Predicting Variables Associated with Disordered Eating in Mexican American Female

Adolescents

by

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ABSTRACT

Eating disorders are prevalent amongst women today. Although previous research has suggested that eating disorders affect primarily middle class, Caucasian, females, current research has suggested that these disorders are as prevalent and significant in most minority populations. Of much importance are the potential factors that put minority groups, specifically Mexican Americans, at risk of developing these harmful disorders. Initial research has suggested the role acculturation plays in the development of eating disorders in Mexican Americans; however, more current research has called this assumed role into question. The current study aims to identify which variables appear to best predict disordered eating in a sample of Mexican American female adolescents. Participants were administered a survey to measure the relationship between variables including generational status, age, body mass index, sociocultural attitudes regarding appearance, acculturation and their relation to disordered eating. Although the study found correlations amongst many of the variables and disordered eating, a regression analysis revealed that pressure an individual feels from the media to look a specific way was the strongest predictor of disordered eating. Results from this study should be used to develop programs aimed at dismantling attitudes portrayed by the media regarding appearance and the acceptance of such ideals.

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Chapter I: Introduction

Among the many chronic and treatment resistant illnesses that affect individuals today, eating disorders (ED) is included. In the United States alone, more individuals suffer from an ED than Alzheimer's disease. The prevalence of ED have increased drastically, recently to epidemic proportions (National Eating Disorders Association [NEDA], 2002). Studies have concluded that half of all girls have experienced significant eating disturbances at some point in their teen years. Approximately 10 million women and 1 million men suffer from Anorexia Nervosa (AN) or Bulimia Nervosa (BN) in the United States each year (NEDA 2002).

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM:IV TR) (American Psychiatric Association [APA], 1994), four classifications of ED exist: Anorexia Nervosa (AN), Bulimia Nervosa (BN), Eating Disorders Not Otherwise Specified (EDNOS), and Binge Eating Disorder (BED). Each of the specific ED has certain characteristics differentiating them from each other. Although many encompass similar detrimental effects and etiology, they remain unique in their presentation.

AN is probably the most pernicious ED. Most commonly identified by food restriction, AN affects approximately .5% to 1% of the U.S. population. The classifying characteristics include: refusal to obtain a minimal healthy body weight, extreme fear of gaining weight, and a significantly skewed perception of shape and size of body. AN is the most likely of all ED to result in death, as it has a 10% or higher mortality rate (APA, 1994).

Likewise, BN is similarly prevalent, affecting many individuals in the United States. Research suggests that 1-3% of females will meet criteria for BN; with an increase in prevalence for college-aged females. Of the 1-3% of females affected by BN, one tenth will be males. Essential features of BN include: binge eating and inappropriate practices to prevent gaining weight, including purging and laxatives. Over the course of years, BN symptoms generally diminish (APA, 1994).

Many times an individual will present symptoms of disordered eating; however, will not meet full criteria for AN or BN. The diagnostic category EDNOS was created to incorporate individuals who "do not meet the criteria for any specific Eating Disorder (APA, 1994, p.594). Due to the ambiguity involved in an EDNOS diagnosis, prevalence rates are varied. Most studies show a prevalence rate between 2-5% (Hay, 2002). Research studies have shown that 1%-5% of individuals diagnosed with EDNOS, continue to struggle throughout life (Favaro, 2003; Nevonen & Broberg, 2000; Wade, 2006).

BED is the most recently recognized ED according to the DSM:IV TR. Previously classified under the EDNOS category, BED has become so prevalent that APA declared it a separate ED category in the DSM:IV in 1994, making it the fourth recognized ED. BED is characterized by excessive eating and loss of control of eating behavior. The binge often is followed by extreme guilt and embarrassment; thus, the binge is generally conducted in private. BED affects approximately 1-5% of the general population. Of all the ED, gender differences are the smallest amongst those suffering from BED, as 60% of individuals struggling from BED are females and 40% are males (APA, 1994).

There has been an ongoing debate in regards to the etiology of eating disorders. Influences such as biology, culture, media, and family have been largely researched, yet no specific cause has been identified. Some researchers have concluded that the media, along with societal pressure to be thin are responsible for the high prevalence rates of ED in the United States today (Mills, 2001; Levine et al., 1994; Becker et al., 2002). Girls have admittedly reported they feel pressured to look beautiful and lose weight by the messages sent to them from the media. Boys have reported similar pressure; however, explained they feel less pressure with weight and more pressure to increase muscle tone (McCabe et al., 2002).

Other theories conclude that personality is to blame for the ED epidemic. Personality traits such as obsessive behavior, low self-esteem, and fear of gaining weight were found to be highly correlated with an increase in disordered eating (Cervera et al., 2003; Killen et al., 1994). Perfectionism, conforming, compliance, and constriction are all personality traits associated with AN (Mash & Barkley, 1998; Mash & Barkley, 2003; Claes et al., 2006). Individuals with BN demonstrate less tolerance for frustration and difficult temperaments and behaviors (Mash & Barkley, 1998; Fassino et al., 2002).

A biological perspective has been researched and proposed as an etiological factor in ED. In individuals with AN, a reduced density in Serotonin functioning has been found, resulting in impulsivity and lack of resistance (Bruce et al., 2006; Diaz-Marsa et al., 2000). Those with BN also have low levels of Serotonin, which was found to be a possible contributing factor in why individuals with BN binge (Mash & Barkley, 1998).

Family influence has been studied and explained as a potential cause of ED. Some of the family characteristics associated with ED are overprotectiveness (Mujtaba & Furnham, 2001; Tata, Fox, & Cooper, 2001), criticism (Espina, Ocha de Alda, & Ortego, 2003; Haworth-Hoeppner, 2000), and intrusiveness (Polivy & Herman, 2002; Rowa, Kerig, & Geller, 2001). In families of patients with AN, research has found that the family exhibited boundary problems, parental control, and less individuation (Rowa, Kerig, & Geller, 2001; Smolak and Levine, 1993; Haworth-Hoeppner, 2000). When analyzing patients with BN, research has found that patients reported negative parental feedback and homes characterized as argumentative and less conflict resolution based (Jacobi et al., 2001; Szabo et al., 1999).

In the past, the majority of research on ED concentrated on middle class, Caucasian, females. Current studies are investigating the prevalence rates in minority populations in comparison to Caucasian populations and are finding similar prevalence rates. In Asian populations, research discovered similar clinical characteristics and prevalence rates of ED when compared to Caucasian populations (Ratan et al, 1998; Le Grange et al., 1998; Lucero et al., 1992; Johnson et al., 1984; Gross & Rosen, 1988; Nevo, 1985). In African American populations, studies have concluded that although African Americans tend to be heavier than Caucasians, they generally have less body dissatisfaction and concerns regarding their weight; thus, exhibit lower ED prevalence rates (Abrams et al, 1993; Parker et al., 1994; Gray et al., 1987). Prevalence rates for Native Americans were found to be comparable to the Caucasian population. In addition, clinical characteristics and compensatory methods in Asian populations were found to be similar to those exhibited by Caucasians (Rosen et al., 1988; Smith & Krejci, 1991; Snow & Harris, 1989).

Of particular interest in this study was the prevalence of ED in Hispanic populations and the proposed etiological factors contributing to the development of ED. Similar to some of the other minority groups, Hispanic populations demonstrated similar prevalence rates, clinical characteristics, and compensatory methods as Caucasian populations (Lester & Petrie, 1998; Hiebert et al, 1988; Smith & Krejci, 1991; Snow & Harris, 1989).

Investigators have wondered whether etiology for ED is different in minority populations when compared to Caucasians. Research has shown that low self-esteem has been correlated with acculturation, as studies have found a relationship between lower levels of self-esteem and the more recent an individual was to a new culture (Mena et al., 1987). In addition, cultural stress has been studied, as many minority adolescents have reported feeling tension between preserving their cultural identity and conforming to the new culture. Many adolescents report stress because they are trying to please their parents and "fit in" with those outside of the home (Root, 1990; Kuba & Harris, 2001).

Acculturation has also been proposed as a potential etiological factor in the development of ED in minority populations; however, the research is split down the middle as to whether it truly is a predictor of ED. After reviewing the literature, acculturation appeared to be related to disordered eating when it was the only variable being measured or if the only other variables being measured were descriptive in nature (Pumariega, 1986; Gowen & Hayward, 1999; Cachelin et al, 2000; Chamorro & Flores-Ortiz, 2000). However, when acculturation was studied in addition to other variables, acculturation was found to have no relation to disordered eating in Mexican Americans (Lester & Petrie, 1995; Joiner & Kashubeck, 1996; Kuba & Harris, 2001).

Due to the recent literature regarding comparable prevalence rates in Hispanics and the different findings on the importance of acculturation, additional research is necessary to further determine which variables are strongest in predicting disordered eating amongst Mexican American adolescent females. Special attention will be given to the role of acculturation when combined with other etiologic variables.

Statement of the Problem

Much of the research done on eating disorders has been focused on white middleclass females, neglecting the minority culture. Of the studies done on minority groups, acculturation has been studied as a potential cause; however, the literature is split as to whether or not it is related to disordered eating in Mexican Americans. This study attempts to identify which variables best predict concurrent disordered eating among Mexican American female adolescents in an urban low SES population.

Purpose of the Study

Research suggests that most minority populations are as affected by ED as Caucasians. The results of this study are important as they will help increase awareness as to which variables are the strongest predictors to the development of ED in Hispanic minority populations. With such knowledge, intervention programs can be developed to assist in preventing these devastating mental illnesses. Discuss the goal - emphasize practical outcomes or products.

Assumptions of the Study

Hypotheses

 The lower generational status an individual has, the less acculturated they will be. Thus, there will be a positive correlation between generational status and acculturation.

- The lower generational status an individual has, the less internalization of sociocultural attitudes. Thus, there will be a positive correlation between generational status and internalization-general.
- 3) The lower generational status an individual has, the less internalization of attitudes regarding athletes. Thus, there will be a positive correlation between generational status and internalization-athlete.
- 4) The lower generational status an individual has, the less an individual will be influenced by information gained from the media. Thus, there will be a positive correlation between generational status and information.
- 5) The lower generational status an individual has, the less an individual will experience pressure from the media regarding appearance. Thus, there will be a positive correlation between generational status and Pressure from the media.
- The lower the generational status, the less an individual will have disordered eating. Thus, there will be a positive correlation between generational status and disordered eating.
- 7) The more acculturated an individual is, the more an individual will internalize sociocultural attitudes. Thus there will be a positive correlation between acculturation and internalization-general.
- 8) The more acculturated an individual is, the more an individual will internalize attitudes regarding athletes. Thus, there will be a positive correlation between acculturation and internalization-athletes.

- 9) The more acculturated an individual is, the more an individual will be influenced by information gained from the media. Thus, there will be a positive correlation between acculturation and information.
- 10) The more acculturated an individual is, the more an individual will experience pressure from the media regarding appearance. Thus, there will be a positive correlation between acculturation and pressure.
- 11) There will be no correlation between acculturation and disordered eating.
- 12) The more internalization of sociocultural attitudes an individual has, the more an individual will struggle with disordered eating. Thus, there will be a positive correlation between internalization of sociocultural attitudes and disordered eating.
- 13) The more an individual internalizes attitudes regarding athletes, the more an individual will struggle with disordered eating. Thus, there will be a positive correlation between internalizing attitudes regarding athletes and disordered eating.
- 14) The more an individual is influenced by information gained from the media, the more they will struggle with disordered eating.
- 15) The more an individual experiences pressure from the media regarding appearance, the more they will struggle with disordered eating.
- 16) The four subscales of the attitudes toward appearance scale will be the strongest predictors of disordered eating, while controlling for generational status, acculturation, and BMI.
- 17) Weight concerns and disordered eating will be positively correlated.

Exploratory Questions

- 1) What is the relationship between generational status and BMI?
- 2) What is the relationship between acculturation and BMI?
- 3) What is the relationship between internalization of sociocultural attitudes regarding appearance and BMI?
- 4) What is the relationship between internalization of attitudes regarding athletes and BMI?
- 5) What is the relationship between influence of information gained from the media and BMI?
- 6) What is the relationship between pressures generated from the media (Press) and BMI?
- 7) What is the relationship between BMI and disordered eating?

Chapter II: Literature Review

Eating Disorders (ED) are diseases affecting many. In the United States alone, it is reported that ten million females and one million males are battling a life-threatening ED (Crowther et al., 1992). Collectively, an ED is also a severe condition, with some ED resulting in more deaths than major depression (reference needed). Specifically, one of the ED, Anorexia Nervosa (AN), has a aged 15-24 female mortality rate twelve times higher than mortality rates associated with other causes of death (Sullivan, 1995).

Due to the severity, much research has been done to identify the types, characteristics, etiology, and treatment of ED. Yet this research has specifically focused upon European, middle-class females, frequently neglecting minority populations. It used to be assumed that individuals who were of a minority population were invincible to ED; thus, not being affected by such disorders (Lester & Petrie, 1995). Recently however, the prevalence of ED in minority populations has been revisited and investigated, with results suggesting dangerous prevalence rates similar to European middle-class females (Smith & Krejci, 1991). Little research has been conducted, however, to identify potential causes of ED in minority populations, specifically Mexican American adolescent females.

EATING DISORDERS

Although there are various types of ED, they share commonalities, as they are all "illnesses with a biological basis modified and influenced by emotional and cultural factors" (National Eating Disorders [NEDA], 2002, p.l). In addition, "eating disorders are characterized by severe disturbances in eating behavior" (American Psychological Association [APA], 2000, p.583). ED have become more and more prevalent amongst all age groups, specifically in students from elementary school to college (Grothaus, 1998).

