DISSERTATION

A PROPOSED MODEL OF DIETING AND NONDIETING IN COLLEGE WOMEN

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

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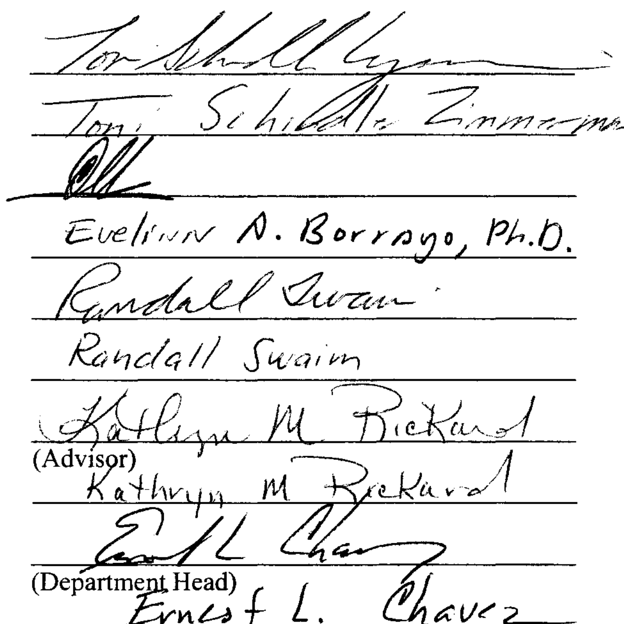

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ABSTRACT OF DISSERTATION

A PROPOSED MODEL OF DIETING AND NONDIETING IN COLLEGE WOMEN

Given the pervasiveness of dieting in western culture and its link to eating disorders and other negative psychological and physiological states, the purpose of this study was to gain a better understanding of the factors that both predispose and buffer college-aged women from cosmetic dieting. A structural model was created to examine the influences of a number of psychological, sociocultural, familial, and intra- and interpersonal variables on dieting behavior.

The sample consisted of 301 female, undergraduate college students enrolled in introductory psychology courses at Colorado State University. Data were analyzed in three stages. First, a series of MANOVAs were conducted to provide descriptive data on individual instruments and to test mean differences in model variables. Next, study instruments were entered in a confirmatory factor analysis (CFA) to determine the appropriateness of the proposed latent construct model. Finally, a structural model was tested predicting dieting status from the proposed latent constructs.

Results from the MANOVA analyses illustrated that more frequent dieting was associated with greater awareness and internalization of appearance norms, lower perceived social support from peers, lower levels of assertiveness, greater conformity disposition, lower self-esteem, and greater body dissatisfaction. Surprisingly, family support was not related to dieting behavior. The MANOVA results suggested that the

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factors that posed the greatest risk were internalization of cultural messages and dissatisfaction with one's body. The final structural model specified that the relationship between self-esteem and dieting status was fully mediated by body dissatisfaction, which was also predicted by body mass index (BMI). Specifically, high self-esteem was predicted by high peer support, low adherence to norms for appearance, and low susceptibility to conformity. Subsequently, increases in self-esteem and reduction in BMI resulted in reduction of body dissatisfaction, which, in turn, predicted less frequent dieting. The model was considered an adequately-fitting model, and the final structural model accounted for 66% of the variance in dieting status. Discussion focused on the implications of these findings for developing treatment and prevention efforts for decreasing dieting in the college population.

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INTRODUCTION

Dieting and body dissatisfaction in women reflect a sociocultural phenomenon in which women are encouraged to despise their bodies and restrict their intake of food in order to "fit in." This phenomenon, termed "normative discontent" (Rodin, Silberstein, & Striegel-Moore, 1984) is not limited to individuals who are, in fact, clinically obese; rather, a reported 75% of normal weight women believe that they are overweight (Kilbourne, 1995). Fear of becoming fat is so pervasive that, according to a study by Gaesser (1996), over half of females aged 18 to 25 would have preferred to be run over by a truck than to be fat, and two-thirds would rather be mean or stupid than be overweight. Furthermore, in the video "Slim Hopes: Advertising and the Obsession with Thinness," Jean Kilbourne (1995) explained that in a study of middle aged women who were asked what they would most like to change about their lives, over one-half of these women stated that their number one wish was to lose weight. In yet another study, women were asked to evaluate alternatives, and to rate what would make them the most happy (losing weight, finding success at work, going out on a date with a man they admired, or hearing from an old friend). Forty-two percent of these women selected losing weight, which was almost twice the number of women who rated success at work as the factor that would bring the most happiness (Wooley & Wooley, 1984a). In a study comparing bulimic versus nonbulimic female students, fear of fat was so common even among the nonbulimic women that its usefulness as a distinguishing variable was insignificant (Pyle et al, 1983). Another study (Thompson & Schwartz, 1982) compared

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anorexic students, subclinical anorexic students, and healthy students, and found that all three groups reported that they were "always on a diet" with similar frequency. Additionally, all three groups indicated that they regularly exerted willpower to limit their food intake.

Is it any surprise, then, that chronic dieting has become such a way of life that 95% of the female population has dieted at some time (Polivy & Herman, 1987)? At any one point in time, estimates of the number of adolescent girls on diets range from 25% (Williams et al, 1986) to 63% (Rosen & Gross, 1987). The prevalence of girls and women who feel that they are too fat and desire to lose weight is even greater, ranging from 70% (Wadden et al, 1989) to 83% (Storz & Greene, 1983).

This is not a problem that affects only adolescent and adult women. Dieting attempts and preferences for thinness are evident from a very young age. In fact, one study indicated that, depending on the question asked, 34% to 65% of five-year-olds held some concepts and beliefs about dieting and were able to articulate its purpose (Abramowitz & Birch, 2000). By the age of nine, children are fully aware of the concept of dieting and show a marked preference for thinness (Hill & Pallin, 1998). Other studies have found that dieting, weight concerns, and body dissatisfaction have been reported by children as young as seven- to nine-years-old, with 40% of elementary school aged girls reporting that they have tried to lose weight (Collins, 1991; Maloney et al, 1989; Rolland et al, 1996; Thompson et al, 1997). Thus, according to Smolak & Levine (1994), "By adolescence, then, negative body images may be well-ingrained and heavily supported by a 'culture of thinness'" (p.294).

