College Student Stress: A Predictor of Eating Disoder Precursor Behaviors

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Abstract

Eating disorders are compulsive behaviors that can consume a person's life to the point of becoming life threatening. Previous research found stress associated with eating disorders. College can be a stressful time. If stress predicted precursor behaviors to eating disorders, then counselors would have a better chance to help students sooner. This study focused on stress and three precursors of eating disorders, *Drive for Thinness, Body Dissatisfaction, and Bulimia symptoms.* Regression analysis of 362 college students' responses to a 96 item compiled, electronic survey found that age, gender, and stress did predict the precursor variables. Implications for college counselors are discussed.

An eating disorder (ED) is a compulsive behavior that consumes all aspects of a person's life (Johnstone & Rickard, 2006). According to the American Psychological Association's Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), eating disorders are separated into three categories: anorexia nervosa (AN), bulimia nervosa (BN), and a binge eating disorder (BED). The National Eating Disorder Association (NEDA, 2006) describes anorexia as a self starvation technique to lose weight due to an individual's distorted perception of his/her body image. Individuals with anorexia have an obsessive desire to be severely thin, regardless of their current image (Halvorsen & Heyerdahl, 2006). Bulimia involves consuming large amounts of foods in a short amount of time, then getting rid of the calories by purging or using laxatives (NEDA, 2006). Individuals with bulimia struggle to maintain their weight and fail to control their eating habits, allowing food to overpower their own self-control (Zalta & Keel, 2006). Binge eating is characterized as secretive cycles of overeating without purging (Stein et al., 2007). All eating disorders are serious and can be considered in the extremes as life threatening diseases that are more common in society than most people realize (NEDA, 2006). In the following sections, prevalence rates, associated health problems and predictors that may contribute to the development of an ED are discussed.

Prevalence

Research suggests that the incidence of eating disorders have increased over the last 30 years (Ackard, Fulkerson, & Sztainer, 2007). Based on a review of research, NEDA (2006) concluded that approximately 10 million females and 1 million males currently struggle with anorexia or bulimia with millions more of Americans dealing with a binge eating disorder and these findings have been supported by others (e.g., Ackard et al., 2007; Kugu, Akyuz, Orhan, Ersan, & Izgic, 2006). The statistical evidence for men experiencing eating disorders is lower than women but health professionals report that 10% of all individuals seeking treatment tend to be men (Hudson, Hiripi, Pope, & Kessler, 2007).

Research also suggests that adolescents are at a much higher risk for developing eating disorders. In a recent study Hewitt and Gray (1993) observed the prevalence rate among adolescents in a sample of 4,746

from BN or BED. Corning, Krumm, & Smitherman (2006) found similar results: Out of 203 participants (23%) qualified for the diagnoses of anorexia, 169 participants (19.2%) reported bulimic symptoms, and 493 participants, and more than half of the sample (56%) was binge eaters. It is evident that eating disorders affect people of all ages but data from studies report that college students are at an alarmingly high risk for developing an eating disorder.

An estimated 10 % of female college students suffer from clinical or borderline eating disorders. Of which over half suffer from bulimia nervosa (Ackard et al., 2007). Furthermore, one out of every 100 American college students appears to binge and to purge to lose weight (Hewitt & Gray, 1993). Elgin and Pritchard (2006) found that by their first year of college 18% of women and less than 1% of men have a history of an eating disorder and that 19 % of college age women in America is thought to be bulimic and 10 % to 25% battle anorexia. These results suggest that teachers, counselors, parents, and other personnel who come into contact with the college population need to be aware that eating disorders are prevalent, widespread and problematic behaviors.

Physical and Psychological Problems Associated with ED's

Given the widespread prevalence of all three eating disorders, it is essential to understand the associated problems these individuals will encounter. Each eating disorder has psychological, behavioral and physical complications. The NEDA research (2006) suggests that though a person may experience one of these disorders, he/she may also exhibit characteristics related to the other disorders. If not treated, these physical and emotional complications can become very serious and may result in death.