A study done in 1993 by Peter Lewinsohn found that the overall lifetime prevalence for female adolescents was 23 per 1,000.

Individuals with an ED share and exhibit many physiological symptoms such as preoccupation with caloric intake, excessive exercise, and drastic dieting. They also experience many internal conflicts and feelings that are visible in their disordered eating and also in other areas of their life, such as their schoolwork, relationships, and professional work. One frequent conflict is perfectionism and having to be the best in everything that they do. Another common conflict is a shallow view of self and the feeling that they do not match up to others expectations or achievements? Third, they often experience doubt about their appearance and whether they will ever attract another individual. Lastly, they feel as if they lack power in relationships and in the world (Schwitzer et al., 2001).

According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision (DSM-IV-TR), there are three documented eating disorders: Anorexia Nervosa, Bulimia Nervosa, and Eating Disorder Not Otherwise Specified. Binge Eating has recently been recognized as another subtype of ED. All of the disorders have commonalities; however, unique characteristics distinguish them from each other. Anorexia Nervosa

Characteristics/diagnostic criteria. Anorexia Nervosa (AN) has been a documented eating disorder for over 100 years (APA, 2000). According to the DSM-IV-TR, AN is evident when the following criteria are met:

A) Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).

- B) Intense fear of gaining weight or becoming fat, even though underweight.
- C) 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.
- D) In postmenarcheal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration) (APA, 2000, p. 589).

Within AN, there are two subtypes, the restricting type and the bingeeating/purging type. Both types can be present at one time or another throughout the disorder; however, both occur at separate times. The restricting type "describes presentations in which weight loss is accomplished primarily through dieting, fasting, or excessive exercise" (APA, 2000, p. 585). It is important to note that when in this period, the individual has not engaged in frequent binge eating or purging. The bingeeating/purging type can be identified "when the individual has regularly engaged in binge eating or purging (or both) during the current episode" Purging occurs through laxatives, vomiting, diuretics, and/or enemas" (APA, 2000, p.585).

Prevalence. Although AN is the most uncommon of the eating disorders, affecting 1-3% of college females, it is extremely severe, killing nearly 150,000 women each year in the United States (Nielsen, 2000). Research shows that 1% of adolescents suffer from this disorder (Craven, n.d). The DSM:IV-TR reports a lifetime prevalence among females with AN at approximately .5% (APA, 2000). Results from other research reported prevalence rates ranging from .1 to 5.7% (Gotestam et al., 1995, Rooney et al., 1995, Rathner et al., 2001).

Onset. Anorexia Nervosa tends to first appear in adolescence between the ages of 14 and 18 (middle school to high school) (APA, 2000). A longitudinal study of the general population conducted between 1935-1989 found that of all individuals with AN, the most vulnerable group were females ages 15 to 24 (Lucas et al., 1999). Generally, onset occurs after or during a stressful life event (APA, 2000).

Course. The course of AN varies based on unique factors contributing to the illness in a specific individual. In one study, 84 patients were followed and assessed 21 years after initial treatment. Results indicated that 51% had full recoveries, 21% recovered partially, and 10% still met full criteria for AN. Poor outcome was then predicted by a low body mass index and greater severity of social and psychological problems (Wade et al., 2006). Steinhausen conducted a study in 2002 to investigate the course of patients diagnosed with AN. Results showed that 46% fully recovered, 33% improved with partial features of AN, and 20% remained chronically ill.

There are no well-established therapies that promote lasting weight gain and recovery in these patients; however, those who attempt therapy in adolescence or early adulthood have higher success than adults struggling with the disorder (Craven, n.d). Of those who encounter this disorder, some will recover after a single episode, others will fluctuate between normal weight and relapse, and 10% will die due to suicide or health problems associated with the disorder (Craven, n.d).

Comorbidity. Coexisting disorders are highly correlated with ED. Mash and Barkley (2003) found that AN correlates highest with obsessive-compulsive disorder and social phobia. Depression is also extremely prevalent in AN patients, affecting 21% to 91%. Individuals with AN were followed over a period of time to study the course of their illness(Mash & Barkley, 2003). At a follow-up assessment a large proportion presented many other psychiatric disorders including: neurotic disorders, obsessivecompulsive disorder, substance abuse, and non-defined personality disorders. One-fourth of the patients had anxiety disorders and ¼ had affective disorders. Schizophrenia was rarely found amongst subjects (Steinhausen, 2002). When mortality rates were studied over a period of time, researchers found coexisting psychiatric illnesses, such as depression and alcohol abuse, in all subjects who had died (Herzog et al, 2000). Substance use disorders, OCD, and obsessive-compulsive personality disorder were very common diagnoses at outcome (Steinhausen, 2002).

Gender differences. AN is relatively rare in males, affecting females 10 times more (APA, 2000). Yet, research shows that the number of boys affected by AN has been increasing in frequency over the past few years (Craven, n.d.). In one study, 2980 adults were surveyed regarding their eating patterns. Results indicated that .9% of females vs. .3% of men reported battling AN sometime in their life (Hudson et. al., 2007).

Bulimia Nervosa

Characteristics/diagnostic criteria. Bulimia Nervosa (BN) is characterized by "binge-eating and inappropriate compensatory methods to prevent weight gain." The *DSM-IV-TR* diagnosis requires that the following criteria be met:

 A) Recurrent episodes of binge eating. An episode of binge eating is characterized by the following: 14

- a. eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances
- b. 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)
- B) Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.
- C) The binge eating and inappropriate compensatory behavior both occur, on average, at least twice a week for 3 months.
- D) Self-evaluation is unduly influenced by body shape and weight.
- E) The disturbance does not occur exclusively during episodes of Anorexia Nervosa (APA, 2000, p. 594).

Similar to AN, BN has two specific subtypes: purging type and nonpurging type. The purging type can be classified by "presentations in which the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas during the current episode." (APA, 2000, p.591). The nonpurging type exists when the individual does not engage in self-induced vomiting or misuse laxatives, diuretics, and enemas; however, uses another inappropriate form to control weight such as fasting or excessive exercise.

Prevalence. BN is the most common eating disorder, especially in college females. Twenty percent of college females suffer from bulimia (Nielsen, 2000). The American Psychiatric Association reported that Bulimia Nervosa affects 1-3% of the

United States population (APA,1994). According to a study done by Keel and Mitchell (1997), the lifetime prevalence of females with Bulimia Nervosa ranged from 1-3%. Drewnowski et al. (1994) conducted a study looking at prevalence rates of Bulimia Nervosa in college females. Results suggested a prevalence rate of 3%. Recently, in 1999, a study was done on 15-year-old female adolescents. When Bulimia Nervosa and subclinical Bulimia Nervosa were assessed, results showed a 2.2% prevalence rate for females (Rosenvinge et al., 1999).

Onset. The onset of BN is later than that of AN. While AN generally appears solely in adolescence, BN onset extends to young adulthood. In one study, results indicated that the highest incidence rate of BN was found among 20-39 year olds (Turnbull et al. (1996). Favaro et al. (2003) found the mean of onset for BN between 18-21 years old.

Course. Studies have been conducted to identify the course of BN. One study, aimed at evaluating the whole spectrum of ED, found that 4.6% of female subjects aged 18 to 25, were diagnosed with lifetime BN (Favaro et al., 2003). Fichter and Quadflieg (2004) conducted a 12-year study to identify the course and outcome of BN, finding that 70% of women with BN recover after treatment. A 5-year prospective study found that when all ED prognoses were compared, BN tended to persist, while the others generally went into remission (Fairburn et. al., 2000). Wade et. al. (2006) examined females approximately 14 years after the initial onset of the disorder. Their findings concluded that 50% of the BN group was asymptomatic and 76% were much improved. In addition, those with lifetime BN were found to have significantly higher levels of eating concern and dietary restraint than those without lifetime ED.

Comorbidity. Similar to AN, BN is comorbid with many disorders. Godart et al. (2003) conducted a study to assess comorbidity in relation to BN. Results concluded that 71% of patients with BN had lifetime comorbidity of at least one anxiety disorder. In a study measuring depression in individuals, 17.8% of those diagnosed with atypical depression also met diagnostic criteria for BN (Perugi et al., 2006). In a study comparing subjects without BN, subjects with a psychiatric illness but not BN, and subjects with BN and a psychiatric disorder, results demonstrated that patients with BN consumed alcohol, but no more than those without BN. However, results indicated that those with BN were more likely to use illicit drugs than either of the other groups. In addition, those with BN were found to have higher levels of deliberate self harm (Welch & Fairburn, 1996). In a comparison study of patients with BN and patients with AN, 30 to 50% of patients with BN struggled with alcohol abuse (Mash & Barkley, 2003).

Gender differences. Overall, the number of reported incidences of BN in males is low; however, the rates have been increasing over time. According to APA (2000), the ratio of women with BN compared to men is ten to one. Carlat et al (1997) found that 10-15% of patients with BN are males, demonstrating that .2% of all males meet criteria according to the DSM:IV-TR. Studies on adolescent boys suggested a rate of .7% (Garfinkel et al., 1995). Research conducted at Harvard University Medical School suggested a higher rate of males, presenting a comparison ratio of females to male at four to one. Although BN is often thought of as primarily affecting women, it is noteworthy to mention that many men do not report disordered eating patterns or symptoms indicative of BN; therefore, BN rates appear low (Tiemeyer, 2007).

Eating Disorders Not Otherwise Specified

Characteristics/diagnostic criteria. Many times, individuals do not meet criteria for AN or BN; however, exhibit disordered eating patterns and behaviors. Eating Disorders Not Otherwise Specified (EDNOS) is the third eating disorder category recognized by the DSM-IV-TR. Although specific criteria do not need to be met as with AN and BN, the following are examples given by the DSM-IV-TR to assist professionals with assessment.

- 1. For females, all of the criteria for AN are met except that the individual has regular menses.
- 2. All of the criteria for AN are met except that, despite significant weight loss, the individual's current weight is in the normal range.
- All of the criteria for BN are met except that the binge eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than 3 months.
- 4. The regular use of inappropriate compensatory behavior by an individual of normal body weight after eating small amounts of food (e.g., self-induced vomiting after the consumption of two cookies).
- 5. Repeatedly chewing and spitting out, but not swallowing, large amounts of food.
- Binge-eating disorder: recurrent episodes of binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of BN (APA, 2000, P. 595).

Prevalence. Many people have argued whether the category of EDNOS is appropriate. Due to the level of disagreement as to what truly constitutes EDNOS and whether an individual truly falls into that category, little knowledge regarding the prevalence is known. However, the majority of patients referred to clinics for an eating disorder are generally classified under the category EDNOS (Fairburn & Bohn, 2005). In a study done by Turner and Bryant-Waugh (2004), 200 participants were studied to identify clinical eating disorders, including EDNOS. Researchers found that 67% of the patients that were referred left with a diagnosis of EDNOS. Furthermore, those diagnosed with EDNOS just missed being diagnosed with either AN or BN. For example, 31% were given a diagnosis of EDNOS rather than AN because their BMI was not low enough. In addition, 36% of the subjects missed a diagnosis of BN, as their amount of purging per week and month was not high enough. Such results indicate that EDNOS should be carefully monitored and is likely to be just as severe as AN and BN. In 2003, a study was done regarding the prevalence rate of females age 18-25 with EDNOS. Results ranged from a prevalence rate of .6-1.3% (Favaro et al., 2003). A current study conducted a similar study on females ages 28-39 and found a 5.3% prevalence rate (Wade et al., 2006). Although there is a large gap between the two rates, it is noteworthy to mention that the study done in 2003 used strict criteria to assess for EDNOS. Therefore, they may not have had as many females fall under the EDNOS category, as did the 2006 study.

Gender Prevalence Differences. Most people believe ED rarely affect males; however, studies have been done to identify gender differences amongst patients with EDNOS and have emerged with some remarkable results. Bramon-Bosch et al. (2000) conducted a study examining 30 male patients and 30 female patients who had some form of an ED. Results indicated similar rates amongst both genders, as 17% of males compared to 15% of females had a clinical diagnosis of EDNOS. Taraidsen et. al. (1996) concluded that EDNOS is more prevalent for males than the rate of AN and BN combined.

Onset. The age of onset has been reported differently by different studies. Some suggest it develops as early as 15.8 years old (Nevonen & Broberg, 2000). Others suggest a later age of onset. Due to the variability in diagnosing EDNOS, information regarding the onset has not been obtained.

Course. The course of EDNOS varies. Wade et al, (2006) conducted a study to examine lifetime prevalence for EDNOS and found it to be 5.3%. They followed a sample and found that 6% continued to meet criteria approximately 14 years after initial onset. Nevonen and Broberg (2000), conducted a study and reported a 5.1 year course for EDNOS.

Comorbidity. Similar to the other ED described, the presence of a psychiatric disorder is extremely common amongst those with EDNOS. Research has shown that little differences were found when comparing the frequency of a psychiatric disorder with ED. However, frequencies changed when comparing specific psychiatric disorders. For example, AN had a higher correlation with Obsessive Compulsive disorder than did EDNOS. Similarly, BN had a higher correlation with Bipolar Disorder.