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These statistics regarding the frequency of dieting attempts and the young ages at which these attempts begin are alarming, especially given the fact that the harmful implications of dieting have been well-documented (see Fulkerson et al, 2002; Hill & Pallin, 1998; Huon et al, 2000; Keel et al, 1997; Paxton et al, 2002; Rodin et al, 1984; Smolak & Levine, 1994; Strong & Huon, 1998; Wertheim et al, 1991). Dieting has been implicated extensively as a risk factor for and a forerunner of eating disorders (Fulkerson et al, 2002; Hill & Pallin, 1998; Huon et al, 2000; Keel et al, 1997; Paxton et al, 2002; Smolak & Levine, 1994; Strong & Huon, 1998; Thompson & Stice, 2001; Wertheim et al, 1992). In fact, one study found that dieters have an eight-fold increased risk of developing eating disorders compared with nondieters (Keel et al, 1997). Dieting has also been reported to relate to general dissatisfaction (Griffiths et al, 2000); low self-esteem (Dykens & Gerrard, 1986; Smolak & Levine, 1994); depression, anxiety, and irritability (Paxton et al, 2002; Smolak & Levine, 1994); and hyperemotionality and disturbances in concentration (Smolak & Levine, 1994). We also know that body image dissatisfaction, even without the presence of dieting, has been strongly linked with depression (Furnham & Greaves, 1994) and low self-esteem (Wertheim et al, 1992). According to a study by Hill & Pallin (1998), dieting awareness (even in the absence of actual dieting) in eight-year-old girls was significantly and negatively correlated with global self-worth, self-competence, body-esteem, and body shape satisfaction.

In addition to the harmful psychological consequences of dieting and body image dissatisfaction, a number of physical/medical implications also exist. Dieting slows metabolism (Apfelbaum, 1975; Garrow, 1978; Paxton et al, 2002; Rodin et al, 1994), and this effect appears to increase with each successive dieting attempt (Garrow, 1978).

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Thus, a pattern is established in which repeated dieting triggers decreases in metabolism, thus leading to further weight gains. This weight cycling has been associated with serious health problems, including cardiac and hepatic dysfunction (Smolak & Levine, 1994). Dieting during puberty has been found to be especially destructive for establishing normal body weight regulation (Rodin et al, 1994). Furthermore, those with patterns of repeated dieting are more sensitive to even small bouts of overeating. This is thought to be due to the finding that repeat dieters demonstrate a lower thermogenic response to food, or a lower amount of energy expended by the body to digest food after eating (James & Trayhurn, 1991; Rodin, 1984).

Thus, given the pervasiveness of dieting and its strong association with eating disorders and other harmful psychological and physiological states, it is vital that we examine the factors that predispose women to cosmetic dieting, as well as those factors that appear to serve as buffers. Previous researchers have proposed models that account for the initiation of dieting in adolescent girls (see Huon et al, 1999; Huon & Walton, 2000; and Strong & Huon, 1998), but none of these have focused on the factors that appear to make certain women resistant to society's pressures to diet and attain a particular body ideal. Furthermore, because the model set forth by Strong & Huon (1998), which appears to be the most comprehensive in the literature to date, accounts for 39% of the variance in initiation of dieting, it appears that we still have much to learn. The dieting literature is replete with psychological, sociocultural, familial, social, and intra- and interpersonal factors that have been linked to dieting. However, there have been no studies to date which have attempted to integrate all of these various factors into a single model of dieting or nondieting. Finally, the majority of studies regarding dieting

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have focused on adolescent girls, yielding important information about this life phase during which girls commonly initiate dieting. However, there has been relatively little research done among college-aged women, which is surprising given the pervasiveness of dieting, eating disorders, and body dissatisfaction in the college population (Klemchuk et al, 1990; Mintz & Betz, 1988, Nations, 1989; Pyle et al, 1986; Streigel-Moore et al, 1989; Strober & Yager, 1989; Whitaker & Davis, 1989). Additionally, it has been reported that a number of factors within the college environment may increase vulnerability to the initiation and maintenance of eating-related problems (Bowen-Woodward & Levitz, 1989; Dickstein, 1989; Streigel-Moore et al, 1989). Streigel-Moore et al (1989) studied college students at the beginning and end of their freshman year, and found that approximately one-quarter of the freshmen students had dieted for the first time during that year. Additionally, disordered eating symptoms were found to be exacerbated rather than ameliorated over the course of the first year of college, and approximately 15% of the women studied began engaging in binge eating for the first time during their freshman year (Streigel-Moore et al, 1989). Given these alarming statistics, it would be highly desirable to have a better understanding of the factors that account for dieting and nondieting status in the college population.

Thus, the purpose of this study is to create an inclusive model of factors that are associated with dieting or nondieting in college-aged women. We are focusing exclusively on women in this study, not because men are altogether exempt from dieting and cultural pressures of attractiveness, but because it has been well-documented that women diet more frequently and have greater body dissatisfaction than men (Fallon &

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Rozin,1985; Furnham & Greaves, 1994; McCaulay et al, 1988; Miller, Coffman, & Linke, 1980; Mintz & Betz, 1986).

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LITERATURE REVIEW

In reviewing the literature on why women diet, a vast number of factors have been set forth to account for the initiation of dieting in women and girls. The factors that will be explored for the purpose of the present study include: social influence from peers and parents, peer competitiveness, parental and peer support, influence from the media, awareness and internalization of cultural norms for thinness, assertiveness, self-esteem, weight or Body Mass Index (BMI), drive for thinness, and body dissatisfaction.

