits that are relevant to individuals with eating disorders. The original version (the EDI) was developed by David M. Garner in 1983 and has been revised twice. The most recent version was developed in 2004 and is designed to

provide a standardized clinical evaluation of symptomatology associated with eating disorders

(Cumella, 2006). Despite the fact this review is specific to the EDI-2, the construction of the

EDI-3 retains the same psychometric properties of sensitivity to change and stability over time as

its predecessor. The EDI-3 is an appropriate measure for this study because of its ability to

assess psychological functioning. In addition, the EDI-2 has been found to be a stable measure

of eating disturbances and sensitive to change over time, which indicates that it is an appropriate

measure to assess psychological fluctuations in terms of improvement or decline over time (Thiel

& Paul, 2006).

  The EDI-3 yields 12 primary scale scores (Drive for Thinness, Bulimia, Body

Dissatisfaction, Low Self-Esteem, Personal Alienation, Interpersonal Insecurity, Interpersonal

Alienation, Interoceptive Deficits, Emotional Dysregulation, Perfectionism, Asceticism, and

Maturity Fears) and 6 composite scores (Eating Disorder Risk, Ineffectiveness, Interpersonal

Problems, Affective Problems, Overcontrol, and General Psychological Maladjustment). The

intended population for use of this measure is females between the ages of 13 and 53 years. Test

takers are asked to respond to items on a 6-point Likert-type scale containing options *Always,*

Usually, Often, Sometimes, Rarely, and *Never*, with higher scores indicating a greater likelihood

of pathology across all scales.

  The specific subscales that were examined in this study include the variables that

compose the Interpersonal Problems composite (consisting of the Interpersonal Insecurity

subscale and the Interpersonal Alienation subscale), the Affective Problems composite

(consisting of the Interoceptive Deficits subscale and the Emotional Dysregulation subscale), and

the Ineffectiveness composite (consisting of the Low Self-Esteem subscale and the Personal

Alienation subscale). It is not clinically appropriate to diagnose an individual with an eating

disorder using only the EDI-3, nor can it be assumed that an individual endorsing high ED Risk

necessarily meets clinical criteria for an eating disorder; it is nonetheless likely, however, that

these individuals experience some degree of eating pathology (Garner, Olmstead, & Polivy,

1983).

The EDI-3 shows good internal consistency of item scales and overall, the test-retest

stability coefficients are excellent across scales, ranging from .93 to .98 (Cumella, 2006). In

terms of validity, multiple factor analyses reveal some factor inconsistency across U.S. adult,

international adult, and U.S. adolescent samples, but generally do offer reasonable support for

EDI-3 scale composition and suggest that the EDI-3's composite scores represent theoretically

distinct higher order constructs. Correlations with six alternate reliable and valid measures of

eating disorder behaviors and issues imply acceptable convergent validity. The EDI-3 also has

adequate discriminant validity for most of the EDI-3's subscales and composites. With regard to

the prominence of denial, approval seeking, and cognitive impairments among ED patients, the

EDI-3's inclusion of response style indicators to evaluate these threats to profile validity is a

major improvement of the EDI-3 over its older versions (Cumella, 2006). Scale scores are

calculated by summing all item scores for that specific scale and then converting to T scores.

Composite scores are obtained by summing the T scores for the Eating Disorder Risk scales and

the psychological scales (Garner, 2004).

Composite Scale Descriptors. The *Interpersonal Problems* composite score on the EDI-

3 reflects the respondent's perception that interpersonal relationships are tense, insecure,

disappointing, unrewarding, and generally of poor quality. It captures social self-doubt and

insecurity, along with an overall distrust of relationships and difficulty forming attachments. An

elevated clinical IPC score falls above a T score greater than or equal to 55 and indicates

extreme problems in this area. Despite it being a clinical score, it is not common among clients

with EDs. It reflects very serious interpersonal problems that could be major obstacles in the

process of psychotherapy (Garner, 2004). A *typical clinical* T score falls within the range of 42-

54 and indicates significant distress in this area. These scores are common among individuals

diagnosed with EDs and pose a threat to the recovery and psychotherapy processes. A *low*

clinical score falls below a T score less than or equal to 41 and suggests that the individual is not

suffering in this area; however, a low score could also reflect denial or a response bias on the

part of the patient (Garner, 2004).

The alpha coefficient for a U.S. adolescent sample for this composite is .90 and for U.S.

adults it is .88. It is composed of two subscales including Interpersonal Insecurity (II) and

Interpersonal Alienation (IA). Interpersonal Insecurity (α = .85 for U.S. adolescents and .73 for

U.S. adults) is defined by feelings of discomfort, apprehension, and reticence in social situations,

and IA (α = .80 for U.S. adolescents and .69 for U.S. adults) is measured by an individual's

experience of disappointment, distancing from others, estrangement, and a lack of trust in

individuals (Garner, 2004). Examples of questions on the EDI-3 that assess for Interpersonal

Insecurity are, "I am open about my feelings"; "I have trouble expressing my emotions to

others", and "I can communicate with others easily." Examples of questions that encompass

Interpersonal Alienation are "I trust others"; "I have close relationships," and "I need to keep

people at a certain distance (feel uncomfortable if someone tries to get too close)" and "People I

really like end up disappointing me." Many ED patients report self-doubt in social encounters

and often times experience a lack of trust in others. This experience is suggestive of difficulty

establishing and maintaining secure attachments with others, which has meaningful implications

for the therapeutic alliance. Interpersonal problems play a major role in the maintenance of ED symptoms and are a primary target of treatment.

The *Affective Problems* composite is made up of Interoceptive Deficits and Emotional Dysregulation subscales. It captures the extent to which an individual can accurately identify, understand, or respond to emotional states. It also reflects mood instability, lability, intolerance, impulsivity, recklessness, anger, self-destructiveness, and the misuse of substances to control mood (Garner, 2004). An *elevated clinical* APC score falls above a T-score greater than or equal to 54 and indicates extreme problems in this area. It is relatively uncommon among clients with EDs. It reflects serious disturbances in emotion regulation. A *typical clinical* T-score falls within the range of 43-53 and indicates significant distress in this area. These scores are common among individuals diagnosed with EDs and pose a threat to the recovery and psychotherapy processes. A *low clinical* score falls below a T-score less than or equal to 42 and suggests that the individual is not suffering in this area; however, a low score could also reflect denial or a response bias on the part of the patient (Garner, 2004).