Binge Eating

Characteristics/diagnostic criteria. Binge Eating Disorder (BED) is a recently recognized ED. It is listed in the DSM:IV-TR as a provisional ED in need of further study. According to the DSM:IV-TR, the following criteria must be met:

- A) Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
 - a. Eating, in a discrete period of time (e.g., within any 2-hr period), an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances
 - 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).
- B) The binge episodes are associated with three (or more) of the following:
 - a. Eating much more rapidly than normal
 - b. Eating until feeling uncomfortably full
 - c. Eating large amounts of food when not feeling physically hungry
 - d. Eating alone because of being embarrassed by how much one is eating
 - e. Feeling disgusted with oneself, depressed, or very guilty after overeating
- C) Marked distress regarding binge eating is present.
- D) Marked distress regarding binge eating is present. The binge eating occurs, on average, at least 2 days a week for 6 months. Note: The method of determining frequency differs from that used for bulimia nervosa. Future

research should address whether the preferred method of setting a frequency threshold is counting the number of days on which binges occur or counting the number of episodes of binge eating

E) The binge eating is not associated with the regular use of inappropriate compensatory behaviors (e.g., purging, fasting, excessive exercise) and does not occur exclusively during the course of anorexia nervosa or bulimia nervosa (APA, 1994).

Prevalence. BED has only recently become a nationally recognized ED. Although more studies are being conducted to show that BED is prevalent in all weight categories most research has found BED in obese populations (Gormally et al., 1982). For example, Smith et al. (1998) conducted the largest population-based study of BED and found that when broken into two groups, the BED prevalence rate of 2.9% in overweight subjects was almost double the prevalence rate of those who were not overweight (1.5%). Current studies have shown general prevalence rates ranging from .2 to 2.9% (Wade et al., 2006; Contrufo et al., 1998).

Onset. BED does not typically emerge in adolescence; rather, it appears to show up in young adulthood, the age of onset for BED was 23.8 years (Santonastaso, et al., 1999). Manwaring et al. (2006) studied individuals with BED, placing them into two groups: a) those who dieted before binge-eating and b) those who engaged in binging prior to dieting. Research concluded that onset for those who experienced binging before dieting was 20; 25 for those who dieted before binging.

Course. According to a national survey, results showed BED lifetime duration at 8.1 years. In a 5-year prospective study, patients with BED were assessed every 15

months. Results found that subjects would remit over time and that only 18% of the sample group had any form of ED at the end of the period (Fairburn et al., 2000). In a study conducted in Germany, subjects were followed up 6-years after initial onset. Seventy-eight percent were found with no ED and 6% continued to meet full criteria for BED (Fichter et al., 1998).

Comorbidity. Research has shown that BED is correlated with other disorders. Picot and Lilenfeld (2003) conducted a survey of individuals with BED. Results concluded that BED was positively correlated with personality disorder symptomatolgy and that frequency of binge eating episodes was related to higher levels of personality psychotherapy. Out of their sample, 10% met full criteria for obsessive-compulsive disorder and 12% met criteria for avoidant personality disorder. In another study, those who exhibited recurrent binge eating (RBE) were assessed to identify the presence of comorbid disorders. All subjects were of normal weight. Findings suggested that elevated distress was found in those with RBE compared to a healthy control group. In addition, women with RBE were found to be more comparable to women with mental disorders other than those with obesity or other. Anxiety and affective disorders were the most common disorders found in women with RBE (Munsch et al., 2007).

Gender differences. Research has been done to identify the differences of BED among males and females. Reichborn-Kjennerud et al. (2003) conducted a study to identify whether both males and females are genetically predisposed to the same factors that contribute to BED and whether genetic and environmental factors play an equal role in the development of BED in both sexes. Results concluded that BED was equally heritable amongst males and female, as heritability was 51% in both genders. Other

studies have found similar findings, suggesting that out of all ED, BED is more evenly distributed amongst males and females (Fairburn, 1995; Tanofsy, 1997). Wilson, Nonas, and Rosenblum (1993) found that two males to every three males suffer from BED.

Differences are found in the effects and acceptance of BED. Carlot and Cargo (1991) found than men tend to feel less guilt than women after a binge. In another study, women reported significant emotional effects associated with binging, including depression, guilt, and anger; whereas, men only reported gastrointestinal effects (LaPorte, 1997). In addition, when males and females with BED are compared, it appears to be more socially acceptable for men to binge than women (Carlot & Camargo, 1991).

ETIOLOGY

The causes of ED have been researched and hypothesized exhaustively. Although a plethora of research exists investigating etiology, it is noteworthy to mention that most of the studies conducted have been relationship (i.e., correlational or regression based) in nature. Therefore, few studies have been done based on an experimental or quasiexperimental design. Without the use of such signs, it is virtually impossible to conclude what truly causes ED.

Yet relationship studies do provide some valuable etiologic insights, as through their findings, etiology can be hypothesized by looking at the strength of relationships between variables and the temporal relationship between the variable and eating disorder occurrence. Caution in interpretation of relationship studies is advised however, as it is impossible to identify whether the variable(s) under investigation were the cause of the ED or if ED was the cause of the variable. Unfortunately, true experiments investigating etiologic variables of eating disorders are not feasible as it would be unethical to create an ED in someone for the purpose of research; therefore, correlational designs and regression analyses, those designed to look at predicting variables, are predominately used to investigate ED etiology, allowing at best, only hints at causality. It is important to keep the correlational nature of those investigations in mind when reviewing the literature on etiology of ED.

Sociocultural Influence

Eating disorders. Most people would suggest that cultural influence and society are to blame for the number of females battling ED. With the attitude and promotion that 'beauty equals thinness', it is not shocking that so many women struggle with ED. Society has shaped women to define themselves and their self worth by their ability to relate to other people, which is often associated with physical attractiveness (Mash & Barkley, 1998). In order to be accepted by others, one must be physically attractive. "This often results in what has been described as an intense fear of becoming fat or as a 'fat phobia'" (Mash & Barkley, 1998, p. 653). Women are expected to be beautiful, which is visible in the thousands of products that promote establishing and maintaining beauty. Even early on, girls learn that beauty is what captures attention and praise (Mash & Barkley, 2003). The pressure to be thin and attractive may be the reason mainly women develop eating disorders. Males tend to be evaluated on their performance and accomplishments (Mash & Barkley, 1998).

The media (e.g., magazines, television, or commercials) is filled with images and messages portraying beauty. McCabe, Ricciardelli, and Finemore (2002) conducted a correlational study to assess the impact of "perceived pressure from the media on body

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dissatisfaction and body change behaviors among adolescent boys and girls" (McCabe et al., 2002, p.1). The study surveyed males and females grades 7th to 9th. Results demonstrated that girls believe the media sends a message that girls should try and lose weight to be beautiful. Although research shows that the media affects more females, males reported that they believe the media puts pressure on males to increase muscle tone (McCabe et al., 2002).

Research has found that the messages magazines, televisions, and commercials portray influence readers. In 2002, a correlational study was done to identify relationships between exposure to "ideal" images and eating behavior and body image. Results found that exposure to thin media images increased the desire and motivation to diet. In addition, the study concluded that restrained eaters (i.e., chronic dieters or infrequent eaters) were "susceptible to a 'thin fantasy' brought about by viewing ideal body images" (Mills, 2001, p. ii). Ten through 14-year-old females were surveyed to identify correlations between reading fashion magazines and body satisfaction, dieting, and fitness. Sixty percent of the 14-year old females reported reading at least one fashion magazine on a regular basis and believe them to be informative in regards to diet, fitness, and shape. Of those who reported not reading a fashion magazine regularly, 30% still believed them to be valuable source of information regarding beauty and fitness (Levine et al., 1994). Becker et al. (2002) conducted a correlational naturalistic study, concluding that disordered eating in the Figian population increased as televisions became more available.

Fears regarding weight have been found to occur at young ages. Forty-two percent of females between 1st and 3rd grade want to be thinner and 81% of 10-year-old

females are afraid of 'becoming fat' (NEDA, 2002). Interestingly, in recent years, the media has begun to target individuals at younger ages, as they are marketing cosmetics, music, and clothing to those as early as preteen (Wardle & Watters, 2004).

The school setting has begun to be associated with disordered eating and body dissatisfaction, as many girls are looking to older girls for guidance. In 2004, Wardle and Watters conducted a study to identify whether older females negatively impact younger females. Results found that 9 and 11-year-old girls, who were in an environment with older, specifically high school females, were associated with feelings of being overweight, dieting, body shape, and self-esteem. The authors concluded that older teenagers' beliefs affect the attitudes of younger females.

Personality

Eating disorders. Personality is another potential cause of ED among women today. Low self-esteem has been a personality trait identified in individuals with ED. Females between the ages of 12 to 21 years old were followed for 18 months to investigate personality traits (Cervera et al., 2003). At the conclusion of data collection, correlational design results demonstrated significantly lower levels of self-esteem when an ED was present. Another personality related factor, fear of gaining weight, can increase their risk for developing an ED. Sixth and 7th grade girls were surveyed with a weight concerns instrument and followed over a three-year period of time. At the end of the three years, 4% had developed symptoms associated with eating disorders (Killen et. al, 1994). Of interest, participants with higher preoccupation, obsession, and fear of weight experienced greater development of symptoms indicative of ED.

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Anorexia nervosa. Although all ED encompass similar personality traits, some traits are unique to the specific subtype. Those suffering from AN have been described as conforming, constrictive, compliant, socially inhibited, and emotionally constrained. They also "tend to be low in novelty seeking, high in harm avoidance, and high in reward dependence" (Mash & Barkley, 1998, p. 653). Hollander found that such individuals attempt to reduce discomfort and anxiety (1998). In an effort to compensate for these deficient characteristics, extreme control of their environment and obsessions are developed. Correlational studies have demonstrated that women with AN frequently experience perfectionist tendencies in which they feel they need to be the best in everything they do (Mash & Barkley, 2003). The need for control is also a personality trait associated with those who battle AN. Claes et al. (2006) conducted a study to identify levels of impulsiveness and compulsiveness in individuals with ED. Fifty-six patients with ED were assessed along with 83 women from a control group. Those participants with Restrictive AN demonstrated more control needs and obsessive tendencies than those in the control group or others with ED. Thus, they reported less impulsivity than all other participants, including the control group.

Bulimia nervosa. Personality also appears to play a role in the development of BN. Correlational research shows that women with BN "tend to exhibit traits indicative of poor impulse control, chronic depression, acting-out behaviors, low frustration tolerance, affective liability, difficult temperament, and inhibition" (Mash & Barkley, 1998, p. 653). In addition, studies have shown that they are generally more impulsive, disorderly, and dramatic than those with AN or those in the control group. Results also showed that they were more flamboyant and extravagant (Fassino et al., 2002).

Biological

Anorexia nervosa. Research has demonstrated that individuals diagnosed with AN demonstrate alterations in serotonin functioning. In 2006, Bruce, Steiger, Ng Ying Kin, and Israel conducted a study to test this finding. Two groups were formed solely of females age 18-40. One group included females who were diagnosed with AN and the other group was a healthy control group. Blood samples were taken to assess platelet paroxetine binding and then compared with measures of ED symptomatology. Findings demonstrated alterations in serotonin functioning in females with AN. "Women with Anorexia Nervosa had significantly lower platelet paroxetine binding density... suggesting reduced density of the serotonin transporter in women with active Anorexia Nervosa" (Bruce et al., 2006, p. 230). Alterations in serotonin can impair emotional functioning and personality traits. Lower levels of serotonin in patients with AN has been found to be correlated with impulsivity and a lack of persistence (Diaz-Marsa et al., 2000). In addition, lower serotonin levels are associated with anxiety, which is found in individuals with AN. Research has suggested that alterations in serotonin may play a role in appetite alteration in addition to contribute to extremes levels of impulse control and obsessive behaviors (Bailer et al., 2005).

Bulimia nervosa. Physiological conditions might also contribute to BN. The serotonin hypothesis states "that given the research linking serotonin to carbohydrate consumption and binge eating in both animals and humans, individuals experiencing BN may have lower endogenous levels of serotonin in the CNS and may attempt to compensate for the deficiency by eating foods high in tryptophan and relatively low in protein" (Mash & Barkley, 1998, p. 654). This would explain why bulimic women

engage in binge eating, to increase the individual's level of serotonin without the consumption of high levels of food (Mash & Barkley, 1998).

Family Dynamics

Eating disorders. The family perspective believes that individuals develop normal or abnormal views of body image due to familial influences. Haworth-Hoeppner (2000) conducted a study using open-ended interviews with 32 white, middle class women; some without an ED and some with an ED. Qualitative comparative analysis was conducted to identify family characteristics and specific combinations of them in individuals with ED.

Several studies specifically assessed parental control and over-protectiveness in comparison to eating behaviors and attitudes. One study found a positive correlation between disordered eating and parental control and overprotectiveness (Mujtaba & Furnham, 2001). Tata, Fox, and Cooper (2001) conducted a study and found that parental overprotection was associated with low body satisfaction and disordered eating patterns. They concluded that parental overprotection, rather than parental care, appears to be a significant developmental influence on body satisfaction and attractiveness in young females (Tata, Fox, & Cooper, 2001).

The presence of criticism in a family appears to play a role in the development of ED. Research has found that children from families that give little affection and experience low cohesion perceive worse parental support than those children who come from highly affectionate and cohesive families. In turn, those individuals often develop disordered eating patterns (Espina, Ocha de Alda, & Ortego, 2003). The authors hypothesize that food behavior is a way to rebel against parents. Haworth-Hoeppner

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(2000) conducted a study to further test this notion, finding that when parental criticism was present, food restriction was used to show resistance to parental authority.

Enmeshment, the lack of separation between parent and child, is extremely visible in eating-disordered families. Research on family interaction and the effect it has on females, identifies eating-disordered homes to be highly enmeshed and intrusive (Polivy & Herman, 2002). This can be caused by boundary dissolution, in which children have no sense of individuation (Rowa, Kerig, & Geller, 2001). Parents tend to be overly involved in their child's life and often experience boundary dissolution. Boundary dissolution was defined by several factors: enmeshment, role reversal (parent turns to the child for support), intrusiveness (parental overcontrol), and spousification (a parent transfers negative feelings toward spouse on to the child) (Rowa, Kerig, & Geller, 2001).