Physical problems. The most common physical aspects of anorexia are brittle nails, loss of hair, irregular menstruation, and excessive weight loss (Arnold et al., 2002). Anorectic individuals fail to provide their bodies with essential nutrients needed to maintain proper function which forces the body to slow down (Walsh & Devlin, 1998). As the heart rate decreases and the blood pressure declines the chances for cardiac complications increases. Individuals with bulimic symptoms often have swollen cheeks, bruised fingers, dental problems, and tearing of the esophagus due to continuous vomiting (Desai, Miller, Staples, & Bravender, 2008). The recurring binge and purge cycles can affect the entire digestive system resulting with a chemical imbalance. The imbalance can affect the heart as well as other vital organs (Desai et al.). Physical aspects of BED are less noticeable but can be just as severe, including high blood pressure, high cholesterol, kidney disease, bone detoriation and possibly cardiac complications, including heart attacks (Desai et al.). Individuals with BED are at a much higher risk for obesity which increases the triglyceride levels also associated with cardiac complications.

Psychological problems. Eating disorders are the result of an obsessed preoccupation with food and weight but research suggest that these dangerous diseases are much more than simply unhealthy eating habits they also arise from underlying psychological problems (Whiteside et al., 2007). Some individuals have reported that, "the bulimia was not the problem but a side effect to the unstable environment and emotional feelings" (Whiteside et al., 2007, p 23). Thus, eating disorders may arise from a combination of behavioral, emotional, and psychological factors (Whiteside et al., 2007).

Ironically individuals who develop eating disorders often begin with a diet, believing as a result that the weight loss will improve self esteem. However, the reality is the opposite reaction occurs initiating more feelings of helplessness and self doubt (Swineburne & Touyz, 2007). For all of the disorders, psychological problems consist of negative body image, low self esteem, and the need for perfectionism (Romano, Halmi, Sarkar, Koke, & Lee, 2002). Dieting, bingeing, and purging begin as a way to cope with emotions and a way to control life, but these behaviors damage the emotional well being of individuals (Whiteside et al., 2007).

Predictors Associated with Eating Disorders

Stress. Stress is a psychological factor that surrounds many aspects of life such as family stress, work stress, social stress, and major life events (Troop, Holbrey, & Treasure, 2006). Maladaptive responses to stress and anxiety can leave an individual more vulnerable to everyday pressures. The reaction to stress is referred to as stress response and when the body is functioning properly this allows a person to perform well, but when the stress is overwhelming the body overreacts (Corcoran & Franklin, 2002) and a prolonged process will affect individuals by increasing the risk for heart disease, depression, even throwing the digestive system off balance (Daley, Jimerson, Heatherton, Metzger, & Wolfe, 2008). If chronic stress continues individuals begin to see no escape and as a result psychological problems may develop. McLean, Miller, & Hope (2007) reported that stress is associated with anorexia nervosa, bulimia, and binge eating. Swinbourne & Touyz (2007) observed anorectic patients and found that 25% to 75% of their participants suffered from chronic stress. Cooley and Toray (2001) found that 63% AN participants and 57% BN participants reported having experienced high levels of stress before they were diagnosed with an eating disorder. In their study participants acknowledged in personal interviews that the ED was a response to the high levels of stress (Cooley & Toray, 2001). Stress has been reported to increase during life changes, such as moving to college. If research found that college students did report stress, given the correlates found in past research, this population could be susceptible for developing eating disorders.

College life is often stereotyped as a time for freedom and fun. The majority of students look forward to new adventures, challenges, and breaking away from parental control. Yet not all students feel as comfortable making this transition (Vohs, Heatherton, & Herrin, 2001). Students who are unable to adapt to the new vibrant and demanding atmosphere can become vulnerable for developing an eating disorder (Cooley & Toray, 2001). How students handle the transition and social demands differs according to the individual and can increase the possibility that one or more behaviors can develop into an eating disorder may develop (Trautman, Worthy, & Lokken, 2007).