The alpha coefficient for a U.S. adolescent sample for this composite is .89. Interoceptive Deficits (α = .89 for U.S. adolescents and .87 for U.S. adults) and Emotional Dysregulation (α = .77 for U.S. adolescents and .75 for U.S. adults) compose this composite. Interoceptive Deficits are measured by confusion related to accurately recognizing and responding to emotional states and include questions such as, "I get confused about what emotion I am feeling"; "I can clearly identify what emotion I am feeling," and "When I am upset, I don't know if I am sad, frightened, or angry." The Emotional Dysregulation subscale includes questions that assess an individual's tendency toward mood instability, impulsivity, recklessness, anger, and self-destructiveness such as, "Other people would say that I am

emotionally unstable"; "I say things impulsively that I regret having said," and "I am prone to outbursts of anger or rage" (Garner, 2004).

The *Ineffectiveness* composite scale consists of the Low Self-Esteem and Personal Alienation subscales. It measures the extent to which individuals endorse a low self-evaluation and the sense of emotional emptiness that suggests a foundational deficit in personal identity. An *elevated clinical* IC score falls above a T-score greater than or equal to 55 and indicates extreme problems in this area. It is relatively uncommon among clients with EDs. It reflects an extreme deficit in self-concept that involves pervasive feelings of emotional emptiness and aloneness and a poor sense of self-understanding (Garner, 2004). A *typical clinical* T-score falls within the range of 43-54 and indicates significant distress in this area. These scores are common among individuals diagnosed with EDs and pose a threat to the recovery process. A *low clinical* score falls below a T-score less than or equal to 42 and suggests that the individual is not suffering in this area, however, a low score could also reflect denial or a response bias on the part of the patient (Garner, 2004).

The alpha coefficient for a U.S. adolescent sample for this composite is .93. The Low Self-Esteem subscale ($\alpha = .89$ for U.S. adolescents and .89 for U.S. adults) measures negative self-evaluation with questions capturing feelings of insecurity, inadequacy, ineffectiveness, and a lack of personal worth such as, "I feel ineffective as a person," "I feel inadequate," and "I have a low opinion of myself." The Personal Alienation ($\alpha = .87$ for U.S. adolescents and .84 for U.S. adults) subscale incorporates questions that evaluate self-worth but also measures a broader domain of feelings pertaining to a pervasive sense of emotional vacancy and loneliness, as well as a poor sense of self-understanding (Garner, 2004). Questions from this scale include, "I feel

alone in the world"; "I wish I were someone else"; "I feel empty inside (emotionally)", and "I feel that I really know who I am."

Eating Disorder Scales as the Outcome Measures. As defined by the Eating Disorder Inventory – 3rd edition, the Eating Disorder Risk composite scale (EDRC) is composed of the Bulimia, Body Dissatisfaction, and Drive for Thinness subscales and assesses specific attitudes and behaviors regarding eating, weight, and body shape (Garner, 2004). For the purpose of the study, this scale will not be analyzed as a composite, but rather as three separate subscales (the dependent variables) composing this composite scale. The alpha coefficient for a U.S. adolescent anorexic (restrictive type) sample is .91; U.S. adolescent anorexic (binge/purge type) is .97; U.S. adolescent bulimic is .95, and U.S. adolescent EDNOS is .94. This scale is not a measure of risk of developing an eating disorder; rather, it is an estimate of the likelihood that an individual scoring high on this scale suffers from eating pathology. Although individuals in the current study completing this measure endorsed ED symptoms and because it is a sample of individuals diagnosed with EDs, there was some variation in terms of how elevated those particular scores were. Answers are on a continuum of a 6-point Likert scale ranging between *Always, Usually, Often, Sometimes, Rarely,* and *Never,* with higher scores indicating a greater likelihood of pathology across scales. Individuals scoring high on this domain likely exhibit dysfunctional attitudes and/or behaviors regarding eating, weight, and shape; however, this impairment does not necessarily warrant an eating disorder diagnosis.

The *Bulimia* subscale assesses the tendency for individuals to think about and engage in episodes of uncontrollable overeating. It comprises questions that assess for emotional eating (e.g., "I eat when I am upset" and "I stuff myself with food") as well as the use of compensatory strategies (e.g., "I have the thought of trying to vomit to lose weight"). It assesses the self-

reported presence of thoughts and behaviors that are consistent with binge eating in private as well as in response to negative affect. It is likely that individuals scoring high on this domain engage in disordered eating patterns such as bingeing, purging, and/or eating in response to emotional discomfort (Garner, 2004).

An *elevated clinical* Bulimia score falls above a T-score greater than or equal to 56 and indicates that the respondent reports engaging in frequent thoughts and behaviors consistent with binge eating. A score in this range is suggestive of a high level of psychopathology, although it is rare among clients diagnosed with Anorexia Nervosa, Restricting Type. A *typical clinical* T-score falls within the range of 42-55 and indicates significant distress in this area. These scores are common among individuals diagnosed with EDs, particularly those with Anorexia Nervosa, Binge-Purge Type, and EDNOS. A *low clinical* score falls below a T-score less than or equal to 41. It is uncommon for those diagnosed with BN, AN-bp, and EDNOS to score within this range; however, it is common for an individual with AN-r. Low scores could also reflect denial of the current clinical state (Garner, 2004).

The *Body Dissatisfaction* subscale assesses discontentment with overall body shape and size of specific areas of typical concern to those with eating disorders (i.e., stomach, hips, thighs, buttocks). Questions from this scale include "I think that my stomach is too big" and "I think that my thighs are too large." It is not to be assumed that heightened scores on this scale have a causal link to an eating disorder; rather, it should be thought of as a risk factor that is responsible for the initiation and maintenance of extreme weight controlling behaviors that may result in an ED diagnosis in those who are otherwise susceptible (Garner, 2004). Individuals who endorse these types of questions feel dissatisfied with their physical appearances and may engage in behaviors to reduce the associated unhappiness with body image.

An *elevated clinical* Body Dissatisfaction score falls above a T-score greater than or equal to 58 and indicates extreme discontentment with overall shape and weight. A score in this range is rare among clients across all diagnostic groups (Garner, 2004). A *typical clinical* T-score falls within the range of 45-57 and indicates significant concerns around specific body parts including stomach, buttocks, hips, and thighs. These scores are common among individuals diagnosed with all EDs. A *low clinical* score falls below a T-score less than or equal to 44 and suggests that the individual is not suffering in this area; however, a low score could also reflect denial or a response bias on the part of the patient (Garner, 2004).