Anorexia nervosa. Research has been done to analyze the role that the family system has on the development of AN. Boundary dissolution within a family is highly correlated with AN. Boundary dissolution occurs when family members fail to see the distinctiveness in one another and when confusion of interpersonal roles surfaces (Rowa, Kerig, & Geller, 2001). In one study, a sample consisting of 30 women with AN and another sample of 65 control women were used to do a comparison of individual perceptions of parents. Results showed that women with AN reported "more boundary problems with mothers and fathers than did women in a control group" (Rowa, Kerig, & Geller, 2001, p.1). Women with anorexia also reported less independence within the family.

In a study done by Smolak and Levine (1993), females with Anorexia Nervosa were found to be less individuated than non-eating disordered females. Data also

confirmed that parents of Anorexic females maintain more control over their daughters' lives than parents in the control group. As a result, females often want to gain control back. In a study conducted by Haworth-Hoeppner (2000), some women identified food refusal as a strategy to gain control over their environment. The data concluded food manipulation to be commonly recognized as a kind of rebellion expressed by children and adolescents that can be characterized by an "adolescent rebellion taking modern form" (Haworth-Hoeppner, 2000, p.12).

Bulimia nervosa. Family dynamics also impact the development of BN; however, differently than those with AN. Research suggests that many children develop BN as a result of parental negative feedback regarding their weight, especially from mothers. Jacobi, Agras, & Hammer (2001) conducted a study to assess the impact that negative maternal eating perceptions had on eating disordered children. In bulimic patients, critical comments about their weight and body shape from parents were common factors. Interestingly, the data was collected through a longitudinal study, in which infants were followed up until age eight.

Szabo et al (1999) studied patients with BN to identify their perceptions toward their family dynamics. Patients perceived their families as tolerant of arguments and absent of conflict resolution. Similarly, when the patients' fathers were asked about their perceptions of the home, they reported it as less flexible, less adaptable to change, and more prone to arguments than those of families with anorexic children and non-eating disordered children.

Summary of Etiologic Variables

After reviewing the literature on etiology of ED, the studies conducted to assess etiology were solely correlational and regressional in nature. Experiments were not conducted; therefore, the research can only be used to identify predictor variables or relationships between specific variables and ED. As such, it is virtually impossible to verify the 'true' causes of ED. This should be taken into consideration when doing further research and when designing treatment plans for those suffering from ED. Causality can be hypothesized; however, never confirmed without the use of experimental design.

MORTALITY

Eating Disorders

Eating disorders are extremely dangerous causing many medical problems sometimes resulting in death. Mortality rates differ based on the specific eating disorder; however, research shows that 2% of individuals with eating disorders commit suicide (Clarkin-Watts, 1996 in Grothaus, 1998). Eating disorders are often correlated with psychosocial difficulties and severe health problems, including high risk of suicide, infertility, reduction in bone mass: all a result of starvation (Agras, 2001). *Anorexia Nervosa*

Mortality rates for patients with AN have been studied for years; however, significant differences in such rates often occur in research findings, most likely due to the varying constructs studied and the method of their operationalization across studies. It is noteworthy to mention that for AN patients, longer follow-up periods correspond with higher mortality rates (Nielsen et al, 1998). Patton (1988) conducted an 8-year follow-up and found a rate of 3.3% whereas Theander (1992) followed a sample over 33 years and found a mortality rate of 18%. In 1999, Korndorfer et al conducted a 60-year follow-up study of patients with AN and found 12 of 166 females had died. Steinhausen (2002) conducted a similar study and found "standard mortality rates between 1.36 and 17.80" (p. 1288).

In a sample of 246 women who were in treatment for AN and followed for 11 years, research findings found that there is great risk for premature death in patients with AN. Researchers investigated the standardized mortality ratio (SMR), which compares "the number of actual deaths from a condition such as AN to the number of expected deaths for a healthy population" and suicide rate for those with AN (Herzog et al, 2000, p. 21). Results demonstrated an SMR of 9.6% and a suicide rate of 58.1%. Results were consistent with research done in 1997 (Herzog et al, 1997).

Overall, in reviewing research studies done on AN and mortality, it can be concluded that individuals with AN demonstrate rates that are higher than any other psychiatric illness (Neumarker, 2000). Yet, it should be noted however, that one study did not find this result. Specifically, Strober et al. (1997) conducted a 10-15 year followup study and found no deaths in patients with AN. The difference is likely due to various characteristics included in the samples. For example, in Strober's study, the age at presentation ranged from 12-17 and the mean duration of AN in the patient was 2.4 years. In Herzog's study (2000), the mean duration of the illness was 7.2 years. These results further support the conclusion that higher mortality rates are associated with longer duration of illness. Although most research conducted on mortality in population with AN look specifically at clinical populations, some researchers have begun analyzing death registers to identify characteristics for AN mortality. One study found AN related mortality rates of 9.01% and 16.53% per 100,000 female deaths (Reas et al, 2005). In a similar study, American and Canadian death registers were investigated. Results found mortality rates of 11.03 and 13.0 per 100,000 females (Hewitt et al., 2001). Overall, mortality rates derived from death registers discovered age of death in suspected AN related cases to be much higher than in those from the clinical populations. In Reas et al (2005), 43.9% of the deaths found in the death register resulting from AN were over 65 years old. In contrast, Patton (1988) and Nielsen et al. (1998) found higher death rates in individuals younger than 20 or in those ages 20 to 29.

ED PREVALENCE: MINORITIES

Until recently, researchers had concluded that eating disorders are primarily a predominately Caucasian, middle class, problem. As such, little research had been done to assess the prevalence and incidence rate in minority populations.

Other researchers refute the prior perception, remarking that the lack of research is a reflection of ignorance, neglect, and racial stereo-typing (Lester & Petrie, 1998). As a result, current research has been conducted to identify the prevalence of ED in Asian, African American, Native American, and Hispanic populations.

Asian

Few studies have been conducted on eating disturbances and ED in the Asian population. However, the few that have been done have concluded that in this population, eating disorders are relatively as common as in the Caucasian population. Ratan et al (1998) conducted a study on 21 British Asians with diagnosed ED. The subjects were found based on referral to an ED program. Results concluded that the Asian sample demonstrated similar clinical characteristics and age of presentation as the non-Asian sample. Further the study found crude incidence of AN and BN presentation rates for British Asians to be .39/100,000/year and 1.3/100,000/year, respectively, similar to rates of Caucasian populations.

Le Grange et al (1998) conducted a study comparing Caucasian females to Asian females. Results indicated that 40% of Caucasian and 39% of Asian women reported being overweight while 9% of Asian women and 7% of Caucasian women reported BMI's of less than 20. Out of those who reported binge eating, 12% were Caucasian and 10% were Asian. Lastly, 10% of Asian women reported purging as compared with 12% of Caucasian women.

In comparison, Johnson et al. (1984) conducted a study to assess BN in high school females, specifically of Asian and Caucasian ethnicity. Results concluded that 3% of Asian females and 6% of Caucasian females met diagnostic criteria for BN. In another high school study, research results found that 14% of 35 Asian females met criteria for BN; whereas only 11% of more than 500 Caucasian females met criteria for BN (Gross & Rosen, 1988). Nevo (1985) found that a Caucasian sample of college females reported more dieting, weight concerns, body dissatisfaction, and binge eating than did college Asian females. In addition, 3% of the Asian population met criteria for BN compared to 14% of the Caucasian population.

In a study conducted to examine eating disorder symptomatology, Asian and Caucasian college students were administered the EAT-26. Results indicated that only 2% of the 111 Asian women had elevated scores compared to 10% of 162 Caucasian women (Lucero et al., 1992).

Summary. Although there are studies that have found differences in ED prevalence rates amongst Caucasian and Asian populations, overall the research suggests that ED are relatively as common in the Asian population overall. It is noteworthy to mention that little research has been done on Asian Americans with disordered eating; however, of the research done, clinical characteristics, weight control methods, and prevalence rates closely resemble those of Caucasian populations.

African American

Research has been done to identify the prevalence of ED in African Americans. Many researchers have found that although African Americans tend to be heavier than Caucasians and exercise less, they appear to have fewer weight concerns and a more positive self-image than Caucasians (Abrams et al. 1993). Parker et al. (1994) conducted interviews amongst Caucasian and African American high school females to determine perceptions of beauty. The interviews concluded that African Americans believed "looking good" was based more on personal style and projecting a self-image rather than body shape and weight.

One study assessed African American female college students who attended an all-African American university. Information was gained through surveys and then compared to results from a similar study looking at Caucasians. When compared, BN was found to be significantly lower (3%) in African Americans than Caucasians (13%). In contrast, no differences were found in the frequency of engaging in binging, fasting, or

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restrictive dieting. The research did conclude; however, that there was less of an emphasis on food and weight control in the African American sample (Gray et al., 1987).

Striegel-Moore et al., (2003), conducted a study on 985 white women (mean age of 21.3) and 1061 African American women (mean age of 21.5) to examine the prevalence of BN, AN, and BED in both populations. Results concluded that a total of 76 women met criteria for at least one ED (57 white and 19 African American). Of the 76, no African American women met criteria for AN, 2.3% of the white women and only .4% of the African American women met criteria for BN, and 2.7% of white women and 1.4% of African American women met criteria for BED.

Summary. In summary, research suggests lower rates of ED in African American populations than those in Caucasian populations. In addition, weight control and concerns regarding food do not appear to impact African Americans, as it does Caucasians. Research suggested that although African Americans are generally overweight and heavier than Caucasians, they tend to worry less about their weight and display a more positive self-image.

Native Americans

Although little research exists amongst all minority groups in regards to ED, even less exists regarding the impact ED may have on the Native American population. Rosen et al. (1988) surveyed 85 Chippewa women living on a reservation and found that 74% admitted that they were currently trying to lose weight. Further, surveys indicated that 75% were using dangerous methods to reduce their weight. For example, 24% of those trying to lose weight were purging. Another study (Smith & Krejci, 1991) selected 545 high school students from New Mexico and categorized them into three racial groups: Caucasian, Native Americans, and Hispanics. Approximately 24% were Native American and the mean age was 15.2. Results concluded that Native Americans, specifically those who were heavier, actually scored slightly higher than Caucasians and Hispanics on measures including: binge eating, vomiting, laxative abuse, fasting/excessive dieting, terrified of weight gain, dissatisfaction with body shape. Results suggested that ED in Native Americans are comparable to Caucasian population.

Snow and Harris (1989) found that higher weight was positively correlated with disturbed eating amongst Native Americans. Yates (1989) observed that, in the cases of adolescent Native Americans with AN, all were in families who had moved off of the reservation and had high achieving parents who expected their child to succeed.

Summary. Similar to the previous minority groups reviewed, recent research conducted on Native Americans, although limited, suggests that ED prevalence rates in Native Americans are comparable to those in Caucasians. In addition, clinical characteristics of ED in Native Americans appeared to be similar to those present in Caucasians.

Hispanics

Current research has investigated the prevalence and impact of ED in Hispanic individuals. In 1998, Lester and Petrie investigated prevalence rates for BN in female Mexican American college students and adolescents. Results indicated a 1.4%-4.3% rate for Mexican American college females and a 3.3% rate for Mexican American female adolescents. Hiebert et al. (1988) conducted a comparison between Hispanic and Caucasian patients who had been diagnosed with AN. Results indicated extreme similarities in clinical symptoms and characteristics displayed including age of onset, weight loss, bulimic tendencies, and outcome. In a study designed to investigate rates of binge eating in Hispanics, 10.1% of the population appeared to meet criteria for binge eating (Smith & Krejci, 1990). Results demonstrated that "the rate of disturbed eating patterns among. . . white adolescents" (Smith & Krejci, 1990, p.184). Snow and Harris (1989) studied Latina adolescent females who were of low social economic status (SES) and found comparable reports of weight concern and behaviors indicative of disordered eating to those of educated urban women.

Summary. Research is concluding that little to no differences exist in the prevalence of ED amongst Hispanics and Caucasians; however, unanswered is whether etiology is consistent amongst the two groups.

ED ETIOLOGY: FACTORS SPECIFIC TO MINORITY

Researchers have conducted studies to identify the potential causes of the development of eating disorders in minority populations. Major findings follow. *Self-Esteem*

Similar to the dominant culture, research has shown that low self-esteem appears to be associated with the development of eating disorders in minority populations. In 1987, Mena, Padilla, and Maldonado wanted to identify self-esteem levels within minority populations; therefore, they investigated the impact that acculturative stress has on self-esteem. Results suggested that the newer one was to a particular culture, the individual was more likely to have lower self-esteem. Due to the empirical evidence suggesting low self-esteem is a predicting factor for eating disorder development, minority populations may be at high risk, specifically those new to the culture.

Cultural Stress and Demands

Cultural stress and demands are theorized as factors predicting ED in minority populations. Root (1990) expressed his belief that minority women are more at risk for eating disorders because of pressures that exist between conforming to the dominant culture and trying to remain intact with their native culture. Some support for this hypothesis has been found. Specifically, in one study surveying Mexican and Hispanic American women, the most significant predictor for BN symptomatolgy and weight concern was family rigidity, partially due to the cultural demands and beliefs conveyed from home (Kuba & Harris, 2001), as the conflicting values and demands between the home and society often create stress on the individual.