Social Influence from Peers

Previous structural models (Huon et al, 1999; Huon, Lim, & Gunewardene, 2000) of dieting have cited social influence as a key element in the initiation of weight-loss dieting. Specifically, according to Huon et al (1999), "The starting point of the model for the initiation of dieting is the recognition that weight-loss dieting occurs within the context of various sources of social influence to change body weight or shape. Being exposed to high levels of such influence is assumed to increase vulnerability to weight-loss dieting, and therefore to be predictive of more dieting" (p.421). The authors of the aforementioned study indicate that of the many forms of social influence (media, parents, and peers), peer influence played a crucial role as the immediate precursor to dieting. Even when controlling for BMI and drive for thinness, peer social influence was substantially predictive of dieting.

Research has indicated that as children develop into adolescence, they engage in social comparisons and increasingly tend to use their peers as targets for such self-

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comparisons (Martin & Kennedy, 1983; Renick & Harter, 1989). Of importance to the present study, such self-comparisons often take the form of body and appearance related comparisons. Body comparison, defined as the tendency to compare one's body with others (Schutz, Paxton, & Wertheim, 2002), has been found to be a trigger for body dissatisfaction and dieting attempts (Heinberg & Thompson, 1992b; Irving, 1990; Richins, 1991; Stormer & Thompson, 1996; Wertheim, Paxton, Schutz, & Muir, 1997). Moderate to high correlations have also been found between body comparison and binge eating, extreme weight loss behaviors, food restraint, and dieting in response to body comparisons, even after BMI, psychological factors, and family factors were taken into account (Schutz, Paxton, & Wertheim, 2002). Schutz, Paxton, and Wertheim (2002) examined both the causes and effects of body comparison with peers and found the following:

> As suggested by our model, girls who engage in body comparison are likely to: place a high premium on thinness; be acutely aware of their public image and broader social pressures for thinness; be heavier than their peers; have unstable perceptions of themselves and their bodies; be psychologically distressed; feel anxious about their competency in social situations; be perfectionistic and competitive in nature; perceive a high level of preoccupation with dieting among friends and family members; be more likely to have been teased about their appearance; and be older. Of these variables, the regression analysis indicated that importance of thinness, sociocultural internalization, and friend concern with weight, variables indicative of both personal and perceived environmental value placed on shape, were the strongest predictors of body-comparison tendencies. Although accounting for only a small amount of variance, other significant predictors of body-comparison tendencies were body image instability, competitiveness, grade, public self-consciousness, perfectionism, and family concern with weight (p.1927).

These authors further found that the importance placed upon thinness accounted for the highest proportion of variance in dieting (61%) as a result of engaging in body comparisons with peers. Schutz, Paxton, & Wertheim (2002) concluded by stating, "…it

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is notable that the equation for dieting in response to comparison accounted for very high proportions of variance, highlighting the very strong association between attitudinal variables and the behavioral response in the form of dieting" (p. 1930). Despite the negative effects of social comparisons, researchers believe that adolescents continue to engage in such comparisons because they are socially reinforced, provide grounds for connection among peers, and provide social identities of many adolescent girls (Schutz, Paxton, & Wertheim, 2002). For example, "fat talk" (Nichter, 2000), an activity in which girls collectively complain with one another about their bodies and openly compare their bodies with one another, has become a normative part of everyday dialogue among teenage girls. Some authors propose that this 'fat talk' and related body comparisons may be partially responsible for girls' body concerns and dieting attempts" (Muir, Wertheim, & Paxton, 1999; Wertheim et al, 1997).

College-aged women, who are frequently surrounded by peers, are likely to be especially prone to the effects of body and appearance comparisons. In fact, research has indicated that college-aged women rate peers as being more influential in appearance-related comparisons than family members, fashion models, or celebrities (Heinberg & Thompson, 1992b). A study by Huon, Lim, & Gunewardene (2000) measured the specific types of social influence from peers and parents, including conformity (dieting in response to the perception of social norms or covert pressure from significant others), compliance (dieting in response to direct comments or suggestions from others), and modeling (dieting in response to the recognition that significant others are dieting). The authors of the study found that levels of reported modeling, conformity, and compliance from both peers and parents were higher for those who were regularly dieting. However,

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the overall greatest influence of dieting status was from peer conformity and peer modeling (Huon, Lim, & Gunewardene, 2000).

Another aspect of peer influence that has been found to be highly related to initiation of dieting has been peer competitiveness (Huon et al, 1999, Huon & Walton, 1999). According to Huon et al (1999), "The most striking result from our analyses to further identify specificity is that peer competitiveness stands out as the most important predictor of dieting status" (p.427). Even when all other variables were taken into account (including BMI, age, drive for thinness, and body dissatisfaction), peer competitiveness was highly predictive of dieting status. This finding makes sense given that thinness has become "a status symbol for women" (Rodin, Silberstein, & Striegel-Moore, 1984, p.290). These authors further point out,

> ...The arenas of physical attractiveness and weight may be the chief and most wholeheartedly sanctioned competitive domains in which women are encouraged to contend with each other (Boskind-White & White, 1983; Brownmiller, 1984). For most women, the subjective experience of dieting is clearly marked not only by success vis-à-vis their own weight goals but also by comparison with women friends, colleagues, and relatives... For many women, weight is a quick and concrete barometer by which to measure oneself and one's worth- how well one is doing as a woman (p.290).

Social Influence from Parents

The effect of social influence via parental influence on dieting has also been well-documented (Abramovitz & Birch, 2000; Byely et al, 2000; Dixon, Gill, & Adair, 2003; Fulkerson et al, 2002; Hill & Pallin, 1998; Hill & Weaver, 1990; Huon & Walton, 2000; Keel et al, 1997; Paxton et al, 1991; Smolak & Levine, 1994; Smolak, Levine, & Schermer, 1999; Strong & Huon, 1998; Wertheim et al, 1992). The influence of parents is especially strong in young elementary-aged children, and even girls as young as age

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five have reportedly been influenced by their mother's dieting behavior (Fulkerson et al, 2002).