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Depression and self-esteem. Depression can be defined as a set of symptoms ranging from mild to severe, implicating feelings of sadness that deprive individuals of fulfillment on a daily basis (Sawdon, Cooper, & Seabrook, 2007). Additionally, dysthymia can also increase people's feelings of desperation and hopelessness (Schumaker, Warren, Carr, Schreiber, & Jackson, 2005). Depression and self esteem are correlated issues. For example, the inability to interact in social situations may lead to low self esteem and if left unchecked, may result in depression. Then, depression can then lead to a further inability to relate with others which lowers self esteem (Schumaker et al. 2005).

Research suggests that for many depressed individuals, eating disorders provide a temporary escape as the unhealthy eating episodes allow the individual to feel in control (Troop et al., 2006). For example, Avalos & Tylka (2006) and Arclus & Button (2007) found that anorexics and bulimics feel helpless in all situations except over the food they consumed because they controlled the amount or the nutrients which gives them temporary satisfaction. Depression, low self esteem, and stress are correlated to eating disorders with serious consequences for the general population.

The Challenge. When eating disorders reach the prognosis of a full blown stage, they become severe and can result in life threatening situations (Barker, Williams, & Galambos, 2006). When eating disorders are at the full blown stage, they become challenging for both the person with the issue and the professionals who help them (Barker et al., 2006). Treating anorexia is challenging. If a patient is very ill and weighs below the average weight, inpatient hospitalization may be necessary (Arnold et al., 2002). This may take months before the patient is stable enough to be moved to outpatient therapy. All three disorders are treated with psychotherapy and medicine. Both can involve a significant amount of time as well as a financial commitment (Taylor et al., 2006). All individuals who suffer from eating disorders must learn how to eat again and this can be a slow long process (Pendelton, Williams and Swank, 2001). Some individuals never fully recover and those who do

overcome this battle still have daily challenges involving food. If precursors could be clearly identified then counselors, particularly colleges counselors, could identify and begin treatment helping students to prevent fully developing an ED, treatment challenges associated with full-blown eating disorders could be avoided.

The focus of this study examined stress in association with precursors of eating disorders, such as *Drive for Thinness (DT), Body Dissatisfaction (BD), and Bulimia symptoms (BS)* (Stein et al., 2007*)*. Results from earlier work indicate that all three variables influence the onset of eating disorders. Precursors to eating disorders are much easier to treat than full blown eating disorders (Arnold et al., 2002). If stress can be identified as a precursor for *DT*, *BD*, and *BS* in a college population, by addressing stressors related to college life counselors would have a better chance to help students from developing a full-blown diagnostic eating disorder. Earlier intervention could promote a more successful recovery. Understanding the antecedents of eating disorders would help students avoid the destructive path.

Method

Participants. The participants in this study consisted of female and male college students, ($N = 385$), enrolled in a four-year university located in the southeastern region of the United States. Twenty-three students were removed from the data analysis due to incomplete data or not being the age of consent (19 years old), which resulted in a total of 362 participants for purpose of analysis (270 females, 92 males). The mean age of the students was 22 years old ($SD = 5.46$). The sample was diverse, 67% (248) Euro-American, 17% (69) African American, 5% (22) Asian American, 3% (11) American Indian, .08% (3) Hispanic, and .08% (3) Pacific Rim and reflects the general university population. No incentives were offered for participation, but some students may have received extra credit for participation, but that was negotiated between student and professor.

Procedure. Upon receiving approval from the institutional review board, all registered students received an email introducing the purpose of the study and a hot-link that would take them to the electronic survey created using Survey Monkey. They were invited to read the introduction/consent sheet and their decision to participate was noted by their choice to proceed to the survey. The 96 item survey was completely anonymous with no tracking to the original computer allowed. On average, completion time ranged from 20 to 45 minutes. Due to the sensitive nature of the questions, a research design was created which allowed students to leave the questions unanswered or to withdraw from the survey at anytime without receiving penalty. Contact information for the university counseling services was provided so that students who may be feeling depressed or suicidal could reach out for help.