Acculturation

Multiple researchers and sources have defined acculturation. Some have defined it as "the process of change from the culture of origin's values and beliefs toward the integration of the host culture's values and beliefs" (Kuba & Harris, 2001, p. 284). Berry et al. (1986) described acculturation as the adaptation of values, roles, and personality characteristics of the dominant culture. In theory, Berry and colleagues believe that acculturation is caused by psychological and cultural change.

Acculturation has been measured in multiple ways within research studies and different scales have been developed to assess acculturation level. Acculturation is generally measured by time in the dominant culture, generational status (i.e., 1st, 2nd, etc), and primary language spoken at home. Acculturation has been studied in most minority

populations; however, for the purpose of this study, only research regarding Hispanics will be addressed.

There have been seven main studies conducted to identify the relationship between acculturation and disordered eating. Four of the studies have discovered a relationship between acculturation and disordered eating; whereas, three of the studies have concluded that disordered eating is more attributable to other factors. Each study will be reviewed in detail, beginning with those that found acculturation to be positively correlated to disordered eating.

Pumariega (1986) studied socioeconomic status and culture in relation to eating attitudes. The sample consisted of 138 Hispanic females, aged 16 to 18, from two large urban high schools in a large Southern city. Criteria for participation required that participants either be born or have a parent born outside of the United States.

Pumariega (1986) used the Eating Attitudes Test (EAT), an Acculturation Questionnaire, and the Hollingshead-Redlich Two-Factor Index of Social Position to collect data (Garner & Garfinkel, 1979; Button & Whitehouse, 1981; Hollingshead, 1965). The only other variable studied, aside from acculturation, was socioeconomic status (SES). Correlation analyses were performed on acculturation scores, current and projected SES, and EAT scores. Results were compared with those from a large predominately white sample from the South. Results suggested little differences existed amongst the two samples on the Eating Attitudes Test. However, the study concluded that acculturation was significantly positively correlated with the EAT scores. In contrast, no significant correlation was found between disordered eating and SES.

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Gowen and Hayward (1999) conducted a study to examine the relationship between acculturation and eating disorders in a sample of high school females. To get detailed information, two analyses were performed. In the first analysis, the sample consisted of 920 9th grade females enrolled in four different high schools in northern California. The mean age of the sample was 14.9 years. The sample consisted of 420 European Americans, 221 Asians, and 132 Hispanics.

For the 1st analysis, information was collected through self-report questionnaires involving questions regarding ethnicity and parent education. Body mass index was also calculated based off reported height and weight. In addition, the Eating Disorder Inventory: Body Dissatisfaction Subscale and the Weight Concerns Survey were used to identify disordered eating and fear associated with gaining weight (Garner, Omstead, & Polivy, 1983; Killen et al., 1996; Killen et al 1994). Acculturation was measured by length of time lived in the United Stated and primary language in the home.

The second analysis followed the original sample of high school freshman studied in the first analysis; however, the researchers studied them annually throughout high school. New participants were welcome to join. The sample consisted of 877 females (451 European American, 265 Asian, and 161 Hispanic).

To assess disordered eating, an 18-question interview, based on the DSM:IV-TR diagnostic criteria for BN was used. In addition, the Eating Disorder Examination was included (Cooper et al., 1989). Acculturation was measured using the same criterion that was used in analysis I.

In analysis I, one-way analyses of variance were run, concluding parent education was lower for Hispanic females than both European American and Asian girls. Multivariate stepwise regression analyses were conducted to measure the effects of different factors on the Weight Concerns Index and EDI-BD separately. BMI, age, maximum parent education, and acculturation were added into the regression analyses as predictor variables. In analysis II, t-tests were run to identify differences in BMI in relation to acculturation level. After both analyses were run, results were reviewed and interpreted.

Findings concluded that less acculturated female Hispanic adolescents were less likely to have partial syndrome eating disorder based on a structured clinical interview than acculturated female Hispanic adolescents. In contrast, neither the Weight Concerns Index nor Body dissatisfaction measure was related to acculturation; however, these factors were predicted by BMI (Gowen & Hayward, 1999).

In 2000, Cachelin et al. conducted a study to examine acculturation, disordered eating, and treatment seeking in White, Black, Asian, and Hispanic women. Participants were randomly selected from the Urban Los Angeles area. Flyers were displayed at local universities, malls, grocery stores, theatres, community organization, and laundromats. The sample consisted of 118 women with disordered eating; 25 White, 23 Black, 21 Asian, and 49 Hispanic. In addition, 118 healthy controls were used as a comparison. Ages ranged from 18 to 44, with a mean age of 27.1 years. The mean Body Mass Index (BMI) of the sample, which is calculated by dividing weight by height, was 26.5.

Assessment was done through 15-30 minute interviews of each subject, assessing eating and weight-related behaviors, psychiatric symptoms, and health-care use. The interview consisted of questions pulled from the Health Care Utilization Questionnaire (HCUQ), the General Health Questionnaire (GHQ), and the Eating Disorder Examination (EDE) (Striegel-Moore et al., 1995; Goldberg, 1978). Additional items were inserted to address acculturation (i.e., primary language? Bilingual? Born in U.S.? Mother or father born in U.S.?). Multivariate analysis was run using education, BMI, and age as the dependent variables. In addition, planned univariate analyses were run. Chi-square analysis was conducted to identify differences between ethnic groups in relation to suspected ED. With BMI as covariate, analysis of covariance were generated to identify relation between disordered eating and psychiatric symptoms. After all analyses were run, results concluded no difference in the presentation of symptoms based on ethnicity. In addition, they inferred that more acculturated women were more likely to suffer from disordered eating. Lastly, those who were less acculturated were also less likely to seek out treatment (Cachelin et. al, 2000).

Chamorro and Flores-Ortiz (2000) assessed the correlation between disordered eating and acculturation in Mexican Americans. Subjects were recruited through flyers distributed in undergraduate courses, Latina organizations, and community agencies in the San Francisco Bay area. The sample consisted of 139 Mexican Americans with a mean age of 29.1 years. Thirty-six percent were 1st generation and 37.4% were 2nd generation.

Measures used consisted of a demographic questionnaire designed to gain information on age, height, weight, education level, marital status, occupation, and number of years in the United States. The Acculturation Rating Scale for Mexican Americans (ARSMA) was used to assess the level of personal affiliation that an individual has with Mexican or Anglo culture and language (Cuellar et al., 1980). In addition, the Eating Attitudes Test-26 (EAT-26) was used to measure eating attitudes, behaviors, and patterns (Garner et al, 1982). Correlational analyses were conducted to identify relationship. Results indicated that the more acculturated an individual was, the higher level of disordered eating they reported. In addition, second-generational participants (those born in the United States to a parent who was born outside of the United States), in comparison to 1st, 3rd, 4th, and 5th, were found to be more acculturated and reported higher patterns of disordered eating (Chamorro & Flores-Ortiz, 2000).

The next three studies reviewed will consist of those where acculturation and disordered eating were not found to have a positive correlation. In 1995, Lester and Petrie conducted a correlational study to examine the physical and personality correlates of BN symptomatology in Mexican Americans. The study included 142 female college students of Mexican American status: 16% were 1st generation, 40% were 2nd generation, 39% were 3rd generation, and 39% were 4th generation. Participants were found from Hispanic organizations, graduate psychology courses and undergraduate general psychology courses from three large public southwestern universities. The mean age of the subjects was 27 years.

Lester and Petrie (1995) used the Acculturation Rating Scale for Mexican Americans (ARSMA), the Beliefs about Attractiveness Questionnaire (BAQ), the Body Satisfaction Scale (BPSS), and the Bulimia Test-Revised (BULIT-R) (Bohrnstedt, 1977 [cited in Mintz & Betz, 1988]; Thelen et al., 1991). Multiple hierarchical regressions were conducted to identify which variables are significant predictors of ED symptomatology in Mexican Americans. The researchers found age and body satisfaction to be unrelated to bulimic symptomatology. In addition, they concluded that body mass and the endorsement of U.S. societal values concerning attractiveness were significant predictors of BN symptomatology. Lastly, no relationship was found between acculturation and BN symptomatology.

Joiner and Kashubeck (1996) conducted a correlational study to identify ED symptomatology and its relationship to acculturation, body image, and self esteem. The study was administered in an inner city school district in Texas; the population consisted of 97% Hispanic. 200 students age 12 to 18 in middle and high school were asked to participate; however, due to the population and the purpose of the study, results were obtained solely from individuals of the Hispanic race were used. This resulted in a sample size of 120, in which 7.5% were 1st generation, 35.8% were 2nd generation, 3.3% were 3rd generation, 6% were 4th generation, and 46.7% were 5th generation.

Joiner and Kashubeck (1996) used the Acculturation Rating Scale for Mexican Americans, the Body Dissatisfaction Scale of the Eating Disorder Inventory, the Eating Attitudes Test-26 Revised, The Bulimia Test-Revised, and the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). Two hierarchical multiple regressions were conducted to identify which variables were predictors of ED symptomatology. The results of the study concluded that increased body dissatisfaction and lower self-esteem are predictor variables of ED symptomatology. In contrast, they concluded that age, body mass, acculturation, and ratings of current, ideal, and most attractive body figures were not predictor 5variables (Joiner & Kashubeck, 1996).

In 2001, Kuba and Harris examined level of acculturation, SES, peer group identification, immigration status, and family dynamics in Mexican Americans and the relationship these factors had to eating disorders in a correlational study. The sample consisted of 115 women ages 17 to 53, who were self-identified as Mexican Americans.

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All participants were students at either a junior college or four-year university in San Francisco and central California. Colleges ranged from rural, urban, and suburban settings. The mean age of participants was 22.46 years.

Kuba and Harris (2001) used the Minority Majority Relations scale (MMRS) to measure acculturation, as it produces subscales for language use, acculturation, and perception of prejudice (Sodowsky et al., 1991). The Structured Interview for Anorexia and Bulimia (SIAB) was also used to assess for eating disorders and consisted of two sections: psychopathology and family interaction (Fichter et al., 1991). This interview was deemed a good measure for assessing individuals from minority populations, as "inter-rater reliability and internal consistency for the past subscales was high with a Cronbach's alpha of .93" (Kuba & Harris, 2001, p.288). A regression analysis was conducted to identify which variables best predicted ED symptomatology. The results concluded that family rigidity was the strongest predictor of BN symptoms and concern with weight gain in Mexican Americans. The second strongest predictor was poor socialization. Acculturation was not found to be a strong predictor of eating disorder symptomatology in Mexican Americans.

Summary. Summarizing the research studies conducted on the relationship between acculturation and disordered eating, research is split down the middle as to whether acculturation is positively related to disordered eating or not. After analyzing the studies, it appears that acculturation is not related to disordered eating per see. Instead, acculturation appears to be related to a third variable, which in turn is related to disordered eating. Many such third variables have been explored in the above reviewed studies (e.g. generational status, age, BMI, sociocultural attitudes regarding appearance, self-esteem). Consistently, when such third variables are included in a study, the relationship between acculturation and ED disappears. That is, a significant relationship between acculturation and ED is only found in studies in which such third variables were not included in the research.

In addition, acculturation has not been found related to disordered eating when more statistically sophisticated designs were used. Specifically, in all studies in which the research design consisted of regression analyses rather than correlational studies, acculturation was not found to be a unique predictor of disordered eating.

Because of the above research studies, the need for additional studies to further explore this hypothesis and to add to the literature was identified. The following study builds on previous research by incorporating into one regression based study many of the predictor variables disparately used in the studies presented above. Collectively, these variables will be assessed to identify their unique relationship, if any, with disordered eating in Mexican Americans and to identify which variables are most predictive of disordered eating in this population.

Chapter III: Methodology

The purpose of this section is to explain the design of the study, the participants and how they were chosen, the instruments selected, and the method in which the study was carried out. The chapter also includes information about the procedures to conduct the data analysis.

A plethora of research exists to identify predicting variables for ED in predominately Caucasian, middle-class, females. Yet, within minority populations, comparatively less research has been done to identify the effects ED has on minority populations. Of those studies that have been done, many assess the impact that acculturation has on the development of ED in minority populations. Research has shown that when the relationship between ED symptomatology and acculturation is investigated, without controlling for the relationship of other factors, a small positive correlation exists. At first blush, it thus appears that the more acculturated a Hispanic American female is, the more likely she is to endorse disordered eating. A logical extrapolation of this finding is that acculturation in and of itself is a risk factor for ED in Hispanic females.

Yet interestingly, a different relationship between acculturation and ED symptomatology has been found in other studies. Specifically, a few studies have investigated the relationship between ED and acculturation while simultaneously accounting for the influence of additional etiologic variables (e.g., BMI, sociocultural attitudes toward appearance). These studies have found that when these variables are taken into account, no significant correlation between acculturation and disordered eating exists. The following study was designed to replicate and build upon previous studies that measured acculturation in relation to ED symptomatology. Specifically, it was designed to statistically assess the relative importance of acculturation, BMI, and sociocultural beliefs of beauty in predicting ED symptomatology. The ultimate goal of the study was to help clarify the existing confusion surrounding the relationship between ED symptomatology and acculturation.

Constructs of Interest

Generational status. Generational status was developed to investigate the affiliation that an individual had with the United States.

Acculturation. Acculturation has been defined as the "adaptive process of cultural adjustment and adoption of a new culture that begins as the result of contact and interaction between two distinct cultures" (Joiner & Kashubeck, 1996). Acculturation was studied to identify the impact it has on disordered eating in minority populations.

Sociocultural Values

Internalization-General. Internalization-General was defined as the extent to which one adopts sociocultural values concerning attractiveness and thinness (Lester & Petrie, 1995).