The *Drive for Thinness* subscale evaluates the preoccupation with restrictive eating, concern about dieting, and intense fears of weight gain. This scale is thought of as one of the central features linked with the onset and maintenance of ED symptoms in clinical populations (Garner, 2004). Questions from this scale include "I am terrified of gaining weight" and "I am preoccupied with the desire to be thinner." Those scoring high on this domain likely feel pressure to maintain or achieve a low weight and likely act on those desires.

An *elevated clinical* Drive for Thinness score falls above a T-score greater than or equal to 57 and indicates that the respondent is terrified of gaining weight, is preoccupied with the desire to be thinner, and spends an excessive amount of time thinking about dieting (Garner, 2004). A score in this range is rare among clients across all diagnostic groups. A *typical clinical* T-score falls within the range of 46-56 and is common among individuals diagnosed with all EDs. A *low clinical* score falls below a T-score less than or equal to 45 and suggests that the individual is not suffering in this area. However, it has been reported among a subset of individuals diagnosed with AN-r and BN (Garner, 2004). A low score could also reflect denial or a response bias on the part of the patient (Garner, 2004).

Chapter 5: Results

Demographic characteristics of the subjects

The total sample consisted of 2,467 subjects. Subjects with missing data on any of the psychological variables of interest (interpersonal problems, affective problems, ineffectiveness, self-harm, and previous hospitalizations) and outcome measures (i.e, bulimia, drive for thinness, and ineffectiveness) were excluded from the analysis, leaving the sample size at a total of 1,331 subjects. Of the remaining 1,331, the mean age was 25.41 years old (SD = 9.59). Of the overall sample 1,176 (88.4%) identified as Caucasian; 45 (3.4%) were Hispanic; 19 (1.4%) were African American; 19 (1.4%) were Asian or Pacific Islander; 7 (0.5%) identified as Native American, and 27 (2.0%) identified as "other." There were 27 (2.9%) participants that did not respond to this item, thus there are missing data for this variable. Among the sample, 240 (18%) subjects were diagnosed with Anorexia Nervosa, Restricting Type; 240 (18%) were diagnosed with Anorexia Nervosa, Purging Type; 584 (44%) were diagnosed with Bulimia Nervosa, and 267 (20%) were diagnosed with Eating Disorder Not Otherwise Specified. A table of the means and standard deviations of the independent variables can be found in Table 1. The means for interpersonal problems, affective problems, and ineffectiveness each fall within the typical clinical range.

Table 1
Means and Standard Deviations of Independent Variables (N = 1,331)*

Variable	M	SD
Interpersonal Problems	51.41	9.54
Affective Problems	50.72	9.99
Ineffectiveness	51.53	9.45
Previous Hospitalizations	1.41	2.72
Length of Stay in days	35.30	20.20
Self-Harm		
Yes	712 (53.5%)	
No	603 (45.3%)	

*Frequencies are depicted for the self-harm variable

A table of the means and standard deviations for the covariates (i.e., bulimia, body dissatisfaction, and drive for thinness scores at intake) can be found in Table 2. Each of the means for bulimia, body dissatisfaction, and drive for thinness fall within the typical clinical range.

Table 2
T-Score Means and Standard Deviations of Covariates at Intake (N = 1,331)

Variable	M	SD
Bulimia	50.05	11.10
Body Dissatisfaction	51.17	10.02
Drive for Thinness	51.17	9.65

A table of the means and standard deviations of the dependent variables (i.e., bulimia, body dissatisfaction, and drive for thinness scores at discharge) can be found in Table 3. The means for bulimia, body dissatisfaction, and drive for thinness each fall within the typical clinical range.

Table 3
T-Score Means and Standard Deviations of Dependent Variables at Discharge (N = 1,331)

Variable	M	SD
Bulimia	47.70	18.00
Body Dissatisfaction	49.34	10.80
Drive for Thinness	49.43	10.94

Method of analysis

A series of multiple regression analyses were conducted to test each hypothesis. These analyses involved the use of the outcome variables (bulimia, body dissatisfaction, and drive for thinness) as the dependent variables, and the independent (predictor) variables consisted of interpersonal difficulty, affective problems, ineffectiveness, history of hospitalizations, self-harm behaviors, and length of stay for all hypotheses.

Upon initial examination of each of the predictor variables, it was noted that the assumption of multicollinearity was not violated because none of the correlations was above .80 or .90. Related to this value is the variance inflation factor (VIF), which measures whether or not a predictor has a strong linear relationship with the other predictors. A value of 10 or above indicates a violation of this assumption. The model does not violate the assumption of multicollinearity because each of the predictor VIF values range between 1.02 and 2.50. In addition, the Durbin-Watson statistic, a test that specifically tests the assumption of independent errors, revealed that the residual terms were uncorrelated, or independent, as reflected by scores of 1.54, 1.9, and 1.78.

The model also met the requirements for homoscedasticity, because the residuals at each level of the predictors were found to have the same variance. A visual inspection of the histogram and scatterplot graphs demonstrated that the residuals were independent, with the

majority of residuals falling near zero. The graphs also reveal linearity and homoscedasticity as evidenced by the randomly dispersed residuals and normally distributed errors. Finally, a summary table of casewise diagnostics was examined to uncover extreme cases. The number of cases was divided by the total sample of 1,286, which yielded a score of about .047 for bulimia, .059 for drive for thinness, and .036 for body dissatisfaction. In an ordinary sample, 95% of the cases would be expected to have standardized residuals within about 2 standard deviations of the mean. There were about roughly 5%, 6%, and 3% respectively that are outside of these limits; therefore the sample is within the boundary of what should be expected. Therefore, the sample appears to conform to what is expected for an accurate model.

Correlation Analysis between Predictor Variables and Bulimia at Discharge

The relationships between the dependent variable (bulimia) and the independent variables (interpersonal problems, affective problems, ineffectiveness, previous hospitalizations, self-harm, and length of stay) were investigated using correlations. The intercorrelations between the predictor variables and bulimia can be found in Table 4.