Measures. The survey consisted of 96 items concerning demographics, self-esteem, depressive symptoms, stress levels, and at- risk for eating disorder behaviors. Demographics included gender, age, ethnicity, living arrangements, and status in school. The survey consisted of questions assessing the independent variables (gender, self-esteem, depression, stress) with the dependent variables (drive for thinness, body dissatisfaction, and bulimia).

Clinical Scales

Self-Esteem. Self-Esteem as reported by the participants was measured using the Coopersmith Self Esteem Inventory (CSEI) (Coopersmith, 1981). The CSEI is a 25-item instrument with two responses: Like me or unlike me. This instrument assessed a variety of factors such as personal issues, parental aspects, and ambition within themselves. For example, one question asked, “Things usually don’t bother.” Another question asked, “My family expects too much of me.” There are also questions relating to social aspects such as, “Most people are better liked than me.” The scores were calculated according to the original scoring manual. Scores ranged from 0 to 100. Scores less than 49 represent very low self esteem and scores less than 63 represent moderately low self esteem. The reliability was originally reported by Coopersmith (1967) who reported a reliability coefficient of .86. This scale was used for a clinical description describing the population but was not used in the regression analysis.

Depression. Depressive symptoms reported by the respondents were measured using the Beck Depression Inventory II (BDI-II) (Beck, Steer, & Brown, 1996) which is a 21 item self report. Each item of the BDI-II requires participants to select one of four options based on the severity of the depressive symptom (Beck, Steer, & Brown, 1996). Statements about topics such as sadness were made with the possible responses being, "I do not feel sad, I feel sad much of the time, I feel sad all of the time, and I am so sad I can't stand it." Another topic was worthlessness with responses such as, "I do not feel worthless, I do not consider myself as worthless as I used to, I used to feel more worthless, and I feel utterly worthless." The BDI-II is scored by summing the answers for all 21 items, with higher scores indicating higher levels of depression. The scores range from 0-63 with < 9 = not depressed, 10-15 = mild depression, 16-19 = mild to moderate depression, 20-29 = moderate to severe depression, and 30-63 = severe depression. Prior research has provided support for a test-retest reliability of the BDI-II with a coefficient of .96 (Spoor et al., 2006).

Inferential Scale

Stress and anxiety. Stress and anxiety levels were measured using the State Trait Anxiety Inventory (STAI) (Speilberger, Gorsuch, & Lushene, 1977), which measured stress related behaviors in adults, such as nervousness, tension, apprehension and worry. The participants read each question and responded one of the four options: not at all true, somewhat true, moderately true or very true. Questions asked about personal feelings concerning calmness, timidness and feelings of confusion. The STAI scales have been used with male and female college students. The test-retest reliability for the STAI has a coefficient .86 (Freeman & Gil, 2004). For this study, the reliability coefficient was .93.

Dependent Variables. At risk eating behaviors were measured using Garner, Olmstead, and Polivy's (1983) Eating Disorder Inventory-II (EDI-II). This inventory has 8 subscales. For the purpose of this study three subscales were used as the dependent variables. They measured variables of *Drive for Thinness (DT), Body Dissatisfaction (BD),* and *Bulimic symptoms (BS)*. Each question required responses to a Likert-type scale, for example: Often, somewhat, rarely or never. The *DT* subscale refers to the constant desire to lose weight or constant worry about gaining weight. For example, "I am preoccupied with the desire to be thinner." The *BD* subscale concerns negative image questions, for example, "I feel my stomach is too big." The *BS* subscale contains questions about binges, for example, "I have gone on binges where I felt I could not stop." Scores were calculated according to the Garner's original scoring key. Earlier research found the three subscales had reliable coefficients of .79 to .95 (Sassaroli & Ruggiero, 2005). In this study, the *BS* subscale had a standardized alpha of .85, the *BD* subscale had a standardized alpha of .86, and the *DT* subscale had a standardized alpha of .77 all within social science standards.