However, the effects of parental influence do not cease when one transitions out of childhood and into adolescence. Rather, some studies have shown parental influence to be stronger than peer influence during adolescence (Paxton et al, 1991; Strong & Huon, 1998). For example, Strong & Huon (1998) studied the sociopsychological processes involved in the initiation of dieting in adolescent girls aged 13-16, and found that perceived parental influence to diet was a significant predictor of dieting status, though perceived influence from friends was not. The influence of parental pressure to diet held even when accounting for BMI and body dissatisfaction.

Parental influence has been found to contribute to dieting via multiple pathways. A study by Strong & Huon (1998) demonstrated that parents influenced dieting behavior in their adolescent children indirectly by increasing body dissatisfaction. Parental influence to diet has also been said to operate through both direct means, including parental encouragement, teasing, or commenting on weight (Fulkerson et al, 2002; Keel et al, 1997; Paxton et al, 1991; Smolak, Levine, & Schermer, 1999) and indirect means, including observations of parental dieting and comments on their own weight (Hill & Pallin, 1998; Hill, Weaver, & Blundell, 1990;Keel et al, 1997; Smolak, Levine, & Schermer, 1999). Such evidence leads Dixon, Gill, & Adair (2003) to point out, "...the family may act as a reinforcer of the surrounding culture's preference for thinness through such mechanisms as family members modeling of weight and appearance concerns, engaging in dieting behavior, or exerting of overt pressure on adolescent daughters to acquire and maintain a thin appearance" (pp. 39-40). Finally, some studies

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have demonstrated that girls who diet excessively or have eating disorders have been shown to perceive their families as more conflictual and less cohesive and warm (Byely et al, 2000; Wertheim et al, 1992), and to perceive less emotional bonding in the family (Wertheim et al, 1992).

Despite some of the harmful influences that parents appear to have on their daughters' initiation of dieting, parents also afford their daughters highly protective, positive influences as well. For example, parents who encourage autonomous functioning have been shown to have daughters who diet less (Strong & Huon, 1998). Additionally, a higher level of positive mother attachment was associated with lower vulnerability to dieting in adolescent daughters, as was perceived emotional support from parents (Huon et al, 1999). Huon et al (1999) further found that mother attachment, father attachment, and perceived emotional support were associated with strong self-other differentiation and assertiveness, each of which served protective functions in dieting. Sarigiani (1987) discovered that perceived closeness to one's father was correlated with improved body image in eighth and twelfth grade girls. In summary, Huon et al (1999) assert that, "More positive familial contexts are associated with greater skill to resist social pressure to diet and less vulnerability to succumbing to those same pressures" (p.432).

Research has shown that fathers and mothers appear to have different influences on their daughter's dieting attempts and body satisfaction. In the earlier literature, mothers were perceived as the primary source of influence, especially since "mothers are most frequently the source of food preparation and dieting information for their children" (Fulkerson et al, 2002, p. 1579). Increasingly, however, research has indicated that

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fathers play an important role as well (Dixon, Gill, & Adair, 2003; Huon et all, 1999; Keel et al, 1997; Smolak, Levine, & Schermer, 1999).

There is disagreement and inconsistency in the literature regarding the specific roles that mothers and fathers each play in their children's body satisfaction and dieting attempts. For example, some studies (Keel et al, 1997; Smolak, Levine, & Schermer, 1999) have found that mothers' comments concerning their daughters' weight were significantly correlated with weight loss attempts, body esteem, and concerns about gaining weight, but fathers' comments were not associated with these factors. Abramovitz & Birch (2000) found that five-year-old girls whose mothers reported current or recent dieting were more than twice as likely to have ideas about dieting, while none of the information regarding fathers' dieting status predicted daughters' ideas about dieting. Yet Dixon et al (1996) reported that fathers' dieting behavior and their encouragement to diet was associated with a number of dieting behaviors, while no such associations were found between mothers' behaviors and daughters' dieting behaviors. Keel et al (1997) found that fathers' weight description and satisfaction were significantly associated with daughters' weight satisfaction (though not their dieting), while there were no significant associations found between mothers' and daughters' weight satisfaction. Thus, the picture remains unclear regarding the specific, independent influences of mothers and fathers on their daughter's dieting status. However, we have seen that the effect of parents' comments on their childrens' weight is greater when both parents deliver the messages (Smolak, Levine, & Schermer, 1999). It is also clear that parents, both mothers and fathers, have the potential to impact their daughters' dieting status in both positive and negative ways.

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Social Influence from the Media

The mass media serves as one of the greatest sources of information regarding cultural norms and standards for appearance. Mass media and advertising has been said to play a significant role in "creating and reinforcing a preoccupation with physical attractiveness and influencing consumer perceptions of what constitutes an acceptable level of physical attractiveness" (Martin & Gentry, 1997, p.19). Many authors have spoken about the mass media's impact on "the body as object" concept (Adams & Crossman, 1978; Garner et al, 1980; Martin & Gentry1997), in which women come to believe that the way their bodies are viewed by others ultimately determines their worth. As Rodin, Silberstein, & Streigel-Moore (1984) point out, "Women are socialized to be oriented to others, to need their approval- and society, they quickly learn, metes out rewards to women with thin bodies" (p.289).

The literature on the effects of exposure to television commercials and magazine advertisements has yielded inconsistent findings. A study by Stice and Shaw (1994) found that exposure to extremely thin models in advertisements produced feelings of depression, stress, guilt, shame, insecurity and body dissatisfaction in college women, while a study by Richins (1991) found no decrease in college women's body satisfaction following exposure to highly attractive, ultra-thin models. Still another study by Cash, Cash, and Butters (1983) found that female college students' self-perceptions of attractiveness were lowered the most after viewing photographs of moderately attractive models, as opposed to viewing highly attractive, professional models. Schutz, Paxton, & Wertheim (2002) found that, contrary to predictions and previous research, there were no significant differences in the frequency of body comparison between peers versus fashion

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models. The adolescent girls in the study (in grades 7, 8, and 12) also reported that they were just as likely to begin dieting after comparisons with fashion models as opposed to peers.