Table 4
Intercorrelations for Bulimia and Predictor Variables (N = 1,331)

Variable	1	2	3	4	5	6	7
Bulimia	-.06*	-.15**	-.06*	.13**	-.10**	.11**	-.03
Predictor variable							
1. Interpersonal Problems	--	.53**	.66**	.53	.23**	.08**	.09**
2. Affective Problems		--	.63**	.01	.33**	.02	.27**
3. Ineffectiveness			--	.10**	.26**	.08**	.16**
4. Previous Hospitalizations				--	.07*	.10**	-.05
5. Self-Harm					--	-.00	-.03
6. Length of Stay						--	.01
7. Covariate Bulimia							--

*p <.05; **p <.01

Correlational analysis revealed significant negative correlations between the dependent variable (bulimia) and three of the independent variables (interpersonal problems, affective problems, and ineffectiveness); this is a contrast from what was hypothesized. The fewer interpersonal problems, affective problems, and ineffectiveness reported by subjects, the more bulimia symptoms they reported, although each of these negative correlations was weak. There was also a significant positive, though weak, relationship between previous hospitalizations and bulimia. The more hospitalizations a subject reported, the more bulimia symptoms they experienced. Length of stay was also found to be significantly, positively correlated with bulimia, so that as length of stay increased, a greater number of symptoms of bulimia were reported by subjects; however, this correlation was also weak. Contrary to expectation, self-harm was found to be significantly, negatively correlated with bulimia; however, it is a weak correlation. This means that subjects who reported no self-harm behaviors trended toward more problems with bulimic symptoms.

Predictors of Bulimic Behaviors

To test the hypothesis that endorsement of the psychological variables of interest in tandem with known variables affecting ED behaviors (interpersonal difficulty, affective problems, ineffectiveness, prior hospitalization, self-harm behavior, and length of stay) would predict bulimia at discharge, a multiple regression was conducted. While controlling for baseline scores of bulimia, a multiple regression analysis determined how much of the variance in the bulimia subscale is accounted for by interpersonal difficulty, affective problems, ineffectiveness, number of previous hospitalizations, self-harm behavior, and length of stay.

Using a forced-entry multiple regression analysis, a significant model emerged [R^2 = .051, $F(7, 1279) = 9.84$, $p < .001$] while controlling for Type I error via a Bonferroni correction

where $p < .016$ (Missing data in either ethnicity or self-harm resulted in a loss of an additional

45 subjects, leaving a sample size of 1,286 for this analysis). A multiple regression summary

table for bulimia can be found in Table 5.

Table 5
Simultaneous Multiple Regression Analysis Summary for the Independent Variables Predicting
Bulimia (N = 1,286)

Variable	B	SEB	β
Interpersonal Problems	-.03	.07	-.02
Affective Problems	-.28	.07	-.16**
Ineffectiveness	.09	.08	.05
Previous Hospitalizations	.76	.18	.11**
Self-Harm	-.20	1.05	-.055
Length of Stay	.09	.02	.10**

Note. $R^{2} = .051$; $F(7, 1279) = 9.84$, $p < .001$
*$p <.05$; **$p <.01$

   Six independent variables and a covariate (to control for bulimia at intake) were entered

to establish if there was a significant relationship between the predictor variables (interpersonal

problems, affective problems, ineffectiveness, previous hospitalizations, self-harm, and length of

stay) and bulimia. Three of these predictor variables were found to be significant predictors of

bulimia. These variables are affective problems, previous hospitalizations, and length of stay.

Counter to the hypothesis, affective problems predicted bulimia, although the correlation was

negative and weak. This was an unexpected result, but a possible explanation for this finding

will be provided in the discussion. As expected, previous hospitalizations and longer lengths of

stay were predictive of bulimia, although the correlations were also weak. Finally, self-harm

approached significance as a predictor of bulimia (p = .062) but did not achieve statistical

significance, and this correlation was weak as well.

The multiple regression suggests that subjects with more previous hospitalizations, longer lengths of stay, and contrary to prediction, fewer affective problems, were more likely to endorse bulimia-related attitudes and behaviors at discharge. However, these results should be interpreted with much caution considering the bivariate correlations between these variables and the outcome variable were weak and that only an approximate 5% of the variance was accounted for with the current model.

Correlation Analysis between Predictor Variables and Body Dissatisfaction at Discharge

The relationships between the dependent variable (body dissatisfaction) and the independent variables (interpersonal problems, affective problems, ineffectiveness, previous hospitalizations, self-harm, and length of stay) were investigated using correlations. The intercorrelations between the predictor variables and body dissatisfaction can be found in Table 6.

Table 6
Intercorrelations for Body Dissatisfaction and Predictor Variables (N = 1,331)

Variable	1	2	3	4	5	6	7
Body Dissatisfaction	-.04	-.08**	-.02	.08**	-.02	.02	-.04
Predictor variable							
1. Interpersonal Problems	--	.53**	.66**	.53	.23**	.08**	.34**
2. Affective Problems		--	.63**	.01	.33**	.02	.31**
3. Ineffectiveness			--	.10**	.26**	.08**	.48**
4. Previous Hospitalizations				--	.07*	.10**	.12**
5. Self-Harm					--	-.00	.22**
6. Length of Stay						--	.08**
7. Covariate Body Dissatisfaction							--

*p <.05; **p <.01

Correlational analysis revealed a significant, negative correlation between affective problems and body dissatisfaction, a contrast from what was hypothesized. The fewer affective problems reported by subjects, the more body dissatisfaction they reported, although this was a weak correlation. There was also a significant, positive relationship between previous hospitalizations and body dissatisfaction. The more hospitalizations a subject reported, the more body dissatisfaction she experienced, although this was a weak correlation as well.

No other significant correlations were found among the independent and dependent variables. More specifically, body dissatisfaction was not significantly correlated with interpersonal problems, ineffectiveness, self-harm, or length of stay.

Predictors of Body Dissatisfaction

To test the hypothesis that endorsement of the psychological variables of interest, in tandem with known variables affecting ED behaviors (interpersonal difficulty, affective problems, ineffectiveness, prior hospitalization, self-harm behavior, and length of stay) would predict body dissatisfaction at discharge, a multiple regression was conducted. While controlling for baseline scores of body dissatisfaction, a multiple regression analysis determined how much of the variance in the body dissatisfaction subscale is accounted for by interpersonal difficulty, affective problems, ineffectiveness, previous hospitalizations self-harm behavior, and length of stay.

Using a forced-entry multiple regression analysis, a significant model emerged [R^2 = .013, $F(7, 1280) = 2.48$, $p = .016$] while controlling for Type I error via a Bonferroni correction where *p < .016*. (Missing data on either ethnicity or self-harm resulted in a loss of an additional 44, leaving a sample size of 1,287 for this analysis). A multiple regression summary table for body dissatisfaction can be found in Table 7.