Results

The findings in this study are consistent with previous studies. In the first section, the clinical results are discussed. The second section addressed the inferential results. The regression results suggest there is a relation between the inferential measure, stress, and the dependent variables of *DT, BD, and BS.*

Clinical Results

Beck Depression Inventory. Following the scoring key, the results of the BDI suggest that 92 (26%) students reported mild depression, 31(.08%) students reported mild to moderate depression, 54 (15%) students reported moderate to severe depression and 14 (.04%) students reported severe depressive symptoms. The total number of responses for this section of the survey was 334 with 28 unanswered. This indicates that 191 (53%) of this sample report feelings of depression and that 68 students were at-risk depressed students. Eighty-six students reported feeling sad much of the time and 4% reported feeling sad all of the time. A large number of students,

43 (12%) reported having suicidal thoughts but would not follow through with suicide and three (.8) students stated they would kill themselves. Responses to the BDI-II suggest that depression can effect eating patterns as 77 (21%) of students reported having an appetite less than usual and 83 (23%) of students experienced an increase in appetite. The evidence suggests that this non-clinical sample includes a large number of at-risk depressed individuals who may be susceptible to eating disorders among other sequelae.

Coopersmith Self-Esteem Inventory. All 362 participants responded to this section of the survey and the reports of 174 (50%) suggest that many of these participants have self-esteem issues. Using the scoring key, results suggest that 95 (26%) students had severely low self esteem and 79 (23%) students had moderate to low self esteem. A large number of students 153 (42%) wanted to change things about themselves, 81 (22%) had low opinions of themselves, 101 (28%) felt they were not as nice looking as other people, and 58 (16%) wished they were someone else. These results from this non-clinical sample suggest that a large number of participants had self esteem issues, which increases their chances of developing an eating disorder among other disorders.

Inferential Results

Bivariate results. Zero-sum bivariate correlations were conducted with the variables of interest: age, gender, stress, *BD, DT, and BS*. Multiple significant correlations were found (Table 1). Of interest to this study was the fact that gender was dummy coded for analysis (0 females, 1 males) and results suggest that males were more likely to experience "drive for thinness."

Table 1

Zero-Order Correlations for Gender, Age, STAI, EDI –DT, EDI – B, EDI – BD

VARIABLE	1	2	3	4	5	6
Gender	-	.01	.03	.27**	.07	.10
Age	-	-	.03	-.01	-.001	-.05
STAI			-	.20**	.26**	-.14**
EDI-DT				-	.53**	-.27**
EDI-B					-	-.21**
EDI-BD						-

Note. ** $p < .01$; $N = 362$

Regression analysis results. A two-step linear regression was conducted with each of the three dependent variables: *Drive for Thinness, Body Dissatisfaction, and Bulimia Symptoms.* In the first step of each regression, age and gender were entered. At the second step, the STAI stress index was entered.

Dependent variable: Drive for thinness (DT). *DT* was examined (Table 2). In the first step, age and gender were entered as predictors and the model was significant at $F(2, 347 = 14.20, p < .001)$. The R^2 was .07 and gender was a significant predictor ($\beta = .27, p < .001$). After the stress measure was entered in Step 2, the model remained significant $F(3, 346 = 14.67, p < .001)$. Gender was a significant predictor in the regression ($\beta = .27$, p< .001) meaning males were more obsessed with thinness. Additionally, stress also predicted *DT* ($\beta = .19$, p< .001). In this step the total variance explained for *DT* was 11% (adjusted $R^2 = .11$) indicating a large effect size (Cohen, 1988).

Dependent variable: Body dissatisfaction (BD). The second model predicting the outcome variable, *BD*, was assessed (Table 3). In Step 1, age and gender were entered as the demographic variables and the model was significant $F(2, 347) = 5.68, p < .01$). The R^2 was .03 and age was a significant predictor of body dissatisfaction ($\beta = 17.80, p < .02$). In step 2, stress was entered and the model remained significant $F (3, 346) = 3.80$, $p < .02$). Thus, participant's age remained a significant predictor of body dissatisfaction ($\beta = .17, p = .001$) while stress was also a predictor ($\beta = .10, p = .05$), the contribution to the $R^2 \Delta$ was little. The total variance accounted for was 03% (adjusted $R^2 = .03$) indicating a small effect size (Cohen, 1988).