Despite the widespread consumption of media images, not all women appear to be affected in the same ways, which may account for the inconsistency in findings regarding the effects of exposure to mass media. Martin & Gentry (1997) found that the *motive* for social comparison with models made a difference in the effect of exposure. The authors set forth three types of motives for comparisons: the self-evaluation motive (assigning a judgment of value or worth of one's abilities and personal traits based on comparisons with others), the self-improvement motive (comparing oneself with others in order to learn how to improve oneself), and the self-enhancement motive (engaging in downward comparisons in order to maintain positive views of oneself or to enhance self-esteem). Martin & Gentry (1997) found that when female adolescents compared themselves with attractive others for self-evaluation purposes, self-perceptions of physical attractiveness decreased significantly.

Another hypothesis for the way in which media images affect women was through the process of reflected appraisals (Milkie, 1999), or the idea that even if we reject the images in magazines or do not believe that the media affects *us*, we believe that the media impacts *others'* perceptions of what is normative and ideal. This belief about what others view as normative, thus impacts our beliefs of how others view us. According to Milkie (1999),

> In other words, individuals see themselves through the eyes of others who they assume have been affected significantly by mass media imagery. It is clear that people ignore, dislike, and belittle media portrayals, and may not wish to make a social comparison that is negative for the self. Yet the extent to which such

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> critical assessment of media is effective, or can negate effects, may depend on the extent to which individuals know that significant others have assessed the symbols critically in the same way (p.194).

This indirect effect of reflected appraisals was found to be especially true for white female adolescents, who believed that the media was reflective of a "generalized other" who strictly adhered to these media images of attractiveness (Milkie, 1999).

Self-esteem has also been found to play a moderating role in comparisons with media images. For example, Martin & Kennedy (1993) found that girls who were lower in self-esteem or who perceived themselves as physically unattractive were more likely to compare themselves with fashion models. Thus, it appears that those with lower self-esteem may be more likely to engage in social comparisons with models or attractive others, which may then further exacerbate low self-esteem. Additionally, Henderson-King and Henderson-King (1997) found that women with lower self-perceptions of attractiveness experienced greater declines in body self-esteem following exposure to attractive media images than did women with higher self-perceptions of attractiveness. Finally, contingent self-esteem, or the tendency to base feelings of self-worth on meeting others' standards or expectations, has also been found to moderate the impact of viewing media images (Patrick, Neighbors, & Knee, 2004). Results from the study indicated that women who were higher in contingent self-esteem were more likely to compare themselves with models, experienced greater negative affect as a result of viewing the models, and experienced greater increases in body surveillance and body shame. The authors also found an interaction between contingent self-esteem (CSE) and self-perceptions of attractiveness (SPA), such that women with high CSE and low SPA were

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even more likely to compare themselves with models and experienced even higher levels of depression following the comparison.

Given the findings addressed above, we have sufficient evidence to suggest that exposure to media can lead to feelings of depression, lower self-perceptions of attractiveness, guilt, shame, body surveillance, and body dissatisfaction. There is also evidence to suggest that body comparison is a potential trigger for dieting attempts (Heinberg & Thompson, 1992b; Irving, 1990; Rickins, 1991; Stormer & Thompson, 1996; Wertheim, Paxton, Schutz, & Muir, 1997). Therefore, we may expect that exposure to media images may be directly or indirectly related to the tendency to engage in cosmetic dieting.

The Effects of the Thin-Ideal Internalization

As mentioned, not all women are affected equally by the aforementioned socialization agents (i.e., peers, family, and the media). Rather, some researchers believe that these forms of social influence have their effect on body satisfaction and restrained eating via a concept known as thin-ideal internalization (Griffiths et al, 2000; Thompson & Stice, 2001; Thompson et al, 1999). Thin-ideal internalization has been defined as "the extent to which an individual cognitively 'buys into' socially defined ideals of attractiveness and engages in behaviors designed to produce an approximation of these ideals" (Thompson & Stice, 2001, p.181). The thin-ideal internalization construct has been shown to be independent of mere awareness of societal messages, and was found to be a stronger correlate of body image problems and dieting than was awareness (Cusumano & Thompson, 2001; Griffiths et al, 2000; Heinberg et al, 1995; Thompson et al, 1999). Thus, while virtually all women in society are frequently bombarded by

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images of thin, beautiful women in the media and are exposed to friends and family members who are dieting and engaging in "fat talk," those that are most sensitive to the effects of these influences are those who most strongly internalize society's strict beauty standards. Thin-ideal internalization has been found to result in body dissatisfaction (Griffiths et al, 1999; Thompson & Stice, 2001; Stice, 2001); drive for thinness (Griffiths et al, 1999); negative affect (Stice, 2001; Thompson & Stice, 2001); dieting (Griffiths et al, 1999 Griffiths et al, 2000; Stice, Mazotti, Krebs, & Martin, 1998; Thompson & Stice, 2001); and bulimic symptoms (Stice, 2001; Stice & Agras, 1998). Some authors have proposed that the internalization of the thin-ideal causes dieting and negative affect indirectly through eliciting body dissatisfaction (Griffiths et al, 2000; Thompson & Stice, 2001). Additionally, some authors (Stice, 1994; Griffiths et al, 2000) suggest that self-esteem may play a moderating role in the awareness and internalization of cultural standards of attractiveness, as individuals with low self-esteem might internalize societal messages in an attempt to gain acceptance (Stice, 1994). Thus, individuals with low-self esteem may internalize sociocultural standards, but this may, in turn, lower self-esteem.