Table 7

Simultaneous Multiple Regression Analysis Summary for the Independent Variables Predicting Body Dissatisfaction (N = 1,287)

Variable	B	SEB	β
Interpersonal Problems	-.03	.04	-.02
Affective Problems	-.10	.04	-.09*
Ineffectiveness	.09	.05	.08
Previous Hospitalizations	.28	.11	.07*
Self-Harm	.02	.65	.00
Length of Stay	.01	.02	.02

Note. $R^{2} = .013$; $F(7, 1280) = 2.48$, $p < .001$

*$p < .05$; **$p < .01$

Six independent variables and a covariate (to control for body dissatisfaction at intake) were entered to establish if there was a significant relationship between the predictor variables (interpersonal problems, affective problems, ineffectiveness, previous hospitalizations, self-harm, and length of stay) and body dissatisfaction. Two of these predictor variables were found to be significant predictors of body dissatisfaction. These variables are affective problems and previous hospitalizations. Counter to the hypothesis, affective problems negatively predicted body dissatisfaction, although the correlation was weak. This was an unexpected result, but a possible explanation for this finding will be provided in the discussion. As expected, previous hospitalizations predicted body dissatisfaction, although the correlation was also weak. The multiple regression suggests that subjects with more previous hospitalizations and contrary to prediction, fewer affective problems, are more likely to endorse body dissatisfaction at discharge. However, these results should be interpreted with much caution considering the

bivariate correlations between these variables and the outcome variable were weak, and that only

an approximate 1% of the variance was accounted for with the current model.

Correlation Analysis between Predictor Variables and Drive for Thinness at Discharge

The relationships between the dependent variable (drive for thinness) and the

independent variables (interpersonal problems, affective problems, ineffectiveness, previous

hospitalizations, self-harm, and length of stay) were investigated using correlations. The

intercorrelations between the predictor variables and drive for thinness can be found in Table 8.

Table 8
Intercorrelations for Drive for Thinness and Predictor Variables (N = 1,331)

Variable	1	2	3	4	5	6	7
Drive for Thinness	-.05	-.06*	-.06	-.04	.02	.01	-.01
Predictor variable							
1. Interpersonal Problems	--	.53**	.66**	.53	.23**	.08**	.32**
2. Affective Problems		--	.63**	.01	.33**	.02	.38**
3. Ineffectiveness			--	.10**	.26**	.08**	.48**
4. Previous Hospitalizations				--	.07*	.10**	.06*
5. Self-Harm					--	-.00	.18**
6. Length of Stay						--	.07**
7. Covariate Drive for Thinness							--

*p <.05; **p <.01*

Correlational analysis revealed a significant, negative correlation between affective

problems and drive for thinness, a contrast from what was hypothesized. The fewer affective

problems subjects reported, the more drive for thinness they reported, although this was a weak

correlation. No other significant correlations were found among the independent and dependent

variables. More specifically, drive for thinness was not significantly correlated with

interpersonal problems, ineffectiveness, previous hospitalizations, self-harm, or length of stay.

Predictors of Drive for Thinness

To test the hypothesis that endorsement of the psychological variables of interest in tandem with known variables affecting ED behaviors (interpersonal difficulty, affective problems, ineffectiveness, prior hospitalization, self-harm behavior, and length of stay) would predict drive for thinness at discharge, a multiple regression was conducted. While controlling for baseline scores of drive for thinness, a multiple regression analysis determined how much of the variance in the drive for thinness subscale is accounted for by interpersonal difficulty, affective problems, ineffectiveness, number of previous hospitalizations, self-harm behavior, and length of stay.

A forced-entry multiple regression analysis revealed that a significant model did not emerge [R^2 = .009, F (7, 1280) = 1.66, p = .114] while controlling for Type I error via a Bonferroni correction where $p < .016$. (Missing data in either ethnicity or self-harm resulted in a loss of an additional 44 subjects, leaving a sample size of 1,287 for this analysis). A multiple regression summary table for drive for thinness can be found in Table 9.

Table 9
Simultaneous Multiple Regression Analysis Summary for Independent Variables Predicting Drive for Thinness (N = 1,287)

Variable	B	SEB	β
Interpersonal Problems	-.04	.04	-.04
Affective Problems	-.08	.04	-.07
Ineffectiveness	.02	.05	.01
Previous Hospitalizations	.20	.11	.05
Self-Harm	-.20	1.05	-.055
Length of Stay	.97	.65	.04

Note. R^2 = .009; $F(7, 1280)$ = 1.66, $p < .001$
*p <.05; **p <.01*

Six independent variables and a covariate (to control for drive for thinness at intake) were entered to establish if there was a significant relationship between the predictor variables (interpersonal problems, affective problems, ineffectiveness, previous hospitalizations, self-harm, and length of stay) and drive for thinness. The overall multiple regression model was not significant, suggesting that none of the independent variables predicted drive for thinness, which was an unexpected result. Possible explanations for these findings will be provided in the discussion.

Chapter 6: Discussion

Major Findings

The overarching goal of this study was to better understand the relationships between psychological variables and factors related to disordered eating. In doing so, a set of psychological variables and ED-related symptoms from the EDI-3 were examined within an inpatient ED treatment center. The number of previous hospitalizations, self-harm behavior, and length of stay among study participants were also investigated to determine whether or not relationships existed between those variables and disordered eating. By exploring these relationships, the aim was to advance the growing body of literature on predictors of eating disordered traits. The purpose of the current study was also to provide suggestions for future directions to improve early identification of risk factors, prevention strategies, and treatment in an inpatient setting.

It was hypothesized that the independent variables (interpersonal problems, affective problems, ineffectiveness, previous hospitalizations, self-harm, and length of stay) would predict the dependent variables, bulimia, body dissatisfaction, and drive for thinness.

To accomplish these goals, a series of multiple regression analyses were conducted. Findings from the analysis supported the hypothesis, from a statistical standpoint, that affective problems, previous hospitalizations, and length of stay are predictive of bulimic symptoms. Despite the relationships being statistically significant, affective problems, previous hospitalizations, and length of stay accounted for only 5% of the variance in bulimia. The results also supported the hypothesis that affective problems and previous hospitalizations are predictive of body dissatisfaction. However, affective problems and previous hospitalizations accounted for only 1% of the variance in body dissatisfaction. This means that there are other variables not

included in this study that account for the remaining 95% and 99% of the variability in the

dependent variables, bulimia and body dissatisfaction, respectively. Practically speaking, the

extent to which this model can inform the understanding of bulimia and body dissatisfaction is

very limited. Whereas statistical significance was noted in the previously mentioned models, no

significant relationships were found among the independent variables and the third dependent

variable, drive for thinness. A rationale for the expected and unexpected findings is explained

below.

Though significant, the relationship between affective problems and bulimia is inversely

and weakly related. The same finding was noted among affective problems and body

dissatisfaction. To explain, the results demonstrated that as scores on affective problems

decreased among participants, scores on bulimia and body dissatisfaction increased at discharge.