Dependent variable: Bulimia symptoms (BS). The model predicting the outcome variable, *BS*, was then examined (Table 4). After entering the demographic variable of age and gender in Step 1, the model was not significant $F (2, 347) = .49, p = .62$). When the stress variable was entered in Step 2, the model was significant $F (3, 346) = 78.31, p < .001$ with a $R^2 \Delta$ of .19. The stress index was a significant predictor of bulimia ($\beta = .44, p < .001$). Thus, the total variance accounted for was and adjusted R^2 of 19%, which indicates a large effect size (Cohen, 1988).

Table 2

LINEAR REGRESSION PREDICTING EDI – DRIVE FOR THINNESS

	Grade		
Predictor Variables	B	SE B	β
Step 1			
Gender	.45	.09	.27**
Age	-2.16	.01	-.00
Step 2			
Gender	.44	.09	.27**
Age	-2.40	.01	-.02
STAI	.47	.12	.19**

Notes. Adjusted $R^2 = .07, p < .001$ for Step 1; $R^2 \Delta = .04$,
Adjusted $R^2 = .11, p < .001$ for Step 2
** $p < .001$; $N = 362$

Table 3

LINEAR REGRESSION PREDICTING EDI – BODY DISSATISFACTION

	Grade		
Predictor Variables	B	SE B	β
Step 1			
Gender	4.18	.04	.05
Age	1.09	.00	.17**
Step 2			
Gender	3.98	.04	.50
Age	1.09	.00	.17**
STAI	.12	.63	.10*

Notes. Adjusted R^2 = .026, p = .01 for Step 1; R^2 Δ = .01,
Adjusted R^2 = .03, p < .05 for Step 2.
** p < .001; *p <.05; N = 362

TABLE 4

LINEAR REGRESSION PREDICTING EDI – BULIMIA SYMPTOMS

	Grade		
Predictor Variables	B	SE B	β
Step 1			
Gender	-5.2	.05	-.54
Age	8.97	.00	.12
Step 2			
Gender	-5.90	.05	-.06
Age	2.64	.00	.34
STAI	.31	.04	.44**

Note. Adjusted R^2 = .003, p = .62 for Step 1; R^2 Δ = .19,
Adjusted R^2 = .19, p < .001 for Step 2.
** p < .001; N = 362

Discussion

A review of literature suggests that college students are at risk for developing eating disorders (Cooley & Toray, 2001; Johnstone & Rickard, 2006; Trautman et al., 2007). Responses from a non-clinical sample of university students were collected. This work examined the relation between pre-existent stress and the development of behaviors often reported to precede the development of eating disorders, specifically *Drive for Thinness*, *Body Dissatisfaction*, and *Bulimic Symptoms*. Correlations between gender and stress were found. Further, a "clinical picture" of the self-esteem and depression issues would be captured by responses. After assessing participants' self esteem and depressive symptoms, we see a population that is at-risk clinically, and begin to see the relation between stress and behaviors thought to precede eating disorders. Based on these results there are implications that college counselors and other mental health personnel may find useful.

Clinical Discussion. While the focus of this research was the inferential relation between stress and the precursor behaviors, we were curious how non-clinical college students would report their self-esteem and depressive symptoms given that review of literature (Vohs et al., 2001) suggests that the transition to college can affect a student's mental health. The Coopersmith Self Esteem Inventory and the Beck Depression Inventory were used qualitatively to "put a face" on the problem. The large numbers of participants reporting depressive feelings and low self-esteem in this study do suggest that students may find transition to college most difficult and are struggling.

College counselors need to be aware that more students may be depressed experiencing challenges to self-esteem, than those who request counseling services. Without intervention these eating changes may further increase eating disorder behaviors which may result in a severe case of an eating disorder. While this study did not ask who had sought counseling services, it has been reported that college students hesitate to seek services for a variety of reasons, including the stigma they associate with the need to seek help (Vogel, Wade, & Hackler, 2006; 2007). Counselors may need to increase out-reach efforts to make students aware of the insidious nature of depression and poor self-esteem. Further, these results further suggest that counselors should always query students' eating patterns as part of the depression discussion they have with their clients. These findings could suggest to the counselors and to administrators the need to integrate depression and self-esteem awareness issues into the campus orientation curriculum.