Internalization-Athletes. Internalization-Athletes was defined as the influence athletes in the media have on an individual's attitudes regarding appearance. In this study, individuals were asked questions to gage how much an athletic body influenced eating attitudes and behaviors vs. the thin body type displayed throughout the media.

Media Pressure. The media is thought of as highly influential on body image and perceptions regarding appearance. Media pressure was studied to identify the amount of

pressure individuals feel from different sources of media such as magazines and television.

Media Information. It is often predicted that individuals view the media as very informative regarding appearance. In the following study, individuals were surveyed as to how much they viewed the media as a valuable source of information on appearance.

Disordered eating. Disordered eating has been defined by irregularities and abnormal eating patterns and eating attitudes adopted by an individual. Disordered eating does not constitute an ED; however, can be the starting point for dangerous disorders.

BMI. BMI is calculated by dividing weight by height. BMI is widely used, as it is considered "the preferred index of relative body weight as a reflection of adiposity (Kraemer et al. in Gowen et al., 1999).

Subject Selection and Description

For the purpose of the present study, the population of interest was 7th and 8th grade middle school females from the South-Western United States who were Mexican American. Data was collected from a middle school in Phoenix, Arizona that was 90.9% Hispanic. Although information was not reported regarding rate of English Language Learners, the percentage was reported as 54.5% for the district.

Participants were recruited from 7th and 8th grade all-female physical education classes. All 7th and 8th grade students are required to take physical education unless there is a specific reason that does not warrant their participation. All students enrolled in the class were asked to participate in the study and consent forms were sent home with each individual. An introductory letter was attached to each consent form along with a resource sheet consisting of eating disorder information, contacts, and phone numbers in case further inquiry was of interest. All forms sent home were provided in Spanish and English. Only those students who returned their permission slips with consent signed by their parent or legal guardian were allowed to participate in the study. Out of the 500 students requested to take part in the study, 247 students accepted. After the surveys were collected, 29 were removed from consideration because the individual was not Mexican American. Therefore, the final sample size used for data analysis was reduced to 218. *Instrumentation*

A survey was used to collect data and was comprised of a variety of different measures to study our constructs.

Generational Status. Generational status was measured to identify each individual's association with the United States. Participants were given 5 different choices, each one assigning a specific generation. The classifications were taken from the Acculturation Rating Scale for Mexican Americans-Revised (ARSMA-II), which measures an individual's level of acculturation (see next section). The classifications are:

 1^{st} generation = Born in Mexico or other country

 2^{nd} generation = Born in USA; either parent born in Mexico or other country.

- 3rd generation = Born in USA, both parents born in USA and all grandparents born in Mexico or other country.
- 4th generation = Born in USA, parents born in USA and at least one grandparent born in Mexico or other country with remainder born in the USA.
- 5th generation = Born in USA, parents born in the USA and all grandparents born in the USA (Cuellar et al., 1995).

Acculturation level. The Acculturation Rating Scale for Mexican Americans -Revised (ARSMA-II) was used to identify each individual's level of acculturation (Joiner & Kashubeck, 1996). The ARSMA-II measures how affiliated a Mexican American is and how closely they associate with both the Anglo and Mexican culture. A score is generated based off responses to categorize individuals into five different acculturation levels. The original Acculturation Rating Scale for Mexican Americans (ARSMA) was revised in 1995 to develop a measure that would be multidimensional in nature and would measure acculturation through assessing ones affiliation to the Anglo and Mexican culture independently (Cuellar et al., 1995).

The ARSMA-II consists of two scales. Scale 1 is a self-rating scale consisting of 30 items that fall into one of two subscales: Anglo Orientation Scale (AOS) or Mexican Orientation Scale (MOS). The sum of the AOS is divided by 13 to obtain the mean score and the sum of the MOS is divided by 17 to obtain the mean score. The average MOS is then subtracted from the average AOS score to equal a linear acculturation score that ranges on continuum from "very Mexican oriented" to "very Anglo oriented". Scale 2 is the Marginality Scale (MARG), which consists of 3 subscales "reflecting difficulty accepting one's own as well as other cultures" (Cuellar et al., 1995, p. 285). For the purpose of the following study, only Scale 1 consisting of the AOS and MOS was used.

Cronbach's Alpha was .86 and .88, respectively for the AOS and MOS. Test-retest was conducted in after one week for the AOS and MOS resulting in .94 and .96. The ARSMA-II demonstrated good concurrent validity with the ARSMA, as it yielded a Pearson correlation coefficient of r = .89.

Sociocultural influence. The Sociocultural Attitudes Towards Appearance Scale – 3 (SATAQ-3) was used to assess how much an individual internalizes perceptions portrayed by general society and by athletes in regards to what constitutes beauty (bodyimagedisturbance.org, 2004). The scale consists of 30 items that are categorized by four separate subscales: Internalization-General (the extent to which one adopts sociocultural values concerning attractiveness and thinness), Information (how much an individual viewed the media as a valuable source of information on appearance), Pressures (the amount of pressure an individual feels from different sources of media such as magazines and television), Internalization-Athlete (how much an athletic body influences eating attitudes and behaviors vs. the thin body type displayed throughout the media).

Psychometrics for the scale follows. Reliability amongst the subscales is high, yielding the following Cronbach's alpha: Information (.96), Pressures (.92), Internalization-Athlete (.95), and Internalization-General (.96) (Thompson et al., 2003). Cronbach's alpha assesses how well specific variables measure a hidden construct. All of the subscales demonstrated excellent convergent validity "with ratios generally higher for the Internalization-General subscale" (Thompson et al., 2003, p. 298). Convergent validity was assessed to identify how correlated the specific subscales of the SATAQ-3 were with similar measures. Convergent validity was measured through correlations among the SATAQ-3, Ideal Body Internalization Scale-Revised (IBIS-R), and Eating Disorders Inventory Drive for Thinness and Body Dissatisfaction subscale (EDI-DT & EDI-BD) (Stice & Agras, 1998; Garner, 1991) When the SATAQ-3 subscales were correlated with each other, they demonstrated the following: Internalization-General/Internalization-Athlete (.55), Internalization-General/Pressures (.54), Internalization-General/Information (.36), Internalization-Athlete/Pressures (.39), Internalization-Athlete/Information (.23), Pressures/Information (.37). Results indicated that all of the subscales were strongly correlated with each other, with the exception of Internalization-Athlete/Information.

Eating disorder syptomatology. The Eating Attitudes Test (EAT-26) was used to screen and identify the potential risk of eating disorders. The EAT-26 is a revised shortened version of the Eating Attitudes Test (Garner et al, 1982), which was comprised of 40 items. Garner et. al. (1982) conducted a factor analysis on the EAT-40, in which 3 factors were extracted: Dieting, Bulimia and Food Preoccupation, and Oral Control. Of the original 40 items, only 26 fell into one of the three categories. These 26 items thus became the items in the EAT-26. Multiple correlational studies were conducted on the EAT-26 and EAT-40, concluding that the EAT-26 correlated .98 with the EAT-40; therefore, it was a reliable substitute (Berland et al., 1986; Garner et al., 1982; Pendly & Bates, 1996).

The EAT-26 is frequently used to measure eating behaviors and attitudes associated with AN. The measure is comprised of 26 questions that are based on a 6-point Likert Scale; "always" and "never" as the anchors. Scores are derived by the procedure developed by Garner and Garfinkel (1979), in which responses most correlated with AN are given 3 points, responses that are correlated next are given 2 points, etc. Scores range from 0 to 78, with a score above 20 indicating serious eating or weight concerns and the

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potential presence of an ED. The higher the overall score, the more indicative it is of ED pathology.

Garner et al. (1982) reported Chronbach's Alpha of .90 in the AN group and .83 in the control group. Criterion validity was demonstrated for the measure, in that a discriminant function analysis revealed the measure correctly classified 83.6% of AN and control participants.

Body mass index (BMI). Each participant was asked to report their height and weight in order to calculate Body Mass Index (BMI). BMI is derived from an individual's height and weight and is a reliable measure of body fat that is used to categorize one's weight based on the following categories: underweight, normal, overweight, and obese. Categories are used to direct individuals in appropriate wellness programs to prevent possible health problems (Gowen, et al., 1999). It is calculated by taking weight in pounds multiplied by 703 and dividing it by height in inches squared. *Data Collection Procedures*

Before beginning data collection, a thorough description of the study, the survey used to collect data, and sample consent forms were submitted to the University of Wisconsin-Stout Institutional Review Board (IRB) in order to attain approval. After minor revisions to the prospected study, approval was granted.

Data was collected in June of 2006. At the beginning of class, students were unknowingly separated into two groups (those with consent and those without). Those students without consent engaged in their regular class curriculum in a separate room. The group with signed consent forms were administered the survey and debriefed upon completion of the survey. At that time, students were given appropriate resources and

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information regarding eating disorders. The entire 55-minute class period was given to complete the survey. Surveys were then collected and prepared for data analysis. *Data Analysis*

Validity check. To begin the data analysis process, a validity check was performed on data entry to ensure data was entered correctly. In order to complete this, 40 surveys were randomly pulled and checked against entered data. Only two errors were found throughout all of the 114 responses on each of the 40 surveys. Thus, data entry was deemed valid.

Data cleaning. Data was then cleaned to assess for any outliers. Each response was checked against the possible range of numbers that could be attained per question. Any number lying outside of the expected range was double checked and corrected. For five subjects, responses to all N=X items were rechecked, resulting in a total of N=XX data points. Of these, only one entry was found inaccurate and changed.

Creation of scaled scores. The following explains how each of the constructs was scored.

Generational status. Generation status was based on numbers ranging from 1-5.

Acculturation. Acculturation was determined by first calculating the AOS score, which was the average of responses to questions 2, 4, 7, 9, 10, 13, 15, 16, 19, 23, 25, 27, 30. Next the MOS score was calculated, which was the average of responses to questions 1, 3, 5, 6, 8, 11, 12, 14, 17, 18, 20, 21, 22, 24, 26, 28, 29. The MOS was then subtracted from the AOS to determine the overall acculturation scaled score.

Body mass index (BMI). BMI was calculated by dividing weight in pounds by height in inches squared and then multiplying by 703.

Sociocultural attitudes. Before computing the scaled scores for each of the four constructs within sociocultural attitudes, specific items had to be reverse-keyed (3, 6, 9, 12, 13, 19, 27, 28). Once reverse keyed, items in each construct were added to create the specific scaled score. For Internalization-General, items 3, 4, 7, 8, 11. 12. 15. 16, and 27 were added. For Internalization-Athletes, items 19, 20, 23, 24, and 30 were added. For Pressures, items 2, 6, 10, 14, 18, 22, and 26 were added. Lastly, for Information, items 1, 5, 9, 13, 17, 21, 25, 28, and 29 were added.

Disordered eating. To determine the disordered eating scaled score, responses to items 1 through 26 were added.

Calculation validation. After the data analysis was completed, validity checks were conducted on 10 randomly selected surveys to verify that each measure was calculated correctly and that the correct score was entered into the analysis. Any errors were corrected and the data reran. Errors were found in all 10 of the surveys when looking at the calculated score for internalization-general, internalization-athlete, pressures, and information scores. It was apparent that the overall score inputted into the analysis was calculated incorrectly. The scores were recalculated and the analysis was rerun. No calculation errors were found on the second analysis.

Statistical analysis plan. In order to identify the sample involved in the study, descriptives were run to determine age, generational status, and BMI. A correlational matrix was then run to identify the relationship between the following constructs: generational status, acculturation, internalization-general, internalization-athletes, media information, media pressures, disordered eating, BMI, and weight concerns. Lastly, in an attempt to identify which variables were the highest predictors for disordered eating in a Mexican American population, a full model regression was run with disordered eating as the dependent variable and generational status, acculturation, internalization-general, internalization-athlete, information, pressure, and BMI as the independent variables.

Sample

Descriptives were run to identify the age, BMI, and generational status of the sample studied. Results from the descriptive analysis are contained in the tables below. Results were reported on the overall sample of the study and the sample that responded to each specific question.

Age. The age of the sample ranged from 12 years to 15 years (see Table 1). The majority, approximately 58%, reported being 12 and 13-years-old (58.1%). Of the total sample, approximately 98% answered the question regarding age.

Table 1

		Frequency	Percent	Vali	d Percent
Valid	12 years old	34		15.8	16.2
	13 years old	91		42.3	43.3
	14 years old	78		36.3	37.1
	15 years old	7		3.3	3.3
	Total	210		97.7	100.0
Missing	System	5		2.3	
Total		215		100.0	

Age Descriptives

BMI. When BMI was calculated for the sample, approximately 79% reported weight and height (see Table 2). The majority reported a BMI that was in the normal range, which was approximately 47%.

Table 2

BMI Descriptives

			Frequency	Percent	Valid Percent
Valid	Underweight	< 18.5	40	18.6	21.6
	Normal	18.5-24.9	101	47.0	54.6
	Overweight	25-29.9	17	7.9	9.2
	Obese	> 30	11	5.1	5.9
	Total		185	86.0	100.0
Missing	System		30	14.0	
Total			215	100.0	

Generational status. Of the total sample of Mexican Americans who completed the survey, approximately 99% responded to the question regarding generational status (see Table 3). The majority, approximately 63%, reported being 2nd generation Mexican Americans, and approximately 90% were of either first or second generation.