As scores on affective problems increased, scores on bulimia and body dissatisfaction decreased

at discharge. Not only is the inverse relationship between affective problems and these two

dependent variables counterintuitive, these findings contradict general assumptions about the

relationship between mood problems and eating pathology (Dobmeyer & Stein, 2003; Stice et

al., 2005; Heatherton & Baumeister, 1991).

A possible explanation for the disparity between the findings of the current study and the

existing literature may have to do with the methodology of this study. A confounding factor may

be that the EDI-3 (though a valid measure) is a self-report measure, as opposed to an objective

psychiatric interview. Much of the existing ED research utilized the Eating Disorder

Examination (EDE), a semistructured clinical interview that was developed to assess specific

psychopathology of eating disorders (Fairburn & Cooper, 1993), which is a more detailed and

comprehensive tool in comparison to the EDI-3. In contrast to studies that utilized this measure,

this project utilized the EDI-3. The EDI-3, although effective in capturing ED pathology, is a self-report measure that contains various weaknesses. Relying on self-report assessments as the sole means of interpretation increases the possibility that subjects presented themselves favorably ("faked good"), exhibited poor insight, were in denial, or erroneously endorsed items based on their use of a coping mechanism (although maladaptive) (Troop et al., 1994).

Decaluwe and Braet (2004) found that when comparing the reliability of a clinical interview versus a self-report measure among obese children and adolescents with eating pathology, a clinical interview was much more reliable. One problem with self-report is that it relies upon the patients' accounts of their own suffering. Accuracy in that accounting, because of its inherently subjective nature, often has negative implications on the validity of the results. Bingeing typically occurs in private and is accompanied by a feeling of "numbing out" or "escaping from self-awareness" (Heatherton & Baumeister, 1991). The secretive nature of EDs poses a challenge for assessment, because there are few natural opportunities to observe an individual engaged in ED symptoms while it is occurring. As a result, relying on subject self-report may have an impact on the validity, because the details of what and how much was eaten may be difficult to recall or are too shameful to reveal.

Because self-report measures and interviews rely on the individual's recollection and accuracy of his or her own problematic eating behaviors, utilizing an 'investigator-based' interview is considered the more valid of the two assessment methods (Wilfley et al., 1997). In clinical interviews, researchers can clarify questions they may have and make trained judgments in scoring, based on the information that the patient provides (Fairburn & Cooper, 1993). The EDE is considered to be the most appropriate method to assess ED-specific pathology because of its high reliability and validity. Issues related to self-report may have been the cause of the low

score on affective problems as well as the lack of significant findings across all the expected

psychological predictor variables.

It is possible, and at times likely, that clients deliberately complete measures dishonestly

or they do not have the capacity for accurate self-evaluation (Tury, Gulec, & Kohls, 2010;

Vitousek & Stumpf, 2005). Leon and colleagues (1995) demonstrated that poor interoceptive

awareness (otherwise known as alexithymia), which is a core contributor of affective problems,

strongly predicted the future development of eating disorders. Another study examined insight

in a sample of female patients with EDs, and noted that lack of insight was a significant feature

among some clients (Konstantakopoulos, Tchanturia, Surguladze, & David, 2011). Even though

the affective problems composite scale was designed to assess poor interoceptive awareness,

some participants may still have been unable to recognize their own internal experiences

accurately. As a result, their responses on this measure may have been skewed and they may

have denied problems in this area when, in fact, they were objectively experiencing issues related

to identifying their own emotions. It was also revealed that a subset of these women deliberately

denied their illness. This means that patients may report fewer or no symptoms when, in fact,

symptoms do exist.

The final issue is that coping mechanisms, specifically bulimic behaviors, may

unexpectedly affect scores on self-report measures of affect. Bulimic behaviors temporarily

alleviate painful feelings and emotions. This is a way for an individual to escape psychological

distress by shifting focus to food and weight (Heatherton & Baumeister, 1990). An individual

who endorses high bulimic thoughts/behaviors and body dissatisfaction is essentially attempting

to avoid or distract from depressive or uncomfortable mood states (Stice et al., 2004; McCarthy,

1990). Stice and colleagues (2004) report that the Negative Affect Model explains that

depressed individuals binge eat because they believe it provides comfort and distraction from negative feelings. Escape theory similarly posits that binge eating is a maladaptive coping mechanism by which an individual attempts to escape and alleviate affective distress by focusing on external food cues (Heatherton & Baumeister, 1991). As a result, the subject becomes temporarily relieved, unbothered by negative mood states, and less concerned with identifying their emotions accurately, which is an important component of affective problems (Merwin, Zucker, Lacy, & Elliott, 2010). Escape theory acknowledges that deficits in the ability to decode one's own internal experiences accurately are threatened in the face of EDs.

Thus, it can be hypothesized that subjects who endorsed low affective problems in the current study were more likely to exhibit bulimic symptoms or focus on their physical appearances as a method of distraction (Stice et al., 2004; Heatherton & Baumeister, 1991). More specifically, with the presence of the coping mechanism (high scores on bulimia), scores on affective problems were low. Consequently, the combination of these four issues, presenting oneself favorably ("faking good"), poor insight, denial, and the possibility that the presence of a coping mechanism affected self-reported affective measures seriously limits the degree to which accurate conclusions can be made in the current study. Although the relationship found between affective problems and ED behaviors is an anomaly in comparison with the literature, other important findings consistent with the literature are described in the following paragraphs.

As expected, previous hospitalizations were found to predict bulimia and body dissatisfaction. The greater number of previous hospitalizations subjects reported at admission, the more bulimia and body dissatisfaction they reported at discharge. Both of these variables, however, were only weakly related to previous hospitalizations. These findings are upheld by the literature that demonstrates a link between previous hospitalizations and ED-related

symptoms (Steinhausen et al., 2008). These researchers found that those reporting a greater number of hospitalizations tend to have more complex presentations, psychological maladjustment, and a greater need for support. This is an important issue because the identification of risk variables for readmission may ultimately contribute to better treatments aimed at addressing underlying core issues.

Analysis revealed that length of stay was also found to be a significant, though weak, predictor of bulimia. Existing research indicates a link between dysfunctional eating and length of stay among patients with AN, but to date no research was able to be located linking the remaining EDs with length of stay. Studies involving AN demonstrated that an illness requiring a longer length of stay is considered to be more psychologically complex and will be less sensitive to therapeutic intervention (Agras et al., 2004). As a result, patients are more likely to require longer lengths of stay to treat their illness effectively. In the current study, as length of stay increased, bulimia symptoms did as well. Despite the literature being limited to the AN population, this was an expected finding because an individual with BN or EDNOS can also present with complex psychopathology that would warrant greater lengths of stay.