Gender Roles and Femininity

The female sex-role stereotype has traditionally been associated with a preoccupation with and endless pursuit of beauty (Rodin, Silberstein, & Striegel-Moore, 1984). Furthermore, beauty in Western, modern-day society is increasingly synonymous with thinness (Rodin, Silberstein, & Striegel-Moore, 1984). In fact, Brownmiller (1984) has suggested that dieting is the modern-day equivalent of foot-binding and corseting, in that they are all methods of manipulating the female body to "fit" society's standard of beauty. Girls are socialized from a young age to conform to society's standards of

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attractiveness, and it has even been reported that children are able to make an association between femininity and smallness as early as three years of age (Katcher & Levin, 1955). Given this socialization process, Striegel-Moore, Silberstein, & Rodin (1986) have argued that "women at the greatest risk...should be those who have accepted and internalized most deeply the sociocultural mores about thinness and attractiveness" (p.247). Thus, it would be expected that women who are more resistant to society's narrow standards for beauty and thinness would be less likely to diet or be preoccupied with their weight. It would also make intuitive sense that as women gain more power and freedom to reject traditionally feminine sex roles that they would be less apt to conform to societal standards for beauty. However, we know this not to be the case. One study (Beck, Ward-Hull, & McLear, 1976), in fact, found that women who valued nontraditional roles and greater options for women actually preferred a smaller, thinner figure, associating a more voluptuous figure with that of a wife or mother. Rodin, Silberstein, & Striegel-Moore (1984) poignantly state, "While women are increasingly striving for thinness and developing eating disorders with rising prevalence, they are at the same time expanding, challenging, and discarding sex-role stereotypes on many frontiers" (p. 268). Additionally, endorsement of traditional female sex-role values does not distinguish dieters from nondieters (Dykens & Gerrard, 1986), nor has any relationship been found between involvement in feminist activities and weight concern or dieting (Heffernan, 1996; Heffernan, 1999).

Furthermore, despite some lesbians' rejection of oppressive societal ideals of traditional female appearance (Heffernan, 1996; Heffernan, 1999; Striegel-Moore, Tucker, & Hsu, 1990) and their criticism of traditional attitudes towards women

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(Heffernan, 1996), lesbian women were not significantly different from heterosexual women in attitudes concerning weight and appearance or dieting (Heffernan, 1996; Heffernan, 1999). Lesbian and heterosexual women also did not differ in level of body-esteem (Striegel-Moore, Tucker, & Hsu, 1990). Although lesbian women who were involved in lesbian/gay activities exhibited lower levels of weight concern and lower frequencies of dieting than those who were not involved in such activities, this relationship did not hold for lesbian women who were involved in feminist activities (Heffernan, 1999).

However, a study of female undergraduates by Kimlicka, Cross, and Tarnai (1983) found that women who were high on androgyny and masculinity (according to the Bem Sex Role Inventory) had higher levels of body satisfaction, sexual satisfaction, and overall self-esteem than did subjects who were high on femininity or with undifferentiated gender-role orientations. Although this study did not specifically examine dieting behavior, the finding that androgynous and masculine women experienced higher levels of body satisfaction lends some support for the idea that women who do not identify as feminine may be less apt to engage in restrictive eating behavior.

The Role of Self-Esteem

As mentioned throughout this paper, self-esteem appears to play a role in the initiation of dieting, either through direct (Dykens & Gerrard, 1986; Kagan & Squires, 1984; Rosen et al, 1987) or indirect means (Martin & Kennedy, 1993; Griffiths et al, 2000). Dykens and Gerrard (1986) indicated that nondieters had significantly higher self-esteem than did repeat dieters. However, it is unclear at this point in time whether

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individuals with low self-esteem are more strongly predisposed to dieting than are individuals with higher self-esteem, or whether low self-esteem works indirectly through other variables to produce dieting. As mentioned previously, it has been found that women with lower self-esteem or women high in contingent self-esteem (Patrick, Neighbors, & Knee, 2004) are more likely to compare their bodies with fashion models (Martin & Kennedy, 1993), which has been linked to negative affect, body dissatisfaction and dieting (Heinberg & Thompson, 1992b; Irving, 1990; Patrick, Neighbors, & Knee, 2004; Richins, 1991; Stormer & Thompson, 1996; Wertheim, Paxton, Schutz, & Muir, 1997). We have also learned that individuals with lower self-esteem are more likely to internalize social standards of thinness (Griffiths et al, 2000), which has also been shown to be related to body dissatisfaction and restrained eating (Griffiths et al, 2000; Thompson & Stice, 2001). Finally, there is evidence to suggest that overall self-esteem is related to body-esteem/body satisfaction (Heffernan, 1996, Mintz & Betz, 1986; Peplau et al, 1999), and that body dissatisfaction leads to dieting (Furnham & Greaves, 1994; Gralen, Levine, Smolak, & Murnen, 1990; Miller et al, 1980; Rosen, Gross, & Vara, 1987; Wertheim et al, 1992). Thus, self-esteem appears to play a role in dieting, but further research is necessary to gain an understanding of the precise mechanisms by which self-esteem is involved.

The Roles of Body Dissatisfaction, BMI, and Drive for Thinness

> Those subjects who dieted more had a larger discrepancy between current and ideal body sizes, saw greater advantages in being thinner, and were less satisfied with their body characteristics. These subjects rated themselves as significantly larger and had a higher actual BMI...Dieters are not trying to live up to a smaller ideal than non-dieters, but rather they may simply be trying to live up to societal norms of appropriate size. Therefore, a high risk factor for extreme weight loss behaviors is being heavier than ones peers yet wanting to be as thin as they are (Wertheim et al, 1992, p.158).