Table 3

Generational Status Descriptives

		Frequency	Percent	Valid Percent
Valid	1 st generation	59	27.4	27.8
	2 nd generation	135	62.8	63.7
	3 rd generation	10	4.7	4.7
	4 th generation	5	2.3	2.4
	5 th generation	3	1.4	1.4
	Total	212	98.6	100.0
Missing	System	3	1.4	
Total		215	100.0	

Constructs

Descriptives on the constructs were calculated and are reported below. Specific data is listed in the tables below.

Acculturation. Acculturation status of the sample is presented in Table 4. The acculturation level of the sample ranged from 'Very Mexican Oriented' to 'Very Assimilated; Anglicized'. The majority, approximately 58%, reported an acculturation level of "Mexican oriented to approximately balanced bicultural'. Of the total sample, approximately 99% produced an acculturation score.

Table 4

		Frequency	Percent	Valid Percent
Valid	Level I – Very Mexican oriented	27	12.7	12.7
	Level II – Mexican oriented to approximately balanced bicultural	124	58.2	58.2
	Level III – Slightly Anglo oriented bicultural	55	24.4	24.4
	Level IV – Strongly Anglo oriented	9	4.2	4.2
	Level V – Very assimilated; Anglicized	1	.5	.5
	Total	213	99.1	
Missing	System	2	.9	
Total		215	100.0	

Acculturation Level Descriptives

Sociocultural Attitudes Toward Appearance Questionnaire (SATAQ-3)

Sociocultural influences on a subject's perception of appearance were measured by the SATAQ-3. It consisted of four subscales: Internalization-General, Internalization-Athlete,

Pressures, and Information. Table 5 below lists the mean and average item response score for each subscale.

Internalization-General. The Internalization-General subscale measures the extent to which one adopts sociocultural values concerning attractiveness and thinness. It is comprised of 9 items scored from 1 to 5: definitely disagree, mostly disagree, neither agree nor disagree, mostly agree, definitely agree. The higher the total score, summed over the 9 items, the more an individual adopted values concerning attractiveness and thinness. Out of a possible 45, the mean score was approximately 24. This mean was divided by the number of questions for this subscale (9) to identify the average item response score. An average item response score of 2.7 resulted, suggesting the average item response was between "mostly disagree to neither agree nor disagree." Thus, the majority of the subjects reported that they have not adopted the sociocultural values concerning attractiveness and thinness. Of the 215 subjects who participated in the study, approximately 99.5% completed this subscale.

Internalization-Athlete. The Internalization-Athlete subscale assesses the influence athletes in the media have on an individual's attitude regarding appearance. It is comprised of five items scored from 1 to 5: definitely disagree, mostly disagree, neither agree nor disagree, mostly agree, definitely agree. Out of a possible 25, the mean subscale score was approximately 12. The mean was divided by the number of questions for this subscale (5) to identify the average item response score. The average item response score was 2.4, suggesting the average response was between "mostly disagree to neither agree nor disagree." Thus, the majority of the subjects reported that they do not

feel Athletes influence their attitude regarding appearance. Of the 215 subjects who participated in the study, 100% completed this subscale.

Pressures. The Pressures subscale assesses the amount of pressure individuals feel from different sources of media such as magazines and television regarding their appearance. It is comprised of seven items that are scored from 1 to 5: definitely disagree, mostly disagree, neither agree nor disagree, mostly agree, definitely agree. Out of a possible 35, the mean subscale score was approximately 17. The mean was divided by the number of questions for this subscale (7) to identify the average item response score. The item response mean was a 2.4, suggesting the average response was between "mostly disagree to neither agree nor disagree." Thus, the majority of the subjects reported that they do not feel pressure from the media in regards to their appearance. Of the 215 subjects who participated in the study, approximately 99.5% completed this subscale.

Information. The Information subscale assesses how much an individual views the media as a valuable source of information on appearance. It is comprised of nine items that are scored from 1 to 5: definitely disagree, mostly disagree, neither agree nor disagree, mostly agree, definitely agree. Out of a possible 45, the mean subscale score was approximately 26. The mean was divided by the number of questions for this subscale (9) to identify the average item response score. The mean was a 2.9, suggesting the average item score was between "mostly disagree to neither agree nor disagree." Thus, the majority of the subjects reported that they do not view the media as a valuable source of information regarding appearance. Of the 215 subjects who participated in the study, approximately 99.5% completed this subscale.

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Table 5

		Internalization-General	Internalization-Athlete	Pressures	Information
N	Valid	214	215	214	214
	Missing	1	0	1	1
Mean		23.8	12.4	16.9	25.7
Median		24.0	12.0	16.0	26.0
Mode		21.0	9.0	7.0	27.0
Range		36.0	20.0	29.0	36.0
Average Item Response		2.7	2.4	2.4	2.9
SD		7.7	4.7	6.9	6.9

Disordered Eating. Of the total sample of Mexican Americans who completed the survey, approximately 95% completed the portion on disordered eating (see Table 6). Eighteen percent obtained responses indicative of high concern regarding eating, body shape, and weight.

The disordered eating component is comprised of 26 items that are scored from 0 to 3: never, rarely, sometimes, often, usually, and always. Possible scores range from 0 to 78. Scores over 20 are considered to be indicative of high concern of disordered eating. The average score was 11.16 with a standard deviation of 13.15. (Table 7). The distribution is positively skewed due to the small percentage with higher disordered eating, as fifty percent of the sample had a score of 3.0 or less.
Table 6

			Frequency	Percent	Valid Percent
Valid	Low Concern	> 20	168	78.1	82.0
	High Concern	20-54	37	17.4	18.0
	Total		205	95.3	100.0
Missing	System		10	4.7	
Total			215	100.0	
Mean	11.2				
Median	6.0				
Mode	3.0				
Range	54.0				
SD	13.15				

Disordered Eating Descriptives

Correlations

To identify the relationships amongst the constructs of interest, correlations were calculated. Table 9 reports results of all correlations. The strength of correlations was identified based on the following levels: .00-.30 = weak, .30-.50 = moderate, .50-1.00 = strong.

Two different criterions for judging statistical significance were used in this analysis. Using a liberal criterion for significance that does not control for family-wise error rates, correlations were considered significant at a *p*-level of $\leq .05$. Using a more conservative criterion, with 28 unique correlations and a family-wise error rate of .05, correlations would only be considered statistically significant only if p < .002 (.05/28). In the following paragraphs, significant findings based on both criterions will be discussed.

Significance with Sociocultural Subscales

Conservative criterion. Not surprisingly, each of the subscales of the SATAQ-3 measure were significantly correlated with each other. Internalization-General and Internalization-Athlete were significantly correlated (r = .45, p = .00). The results demonstrated a moderate positive correlation, suggesting the more an individual adopts sociocultural values concerning attractiveness and thinness, the more they are influenced by the messages sent by athletes in regards to appearance. Internalization-General and Pressures were also significantly correlated (r = .67, p = .00). The results demonstrated a strong positive correlation, suggesting the more an individual adopts sociocultural values concerning attractiveness and thinness, the more pressure they feel from the media regarding appearance. Likewise, Internalization-General and Information were significantly correlated (r = .48, p = .00). The results demonstrated a moderate positive correlation, suggesting the more an individual adopts sociocultural values concerning attractiveness and thinness, the more they view the media as a valuable source of information regarding appearance. Internalization-Athlete and Pressures were significantly correlated (r = .48, p = .00). The results demonstrated a moderate positive correlation, suggesting the more an individual is influenced by the messages sent by athletes in regards to appearance, the more pressure they feel from the media regarding appearance. Likewise Pressures and Information were moderately and positively correlated (r = .40, p = .00), suggesting the more pressure an individual feels from the media regarding appearance, the more they view the media as a valuable source of information regarding appearance. Internalization-Athlete and Information were significantly correlated (r = .26, p = .00). The results demonstrated a weak positive

correlation, suggesting the more an individual is influenced by the messages sent by athletes in regards to appearance, the more they view the media as a valuable source of information regarding appearance.

Regarding BMI, only one SATAQ-3 subscale was significantly related (r = .27, p = .000), albeit weakly, to it: the Pressures subscale. This finding demonstrated a weak positive correlation suggesting the more pressure an individual feels from the media regarding appearance, the higher an individual's BMI.

Significance with Disordered Eating

Of particular interest in this study were those variables significantly correlated to disordered eating.

Liberal criterion. Acculturation and Disordered Eating were significantly correlated (r = -.14, p = .044). The results demonstrated a weak negative correlation. Therefore, the lower the acculturation level, the higher the disordered eating and visaversa.

Interestingly, each of the subscales of the SATAQ-3 scale were significantly correlated with disordered eating. Internalization-General and Pressures each correlated with Disordered Eating, with both meeting the conservative criterion (see conservative criterion section below); however, Information and Internalization-Athlete correlated with disordered eating fell under the liberal criterion.

Positive but weak correlations were found between disordered eating and the Information and Internalization-Athlete subscales. The former finding (r = .18, p = .009) thus suggests the more an individual views the media as a valuable source of information regarding appearance, the higher level of disordered eating. The latter (r = .17, p = .018) suggests the more an individual is influenced by the messages sent by athletes in regards to appearance, the higher level of disordered eating.

Lastly, BMI and Disordered Eating were significantly correlated (r = .19, p = .013. The results demonstrated a weak positive correlation, suggesting the higher an individual's BMI, the higher level of disordered eating.

Conservative criterion. As mentioned above, Internalization-General and Disordered Eating were moderately and positively correlated (r = .31, p = .000), suggesting the more an individual adopts sociocultural values concerning attractiveness and thinness, the higher level of disordered eating. In addition, Pressures and Disordered Eating were moderately and positively correlated (r = .45, p = .000), suggesting the more pressure an individual feels from the media regarding appearance, the higher level of disordered eating exhibited.

Other Significant Results

Conservative criterion. Generational Status and Acculturation were significantly correlated (r = .529, p = .000). The results demonstrated a moderate positive correlation, suggesting the higher an individual's generational status; the more they are acculturated to American culture.

Table 7

Correlations

		Generational Status	Acculturation	Internalization- General	Internalization- Athlete	Pressures	Information	BMI	Disordered Eating
Generational Status	Pearson Correlation		.529	040	021	.024	067	.096	015
	Sig. (2-tailed)		.000	.566	.758	.732	.331	.214	.832
	N		210	211	212	211	211	168	203
Acculturation	Pearson Correlation		1	094	.012	030	076	026	141
	Sig. (2-tailed)			.172	.864	.661	.270	.741	.044
	Ν			212	213	212	212	167	204
Internalization-	Pearson Correlation			1	.452	.665	.475	.087	.312
General	Sig. (2-tailed)				.000	.000	.000	.262	.000
	N				214	214	213	168	204
Internalization-	Pearson Correlation				1	.482	.264	.057	.165
Autore	Sig. (2-tailed)					.000	.000	.460	.018
	Ν					214	214	169	205
Pressures	Pearson Correlation					1	.396	.271	.447
	Sig. (2-tailed)						.000	.000	.000
	N						213	168	204
Information	Pearson Correlation						1	082	.183
	Sig. (2-tailed)							.288	.009
	Ν							168	204
BMI	Pearson Correlation							1	.193
	Sig. (2-tailed)								.013
	Ν								166
Disordered Eating	Pearson Correlation								1
	Sig. (2-tailed)								
	N								

Regression Analysis

In the correlations reported above, bivariate relationships between any two variables were assessed. To investigate further the relationship among all variables taken together, a regression analysis was conducted. This allowed the relationship between each variable and disordered eating to be assessed, while controlling for the effects of all other variables in the model. As a result, the variables most strongly related to disordered eating were identified.

For the regression model a full model regression was conducted in which all variables (BMI, acculturation, internalization-general, internalization-athlete, pressures, information, generational status, and disordered eating) were entered into the regression analysis. Tables 8 & 9 present the results of this analysis.

Table 8

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.472(a)	.222	.187	12.14953

The model was statistically significant at the p=.00 level, resulting in an F score of 6.29. Results indicated an R^2 of .22 and an Adjusted R Square of .187. Thus, when considering the more conservative R^2 and liberal Adjusted R^2 , it can be concluded that approximately 20% of the variability in disordered eating can be explained by the list of predictor variables measured.

When the relationship between each variable was assessed independently, while controlling for the effects of the other variables, media pressures was identified as the strongest predictor variable, as it had a Beta of .45 with a *t*-test score of 4.10 (p = .000).

Thus, the more an individual feels pressures from the media regarding attractiveness, the higher level of disordered eating.

Acculturation demonstrated a weak relationship with disordered eating, as it had a Beta of -.14 and a *t*-test score of -1.72 (p = .09). The relationship was significant at the α = .10 level; therefore, there is approximately a 1 in 10 chance that the relationship was due to chance. Because the relationship was only nearing significance, the results should be cautiously taken into consideration when interpreting the meaningfulness of the relationship. Surprisingly, the direction of the relationship indicated that as acculturation level increases, the level of disordered eating actually decreased. This is an unexpected result and will be discussed further in the next chapter.

After running the regression analysis and finding which predictor variables were related to disordered eating, our data demonstrated that disordered eating was not related to Generational Status, Internalization-General, Internalization-Athlete, Information, or Body Mass Index.

Table 9

Regression Analysis

	Beta	T	Sig.
Generational Status	002	019	.985
Acculturation	144	-1.715	.088
Internalization-General	.019	.180	.858
Internalization – Athlete	090	-1.060	.291
Pressures	.446	4.104	.000
Information	010	126	.900
Body Mass Index	.072	.941	.348

Chapter V: Discussion

This chapter discusses the results that were presented in the prior chapter and attempts to answer the original hypotheses and exploratory questions that were presented in chapter I. The conclusion of the chapter will end with limitations of the study and implications for future practice and research.