It is equally important to discuss the findings that were not statistically significant. Insignificant findings were noted between bulimia and three of the independent variables (interpersonal problems, ineffectiveness, and self-harm). Additionally, the findings between body dissatisfaction and four of the independent variables (interpersonal problems, ineffectiveness, self-harm, and length of stay) were not found to be significant either. Finally, none of the independent variables predicted drive for thinness.

Although it was not discovered in the current study, there is extensive research to support the link between bulimia and self-harm (Claes et al., 2001; Solano et al., 2005). There is limited

data to support the fact that self-harm behaviors precede an ED, but there is ample data showing

that ED behaviors precipitate self-harm (Anderson et al., 2002; Favaro & Santonastaso, 2002).

Although a similar finding was not gleaned from the present study, it is possible that subjects

chose not be forthright when responding to this item because of the shame and embarrassment

associated with it (Gilbert, et al., 2010). No research was located about the connection between

self-harm and body dissatisfaction. Speculatively, those individuals endorsing body

dissatisfaction may not wish to draw additional attention to their physical appearances by

engaging in self-harm. It may also be the case that other factors are more predictive of the

dependent variables, which is described in greater detail in the succeeding paragraph.

The results of this study suggest that other risk factors, apart from the proposed

independent variables, are potentially better predictors of bulimia, body dissatisfaction, and drive

for thinness. A deeper investigation into the other factors that predict bulimia, body

dissatisfaction or drive for thinness is required to better understand what contributes to the future

development of dysfunctional eating.

As indicated in the research, eating disorders do not develop in response to dissatisfaction

with appearance; instead, they seem to stem from underlying psychological, environmental, and

biological problems that pose barriers against normal adjustment and coping (Steiner & Lock,

1998). Alternative factors (alone or in conjunction with the variables included in this study) may

be responsible for the development of eating disorders.

In examining risk factors and predictors of EDs, Garner (2004) introduced a conceptual

risk factor model that organizes risk factors into four categories. Apart from psychological

determinants, sociocultural, developmental, adverse life events, and parental factors play a strong

role in the development of eating disorders. In this view, sociocultural factors include living in

Western society and being influenced by sports that emphasize slimness. Developmental factors consist of early childhood feeding problems, pregnancy complications, childhood anxiety, childhood obesity, early puberty, and adolescence. Adverse life events are described as physical/sexual abuse or neglect, bullying or teasing, physical illness, and weight loss in adolescence. Finally, parental factors include obesity, dieting, having a mother with an ED, critical comments about weight, overexercise, high performance expectations, overconcern or hypervigilance, depression, high degree of conflict, and substance abuse.

Given the multitude of other risk factors that are suspected to precipitate the development of EDs, it is necessary to include these influences in future research to better understand them, either in isolation or collaboratively, as predictors of EDs. The current findings suggest that the variables of interest in this study are not always related to bulimia, body dissatisfaction, and drive for thinness and, that perhaps the variables described previously are more strongly related to eating pathology. The findings do not, however, suggest that the previously established link between ED symptoms and the independent variables is invalid. Rather, they imply that factors other than (or in conjunction with) interpersonal problems, ineffectiveness, and self-harm may be contributing to the onset and maintenance of those maladaptive behaviors. Although some of these relationships were found to be insignificant in the present study, further investigation into these relationships is warranted.

Limitations of the Current Study

There are several limitations of the current study. The generalization of the current study's findings to general ED populations is limited by the distinct characteristics of the sample. First, the sample population is homogeneous across gender and is heavily unbalanced across ethnicity. Second, it is not representative of the overall ED population in terms of reflecting the

population proportions by diagnostic type (AN, BN, and EDNOS). Third, although age was collected across participants, this demographic variable was not grouped or categorized. Additionally, although the age range was 14-65 years, the majority of the subjects were not broadly dispersed within that range. Consequently, it is unknown whether or not similar results would apply to males, to people of diverse ethnic backgrounds, or to the general ED population. Questions remain regarding the depth of applicability to far ends of the age spectrum, as well.

The study is not representative of the overall ED population because the most prevalent eating disorder is EDNOS (Machado, Machado, Goncalves, & Hoek, 2007). This may in part be due to the exclusion of 1,136 subjects, based on not completing the measures in full. Machado and colleagues (2007) argued that EDNOS accounts for three quarters of all community cases with eating disorders. Almost half of the subjects in this particular sample were diagnosed with Bulimia Nervosa. Additionally, AN, BN, and EDNOS, though similar in nature, have distinct differences that set them apart from one another in important ways. For instance, patients with AN typically require longer lengths of stay because they are severely underweight and treatment must first address any medical complications prior to addressing emotional health (Anzai et al., 2002). For patients with other EDs, the average length of stay is far briefer. This is an important limitation because all participants were "lumped" together in the current analysis, limiting the ability to detect differences in length of stay across the diagnostic categories and thus generalized this data to the overall ED population. The hypotheses were not designed to make distinctions by diagnosis. This is a problem that limits the ability to draw conclusions about which predictors affect specific diagnoses. Because diagnosis was not taken into account in the current study, the same limitation that affects length of stay also applies to the other hypothesized predictor variables.

Another limiting factor was the fact that there was no delineation made in the analyses between different age groups (adolescents and adults) when investigating the independent variables and their predictability on the dependent variables. Research suggests that the most common age of onset of binge eating is between 18-19 years old (Fairburn & Cooper, 1984b). Inpatient ED treatment centers are most frequently utilized by adolescents and young adults (Anzai, et al., 2002). Although the sample population does share a common thread with the overall ED population, and therefore the age of most of the participants was within the higher end of the adolescent category, research shows that adolescents and adults do not respond similarly on ED measures (Loeb et al, 2010). Organizing the adolescents and adults into two distinct groups could have elicited more information regarding the predictors of ED symptoms. Although these generalization issues of the current study are a considerable limitation, there are also weaknesses in methodology to be addressed.