Inferential Discussion. The results from the regression found stress as a predictive factor for the *BS* behaviors associated with bulimia confirming previous findings (Troop et al., 2006). Students who have trouble coping with elevated levels of stress may binge as a form of coping. However, this coping method does not alleviate stress and the individual will still have to learn how to manage stress appropriately. When working with students who demonstrate high levels of stress counselors should explore the students eating habits in depth. If students are unable to cope with stress or eat to counter stress they may be susceptible for developing a full blown eating disorders.

The EDI-II *BD,* scale measures an individual's dissatisfaction with the shape of his or her body and measures image disturbance as well. The regression assessing body dissatisfaction found that age was an associated factor predicting body dissatisfaction, and once again these results support previous findings (Trautmann, Worthy, & Lokken, 2007) that age was a correlate of body dissatisfaction. However, unexpectedly, older students reported more body dissatisfaction. While it was expected that younger students would have been more attuned to their physical image, the current study's finding suggests a different challenge for counselors. Older students, such as seniors or adults returning to school to further their education often have more responsibilities and possibly less time to take care of their physical health and meet academic demands (Tiggemann, 2004). Older students may also feel increased competitive pressure to be attractive when they are constantly in the presence of younger students. When counselors are working with older students, they will need to be aware that if their clients report increased stress they may want to further explore the students' perception of image and satisfaction levels in relation to their eating patterns.

The EDI-II *DT,* scale identifies individuals who have a morbid fear of gaining weight and the scale captures patterns of excessive dieting, excessive thoughts about weight, and constant fear of weight gain. Stress was a significant predictor of DT, which supports the relation between stress and drive for thinness found in other research (Pendelton et al., 2001). Gender was found to be significant predictor for DT with males more likely to be driven to attain thinness. Of note, in this study only one fourth of the participants were male, meaning even though small in number, males were the primary variable explaining drive for thinness. The current results support previous studies suggesting the increase of eating disorders among the male population (Heinberg & Kraft, 2007). These findings remind all who clinically engage with college students that gender does not offer protection and that eating disorders can affect anyone.

Eating disorders among the male population represents an understudied area that is in need of more research (Hudson et al., 2007). In recent work, the concept of a self-referencing physically oriented male, namely the *metrosexual male* has surfaced (Heinberg & Kraft, 2007). The metrosexual male places great emphasis and importance on appearance much like their female counterparts. In this study, males were not asked to identify themselves as metrosexual. Whether they are or not these findings suggest male respondents were at-risk for the demonstration of the excessive patterns measured by the drive for thinness variable. The literature on the metrosexual is developing (Heinberg et al., 2007) and counselors will need to be aware of this growing risk and they will need to consider the possibility that males who report stress may also be experiencing eating disorder symptoms.

Limitations and Future Work

The current study did have some minor limitations. Although the population represents a nonclinical population, the survey did not consider asking the participants about previous diagnoses or previous treatments, which could have clarify existing problems with which students entered college. Further research exploring the construct of metrosexual male would shed more light on the finding that males in this study were more obsessed with thinness and future work will address this growing research construct.

Conclusion

The current study has strength as it does contribute to the previous knowledge of eating disorders and it offers insight. This study observed a nonclinical population and found factors that predict disturbed eating behaviors and attitudes. Stress was related to all three eating disorder precursor. The results confirmed findings of previous studies, which report the increase of disturbed eating behaviors within the male population. The more counselors know about psychological associations triggering unhealthy eating patterns the more chance they will have to intervene, possibly preventing the onset of a severe, full-blown eating disorder. Results can increase counselors' awareness that eating disorders affect both genders. University administrators and counselors may need to provide more outreach programs for students to help them understand that the demands of college may challenge self-esteem and increase the chances for depression and that increases stress may make them more vulnerable for psychological problems.

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