Descriptives

BMI. Results from the study found that the majority of the sample surveyed reported a BMI in the "normal" range. The next highest group that the sample fell into was "underweight." "Overweight" and "Obese" contained the lowest percentages. This was surprising, as much research has suggested that Mexican Americans have relatively high obesity rates (Hazuda et al, 1988; Kuczmarski et al, 1994). Because weight is such a touchy subject due to society, it could be possible that our sample underreported their weights and that several did not report their weights.

Generational status. Our study consisted primarily of 1st and 2nd generation students. This is similar to samples researched in previous studies (Chamorro & Flores-Ortiz, 2000; Joiner & Kashubeck, 1996).

Disordered eating. Our findings suggested a higher than expected percentage of Mexican Americans who endorsed disordered eating. This finding supports previous research done by Joiner and Kashubeck (1996), in which relatively the same sample was studied. Joiner and Kashubeck also looked at Mexican American adolescents that were primarily 2nd and 5th generations from a school with a population of 97% Hispanic. They found a disordered eating rate of 20%. This high rate; however, was considerably higher than prevalence rates found in other studies, 9% respectively (Chamorro & Flores-Ortiz,

2000, Gowen et al., 1999). It is unknown why our level of disordered eating was so high; however, since the majority of our sample is of 1st and 2nd generation, maybe there is a higher level of stress the individual feels to conform to the dominant culture, yet remain connected to the native culture. Although not measured in our study, previous research has shown a positive correlation between cultural stress and disordered eating (Kuba & Harris, 2001; Root, 1990).

Correlations

The following attempts to identify the relationship between all of the constructs involved in the study by reintroducing the hypotheses and exploratory questions presented in Chapter I and answering the questions and determining whether the expected outcome was found.

Generational status

The lower generational status an individual has, the less acculturated. Thus, there will be a positive correlation between generational status and acculturation.

This hypothesis was supported, as our findings suggested a positive correlation between generational status and acculturation. This finding supports previous research, suggesting that the higher an individual's generational status, the higher the individual's acculturation level.

The lower generational status an individual has, the less internalization of sociocultural attitudes. Thus, there will be a positive correlation between generational status and internalization-general.

This hypothesis was not supported, as our findings did not find a significant correlation between generational status and internalization of sociocultural attitudes regarding appearance. This was not expected, as we believed individuals of higher generational status would be more likely to adopt sociocultural values concerning attractiveness and thinness. This finding suggests that there is no relationship between generational status and the internalization of sociocultural attitudes toward appearance.

The lower generational status an individual has the less internalization of attitudes regarding athletes. Thus, there will be a positive correlation between generational status and internalization-athlete.

This hypothesis was not supported, as our findings did not find a significant correlation between generational status and the amount an individual is influenced by the messages sent by athletes in regards to appearance. No correlation was found, which was contrary to what we anticipated. Thus, there was no significant relationship between generational status and the amount of influence an individual feels athletes have in regards to appearance.

The lower generational status an individual has, the less an individual will be influenced by information gained from the media. Thus, there will be a positive correlation between generational status and information from the media.

This hypothesis was not supported, as our findings found no correlation between generational status and influence of information gained from the media regarding appearance. This is an unexpected finding, as we hypothesized that the longer an individual has been in the United States, the more they would have felt that information gained from the media regarding appearance was influential. The lower generational status an individual has, the less an individual will experience pressure from the media regarding appearance. Thus, there will be a positive correlation between generational status and pressure from the media.

This hypothesis was not supported, as our findings concluded no relationship between generational status and perceived pressure from the media regarding appearance. We expected to find a relationship, as we believed that an individual would experience more pressure from the media regarding appearance based on a higher generational status.

The lower the generational status, the less an individual will have disordered eating. Thus, there will be a positive correlation between generational status and disordered eating.

This hypothesis was not supported, as our findings discovered no correlation between generational status and disordered eating. This was an unexpected outcome, as we predicted that an individual would exhibit higher levels of disordered eating if they were of higher generational status.

Summary. Our hypotheses predicted that generational status would have been positively correlated with each one of the variables used in the study. Results suggested the opposite. With the exception of acculturation, no other variables were positively correlated with generational status. Results found a moderate positive correlation between acculturation and generational status, suggesting that an individual's acculturation level is higher when their generational status is higher. This finding is not surprising, as it would be expected that an individual who was of higher generational

status, such as 3rd generation, would have acculturated more to the mainstream than an individual who was of lower generational status, such as 1st generation.

It is not known why generational status was not positively correlated with the other variables included in the study; however, one can speculate that generational status may not be important to the development of disordered eating. Thus, just because an individual is of higher generational status, it does not mean that they have been affected by the sociocultural pressures of U.S. society regarding appearance, or thereafter develop disordered eating practices.

Acculturation

The more acculturated an individual is, the more an individual will internalize sociocultural attitudes. Thus there will be a positive correlation between acculturation and internalization-general.

This hypothesis was not supported as results from this study found no correlation between acculturation and internalization of sociocultural attitudes regarding appearance. This finding was unexpected as we originally believed that the more an individual is acculturated to the dominant culture, the more they internalize sociocultural attitudes regarding appearance. However, this study suggests that this was not the case with our population.

The more acculturated an individual is, the more an individual will internalize attitudes regarding athletes. Thus, there will be a positive correlation between acculturation and internalization-athletes.

This hypothesis was not supported as our findings suggested no correlation existed between acculturation and the internalization of attitudes regarding appearance perceived from athletes. This was not expected, as we believed the more an individual is acculturated to the dominant culture, the more they would adopt attitudes regarding appearance based off athletes.

The more acculturated an individual is, the more an individual will be influenced by information gained from the media. Thus, there will be a positive correlation between acculturation and information.

This hypothesis was not supported, as our findings discovered no correlation between acculturation and the amount of influence that information gained from the media regarding appearance had on an individual. This was an unexpected outcome, as we predicted that as an individual became more acculturated to the dominant society, the more an individual would perceive the media as informative regarding appearance.

The more acculturated an individual is, the more an individual will experience pressure from the media regarding appearance. Thus, there will be a positive correlation between acculturation and pressure.

This hypothesis was not supported as our results found no correlation between acculturation and perceived pressure from the media regarding appearance. This finding was unexpected as we thought that as an individual became more acculturated to the dominant culture, the higher level of pressure they would experience from the media regarding appearance. However, this does not seem to be the case in our study.

There will be no correlation between acculturation and disordered eating.

This hypothesis was not supported, as the results concluded that there was a negative relationship between acculturation and disordered eating; although, the inverse correlation was relatively weak. Although no correlation between the two was predicted,

the negative correlation amongst the two was not anticipated. Previous research is split as to whether acculturation and disordered eating are correlated; however, no known studies have suggested what our findings showed: as acculturation level increases, disordered eating tended to decrease.

Summary. After examining the conclusions of this study, results concluded that acculturation was not correlated with any of the variables included in the study, with the exception of disordered eating and generational status (see above). Although acculturation and disordered eating were negatively correlated, it was a relatively weak relationship. Based on our study, acculturation appears to have no relationship with the development of sociocultural attitudes regarding appearance; therefore, the more an individual is acculturated does not seem to be related with how an individual is affected by influence, pressure, or information gained by the media regarding beauty. Surprisingly, an individual who was more acculturated to the dominant culture appeared to experience lower levels of disordered eating and vice versa, based on our findings.

Sociocultural attitudes

The more internalization of sociocultural attitudes an individual has, the more an individual will struggle with disordered eating. Thus, there will be a positive correlation between internalization of sociocultural attitudes and disordered eating.

This hypothesis was supported, as our findings suggested a positive correlation between the adoption of sociocultural attitudes toward appearance and the level of disordered eating. This finding supports previous research, suggesting that the more an individual "buys-in" to society's views regarding appearance, the more an individual experiences disordered eating. The more an individual internalizes attitudes regarding athletes, the more an individual will struggle with disordered eating. Thus, there will be a positive correlation between internalization of athletes and disordered eating.

This hypothesis was supported, as our findings found that the more an individual internalized attitudes regarding appearance based on athletes, the higher level of disordered eating. This is supportive of previous research, as studies have shown that disordered eating is higher when individuals adopt sociocultural attitudes toward appearance.

The more an individual is influenced by information gained from the media, the more the individual will struggle with disordered eating.

This hypothesis was supported, as our results concluded that the more an individual is influenced by information provided by the media regarding appearance, the higher level of disordered eating. This supports previous research that found disordered eating was higher in individuals who adopted sociocultural attitudes regarding appearance.

The more an individual experiences pressure from the media regarding appearance, the more they will struggle with disordered eating.

This hypothesis was supported, as our findings found a positive correlation between experienced pressure from the media regarding appearance and disordered eating. This is consistent with previous research that suggests the more an individual develops sociocultural attitudes regarding appearance, the higher level of disordered eating the individual will have. *Summary*. All of the sociocultural subscales were positively correlated with disordered eating, which supports previous research in concluding that the more an individual adopts sociocultural attitudes regarding appearance, the higher level of disordered eating they will have.

BMI

What is the relationship between generational status and BMI?

Our findings suggested no relationship between generational status and BMI.

What is the relationship between acculturation and BMI?

Our findings suggested no relationship between acculturation and BMI.

What is the relationship between internalization of sociocultural attitudes

regarding appearance and BMI?

Our findings suggested no relationship between internalization of sociocultural attitudes regarding appearance and BMI.

What is the relationship between internalization of attitudes regarding athletes and BMI?

Our findings suggested no relationship between internalization of attitudes regarding athletes and BMI.

What is the relationship between influence of information gained from the media and BMI?

Our findings suggested no relationship between the influence of information gained from the media and BMI.

What is the relationship between pressures generated from the media and BMI?

Our findings suggested a weak positive correlation between pressures generated from the media and BMI.

What is the relationship between BMI and disordered eating?

Our findings suggested no relationship between disordered eating and BMI. *Summary.* BMI was not found to be correlated with any of the variables measured in the study, except media pressures. Surprisingly, although only a weak correlation was found, how much an individual experiences pressure from the media regarding appearance was positively correlated with BMI. This was an unexpected outcome, as we would have thought that the two would have been negatively correlated: the more an individual experiences pressure from the media regarding appearance, the lower their BMI. In hindsight, the opposite could also occur. The higher the BMI, the more pressure one feels from the media about appearance.

Regression Analysis

The regression analysis was designed to identify which variables were the strongest predictors for disordered eating in our sample. The following hypothesis was proposed in chapter I:

The four subscales of the Sociocultural Attitudes Toward Appearance Questionnaire (SATAQ-3) will be the strongest predictors of disordered eating, while controlling for generational status, acculturation, and BMI.

This hypothesis was not fully supported, as only the pressures subscale of the SATAQ-3 was found to be a predictor variable of disordered eating. No relationship was found amongst disordered eating and the remaining SATAQ-3 subscales. After analyzing the SATAQ-3 closely, this finding makes sense. The internalization-general and

internalization-athlete subscales focus primarily on the desire or tendency to compare oneself to society's portrayal of beauty; however, the questions do not really focus on trying to change behavior to meet that standard. In other words, an individual may express a desire to look like a supermodel; however, does not change behavior in order to do so. The information subscale focuses on how important an individual thinks the information conveyed by the media regarding beauty really is. Again, the questions do not focus on the extent to which an individual takes those beliefs and then changes behavior as a result. In contrast, although the pressures subscale questions still do not focus on a change of behavior; the perception of pressure alone may cause the individual to change behavior as a result. Thus, when subjects answered the section of the survey on sociocultural attitudes, the ones who endorsed pressures were more likely to endorse disordered eating.

Although not hypothesized, our findings suggested a weak negative relationship between acculturation and disordered eating when all other variables were controlled. It is noteworthy to mention that this finding only neared significance; therefore, there is a better chance that the finding was due to error. Of curiosity was the negative relationship found between the two.

When previous research found a correlation between acculturation and disordered eating, it was a positive correlation: the more acculturated an individual is the higher level of disordered eating they exhibit. Thus, it was peculiar to find the opposite in this study. Again, there is a chance that the finding is due merely to chance; however, if it is true it is of interest to understand why. One hypothesis might be a result of the sample used. The school's population, from which the sample was derived, was primarily Hispanic; therefore, exposure to the dominant culture might not be as evident as it would be for those derived from a predominately Caucasian school. They may be more acculturated based on language use and identity and classification because they go to an American school that promotes American culture; however, are surrounded by their Mexican American peers and families daily.

Limitations

Although the study was fairly thorough, there were some limitations. First, because the sample of the study consisted of primarily 1st and 2nd generation Mexican Americans, English was not the primary language for many of the participants. Most of the families at that school spoke Spanish in the home; therefore, many of the students still struggle with the English language. As a result, our sample may not have understood everything they were reading in the survey, as the survey was done in English. It is important to note that even though speaking English is required in the schools and many can speak English effectively, reading English is a more difficult task. In addition, because of the high amount of 1st generation status, some of our sample may have had limited English skills.

Another limitation is that there was no comparison group. The sample consisted of only Mexican Americans; therefore, the results could not be compared to other populations or Mexican Americans from more diverse school settings. It would be interesting to conduct our study on a sample that included a well-balanced mix of Caucasians and Mexican Americans to see if the results would be different based on their exposure to the dominant culture.

Recommendations for Future Practice

The results found in this study should be shared with practitioners in all fields who work with Mexican American adolescents. The current research suggests that the pressure to conform to society's values of thinness and beauty is a strong predictor of the development of disordered eating in Mexican American adolescents. Prevention programs should be aimed at dealing with the pressures that adolescents feel and working to change their cognitive thinking regarding what constitutes beauty in our society.

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