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This quotation provides a summary that appears to be largely consistent with the literature on dieting: a higher BMI (Davis et al, 1993; Huon et al, 1999; Strong & Huon, 1998), body dissatisfaction (Davis et al, 1993; Strong & Huon, 1998; Wertheim et al, 1999), and a desire for thinness (Huon et al, 1999; Schutz, Paxton, & Wertheim, 2002; Strong & Huon, 1998) play a significant role in the initiation and maintenance of dieting. However, even the predictive power of these variables has been tenuous when taking into account other variables, such as peer and family influences. For example, the structural model proposed by Huon et al (1999) found that the strongest predictor of dieting was drive for thinness, even when incorporating other variables. Surprisingly, however, they found that when including all the other variables in their model, BMI had only small predictive value and body dissatisfaction was no longer a significant predictor of dieting status. However, Strong & Huon (1998) found that body dissatisfaction was still a strong predictor after including other social and individual variables, but that it mediated the effect of parent influence. The concept that body dissatisfaction mediates the effect of sociocultural pressures to diet has also been supported by other researchers (Stice, 1994). BMI, too, has been recognized as a mediator between parent input and dieting (Smolak, Levine, & Schermer,1999; Thelen & Cormier, 1995). However, Keel et al (1997) found no relationship between BMI and dieting or weight satisfaction. Additionally, Ackard et al (2002) found that even when controlling for BMI, dieting frequency was positively correlated with perception of current body size and negatively correlated with ideal body size. These authors also observed that many of the dieters in their sample were of normal weight (Ackard et al, 2002). Thus, although the aforementioned variables (BMI, drive for thinness, and body dissatisfaction) have been consistently implicated in the initiation

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of dieting, it is still uncertain about how or whether they actually are related causally to dieting.

Defining Dieting

The concept of dieting has been used to incorporate a wide array of behaviors and strategies utilized to promote weight control (Abramovitz & Birch, 2000). Abramovitz & Birch (2000) asserted that, "Dieting is a diffuse construct that encompasses behaviors and strategies that may either promote health or increase risk for health problems" (p.1157). Dieting by making moderate decreases in fat intake and increases in healthy foods, such as fruit and vegetables, are regarded as health promoting activities (Ackard et al, 2002), and will, therefore, not be considered in the present study. Additionally, maintaining a certain type of diet for health reasons (i.e., diabetes, food allergies, reducing cholesterol, or losing weight as recommended by a physician) or for religious or ideological purposes (i.e., maintaining a kosher diet or a vegetarian diet) will also not be considered in the present analysis.

Neuman-Sztainer et al (1997) found that prevalence rates of self-reported dieting varied substantially depending on how dieting questions were phrased. Thus, it is necessary to provide an objective definition of this concept and to assess dieting accordingly. Dieting, in this study, will be defined as purposely engaging in eating behaviors resulting in a lower caloric intake (Neumark-Sztainer, Jeffery, & French, 1997) for the explicit purpose of losing weight for cosmetic reasons.

Construction of the Hypothesized Model

The present study is intended to shed light upon the mechanisms by which the aforementioned variables influence dieting in college-aged women. The model that we

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are proposing involves the following variables: social influence from peers and family, peer and parental support, media influences, awareness and internalization of cultural norms for appearance, gender roles, assertiveness, self-esteem, and body dissatisfaction. The initial hypothesized model can be seen in Figure 1. There has been no theory to date that has laid the groundwork for the development of a dieting model. Therefore, the present author has created an exploratory model based upon clinical observation and empirical findings from a number of previous studies that examined the initiation of dieting. Two such studies were those by Strong and Huon (1998) and Huon et al. (1999), which asserted that social influence from family and peers, vulnerability to conformity, protective social coping skills (i.e., assertiveness, individuation), and positive familial support were the core predictors of dieting initiation. Thus, these studies provided an overarching guide to the construction of the present model.

However, it was noted by the present author that each of these models excluded body dissatisfaction and self-esteem from their analyses. Given the strong role that body dissatisfaction has been found to play in the dieting and eating disorder literature (Davis et al, 1993; Stice, 1994; Strong & Huon, 1998; Wertheim et al, 1999), it was believed to be an important component of the present model. Body dissatisfaction has been found to mediate the effect of sociocultural pressures on dieting (Stice, 1994) and to mediate the relationship between thin-ideal internalization and dieting (Griffiths et al, 1999; Thompson & Stice, 2001; Stice, 2001).

Self-esteem has also been mentioned throughout the dieting literature (Dykens & Gerrard, 1986; Griffiths et al, 2000; Henderson-King & Henderson-King, 1997; Kagan & Squires, 1984; Martin & Kennedy, 1993; Rosen et al, 1987; Stice, 1994). As mentioned

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previously, it has been found that women with lower self-esteem are more likely to compare their bodies with fashion models (Martin & Kennedy, 1993), which has been linked to negative affect, body dissatisfaction and dieting (Heinberg & Thompson, 1992b; Irving, 1990; Patrick, Neighbors, & Knee, 2004; Richins, 1991; Stormer & Thompson, 1996; Wertheim, Paxton, Schutz, & Muir, 1997). We have also seen that individuals with lower self-esteem are more likely to internalize social standards of thinness (Griffiths et al, 2000), which has also been shown to be related to body dissatisfaction and restrained eating (Griffiths et al, 2000; Thompson & Stice, 2001). Finally, there is evidence to suggest that overall self-esteem is related to body-esteem/body satisfaction (Heffernan, 1996; Mintz & Betz, 1986; Peplau et al, 1999), and that body dissatisfaction leads to dieting (Furnham & Greaves, 1994; Gralen, Levine, Smolak, & Murnen, 1990; Miller et al, 1980; Rosen, Gross, & Vara, 1987; Wertheim et al, 1992).

Thus, self-esteem and body dissatisfaction have been shown to play both a moderating and mediating role in the initiation of dieting. Since the precise role of self-esteem and body dissatisfaction have been somewhat unclear in the previous literature, the present author hypothesized that the influences of parental support, peer support, exposure to media, personal variables (i.e., assertiveness, internalization of societal norms) and sex roles would influence self-esteem, which would then influence body dissatisfaction to cause the initiation of dieting.

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METHOD

Participants

The sample consisted of 306 female, undergraduate college students enrolled in introductory psychology courses at Colorado State University. Data from two subjects were discarded due to excessive missing data, two were not used due to response patterns suggesting random responding, and one was excluded because the subject was currently being treated for an eating disorder. Thus, the resulting sample was composed of 301 participants. Students were recruited through the departmental website listing of research opportunities for Introductory Psychology. Students were informed that they would participate in a 90-minute questionnaire study regarding dieting in college-aged women. All students received course credit for participation in the study.