As previously mentioned, the findings of this study may be limited due to the nature of the self-report measure that was utilized, the EDI-3. Because of the nature of self-report measures, it is possible that some of the results are not reflective of true symptomatology. It can be assumed that some of the results are accurate, but the results from self-report measures must always be interpreted with a degree of caution. Patient motivation and insight should be considered in relation to this. Patients entering treatment to address an ED diagnosis typically are transparent about their suffering or are in denial of it (Vandereycken & Humbeeck, 2008). A patient who, at intake, is more willing to treat the symptoms of depression and ED pathology, is more likely to report their symptoms accurately than one who is in denial. Inversely, if a client is denying his or her illness, then his or her tests are less reliable, and the findings are skewed. Consistent with existing research, patients with EDs are known to be highly ashamed of their

symptoms (especially bingeing and purging), which is the reason why symptoms are kept secret and the reason why many patients do not endorse accurate reflections of themselves on self-report measures (Hayaki et al., 2002; Fairburn & Beglin, 1993). Shame and patient readiness to self-evaluate accurately are critical aspects to consider with regard to self-report assessment because of the negative impact they may have on the results of a study.

Another methodological weakness of the current study involves its time duration. With no prospective component, the current study made it impossible to assess the time when risk factors exert their influence in development (i.e., the timing and patterning). This was due to the study duration and the absence of sufficient patient follow-up. Thus, it is not possible to specifically determine causality or the exact period of occurrence of the predictors. Because the design prohibits the establishment of causality, directional conclusions cannot be made. It is unknown, for example, whether or not the risk variables included in this study cause ED pathology or if disordered eating leads to the onset of psychological problems. Given these limitations around generalization, methodology, and design of the current study, future research aimed at rectifying these issues is needed.

Future Directions

It has been argued that current models of identifying risk factors of EDs lack precision in identifying the relative contribution of multiple factors and their interactions (Garner, 2004). Although researchers have been, and continue to move toward a greater ability to identify the factors that precipitate eating disordered attitudes and behavior, further efforts are needed. Specific ways that future research can address shortcomings of the current study and improve the validity and reliability of conclusions drawn regarding the relationships between various risk factors and eating pathology are addressed in the following paragraphs.

Future research should be expanded to include more males and diverse ethnic groups. Given the fact that males and females have distinct responses to environmental, sociocultural, biological, and developmental challenges (Greenberg & Schoen, 2008), it would be interesting to study differences in reactions when exposed to the same risk factors. Similarly, future research should include comparisons between Caucasian individuals and ethnic minority groups. In addition to the examination of potential risk factors, it is necessary to gain a better understanding of how cultural factors pose additional threats to the future development of ED behaviors.

To further improve the ability to generalize to the population suffering from an ED, future studies should also include age and diagnosis of the participants in the analyses in order to detect if differences across the study variables relate to these factors. This would allow for more precise interpretations regarding the effect that predictors have on specific age groups and on the diagnostic categories.

Although self-report was a necessary component of the study, the inclusion of an objective measure should be utilized as a supplement to self-report measures to improve the validity and reliability of the study of risk factors of ED behaviors. Not only will this help to provide less biased responding, but it may also allow for more a more detailed account of internal experiences and symptoms.

To strengthen causal and predictive power, a prospective study would be needed to screen whether or not subjects developed psychological problems prior to or following an ED diagnosis. Therefore, future research should gather information relevant to patient reactions to interpersonal problems, affective problems, and ineffectiveness in relation to ED pathology pre-treatment. Short and long-term follow-up would also help to determine whether or not subjects continue to suffer from psychological issues and ED problems following treatment.

Finally, researchers should continue to explore potential predictors of eating pathology and replicate studies that have established important relationships between ED-related symptoms and psychological variables, such as trauma history (including emotional, physical, and sexual abuse). It would also be beneficial to understand the specific dynamics regarding children whose emotional and physical needs have not been met by parental figures and the later development of EDs among those individuals. Similarly, attachment style and the impact it has on the future onset, progression of illness, and course of treatment would be a fascinating review. Research should be directed toward improving our understanding of individual patterns of development and the interaction of general and unique risk factors that contribute to the onset of ED attitudes and behaviors. Because the study supported an inverse association between affective problems and bulimia and affective problems and body dissatisfaction, which is a stark contrast to the literature, more research is needed to explore whether or not similar findings occur under comparable circumstances. Given the fact that there was no relationship found among drive for thinness and the independent variables, more research on these associations is necessary to establish whether or not an empirical link does in fact exist and under which conditions. This knowledge will help to further enhance the field by identifying risk factors early enough to enhance prevention and intervention strategies successfully.

These suggestions for future directions will help to enhance the validity and reliability of the findings by addressing the core limitations of the study. Improving generalization efforts, methodology flaws, issues related to the design of the study, and continued exploration of other predictors of EDs are critical components of advancements in the field. These recommendations will facilitate the degree to which more precise conclusions regarding the relationships between predictors and ED pathology can be made.

Conclusion

Understanding the complexity, etiology, and maintenance of disordered eating requires an examination of both the unique contributions of certain factors as well as the interaction between those factors. The purpose of this study was to determine the predictive nature of interpersonal, affective, intrapersonal problems, history of hospitalizations, self-harm behavior, and length of stay on the dependent variables (bulimia, body dissatisfaction, and drive for thinness). A deeper understanding of these relationships may lead to an increased understanding of how these factors impact the course of the illness, treatment, prevention efforts, and follow-up care. It provides the opportunity to improve and advance the existing research that has established important relationships between psychological risk factors and eating pathology. Ongoing research in this area will allow clinicians to translate the research and apply it to the clinical setting.

Despite the limitations noted here, the present study does make a contribution to the research field because it underscores the importance of examining the interactions between different variables and their roles. By exploring the predictive nature of psychological variables on ED symptoms, the study contributes to the growing body of literature on predictors of eating disordered symptoms. Understanding the roles of such risk factors is critical in determining developmental and maintaining factors in eating disorder research. Given the multitude of risk factors, identifying the strongest predictors of eating disordered attitudes and behaviors can help to develop protective strategies.

Prevention and early detection of eating disorders rely almost exclusively on the identification of risk factors and symptoms (White, 2000). Symptoms can often be overlooked, especially for those who do not appear underweight. The need to assess young people for

psychological problems across sociocultural, biological, environmental, and developmental domains is critical in early identification of dysfunctional eating patterns. It is equally important to examine resiliency and protective factors among those who are at risk for developing such pathology in order to understand what leads to healthy adjustment among those confronting those risks. In terms of treatment approaches, time and effort spent directly treating psychological risk factors, such as depressive symptoms, for example, may be a better target for prevention of disordered eating in the future. Individuals with difficulties in this area may benefit from interventions focused on addressing mood lability, emotion dysregulation, and self-esteem. Therefore, treating these risk factors early may have important and lasting implications to prevent the future development of eating pathology.

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