Measures

Subjects completed a demographics form, which included the following information: subjects' age, year in school, ethnicity, involvement in a sorority, height and weight, ideal weight, highest and lowest weights since reaching adulthood, estimated number of diets (including duration, types of diets, reason for diets, and success of dieting attempts), indication of whether or not the participant is currently dieting by reducing caloric intake (following the procedure utilized by Neumark-Sztainer et al, 1997), use of extreme dieting methods (i.e., diet pills, laxatives, compulsive exercise, self-induced vomiting, fasting, and smoking cigarettes for weight loss purposes), age at which participant first went on a diet and reason for dieting, indication of whether the

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subject has ever received inpatient or outpatient treatment for an eating disorder, childhood involvement in sports and physical activity, involvement in athletics during high school, and indication of whether the participant was overweight as a child or has ever been teased about her weight.

Dieting Measures

Dieting Status Measure (DSM). The DSM (Strong & Huon, 1997) classifies individuals into one of six dieting status categories, including: "never dieted," "trier," "ex-dieter," "occasional dieter," "often dieter," and "always dieting." The authors define dieting in the instructions as "any change in your eating habits performed with the specific intention of losing weight," (Strong & Huon, 1997) and the measure provides six descriptions of dieting status from which the subject can select to best describe her dieting habit in the past six months. Some examples of the items included are: "I am probably best described as a TRIER, because I have given it a go but never really go very far;" "I would regard myself as an EX-DIETER. I used to regularly go on a diet to lose weight, but no longer do so;" "I am ALWAYS dieting in order to lose weight." As an index of reliability of the DSM, self-reported responses on the measure were compared with subjects' close friends' reports about their dieting. Strong & Huon (1997) indicated that, using the cross-products ratio, the chance of being identified as a dieter by one's friends if one identified that way on the DSM was 3 to 1. Estimates of convergent validity (Strong & Huon, 1997) as demonstrated by correlations with EDI subscales were: Drive for Thinness scale (.63), Body Dissatisfaction scale (.49).

The Three-Factor Eating Questionnaire (TFEQ). The Restrained Eating subscale of the TFEQ-R (Stunkard & Messick, 1985) was also used to assess dietary restraint.

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This scale is composed of 21 items which assess the extent to which an individual engages in cognitive and behavioral efforts to decrease food intake. The TFEQ has been found to have satisfactory criterion validity in distinguishing restrained eaters from unrestrained eaters (Neumark-Sztainer et al, 1997; Stunkard & Messick, 1985). Additionally, the Restrained Eating subscale has high internal consistency (α=.93) (Stunkard & Messick, 1985).

Body Dissatisfaction Measures

Eating Disorders Inventory-II (EDI-II). The EDI-II (Garner, 1991) is a self-report measure of the cognitive and behavioral traits associated with Anorexia Nervosa and Bulimia Nervosa. The EDI-II is a 91-item self-report scale (grouped into 11 scales), which is scored on a six-point Likert-type scale ranging from *always* to *never.* Thompson et al's (1987) modified scoring procedure was utilized, such that each response option was scored (ranging from one to six, rather than simply using the three most extreme responses), with a higher score representing more dieting-related thoughts, attitudes, and behaviors. This strategy has been found to be more effective with nonclinical samples (Strong & Huon, 1998). The present study utilized only four of the 11 original subscales, including the Body Dissatisfaction, Drive for Thinness, Ineffectiveness, and Interpersonal Distrust subscales. The Drive for Thinness scale consists of seven items that assess "excessive concern with dieting, preoccupation with weight and entrenchment in an extreme pursuit of thinness" (Garner et al., 1991, p.5). The Body Dissatisfaction subscale contains nine items assessing the degree of dislike of overall shape and of particular body parts. Internal consistency reliability in a nonclinical sample for the Drive for Thinness and Body Dissatisfaction scales have been reported as

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.87 and .92, respectively (Garner & Olmsted, 1984). Test-retest reliability estimates in a nonpatient sample for the following subscales were (Garner, 1991): Drive for Thinness (.92), Body Dissatisfaction (.97). To provide estimates of convergent validity, correlations were measured between the EDI subscales and the EAT-26 scale (Garner, Olmsted, Bohr, & Garfinkel, 1982) and the Restraint Scale (Herman & Polivy, 1982). The EDI-Drive for Thinness subscale demonstrated a correlation of .74 with the EAT-26 scale, and a correlation of .61 with the Restraint Scale. The correlations between the Body Dissatisfaction and EAT and Restraint Scale were .49 and .44, respectively.

Ben-Tovim Walker Body Attitudes Questionnaire (BTW). The BTW (Ben-Tovim & Walker, 1991) is a 44-item self-report questionnaire that assesses a broad range of attitudes women have toward their bodies. The BTW is composed of six subscales that measure distinct aspects of women's experiences with their bodies, including: Feeling Fat, Body Disparagement, Strength & Fitness, Salience of Weight and Shape, Attractiveness, and Lower Body Fatness. The Body Disparagement subscale was not viewed as relevant to the present study, and was therefore eliminated. This resulted in 36-item scale. Participants were asked to read 36 statements and indicate the degree to which they agree or disagree with the statement on a five-point Likert scale (1= "strongly agree," 5= "strongly disagree"). The BTW was found to be highly internally consistent, as indicated by a Chronbach alpha coefficient of .87 (Ben-Tovim & Walker, 1991). The scale's overall test-retest reliability was .83 ($p<.01$) (Ben-Tovim & Walker, 1991). This measure has demonstrated convergent validity (Ben-Tovim & Walker, 1991), as evidenced by the following subscale correlations with the EDI Body Dissatisfaction

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scale: Feeling Fat (.83, $p<.01$); Strength & Fitness (-.20, *ns*); Salience (.59, $p<.01$); Attractiveness (-.56, $p<.01$); Lower Body Fat (.55, $p<.01$).

Quintelet's Body Mass Index (BMI). BMI was determined by measuring height and weight and submitting them to the following equation: weight in kg/height^2 in meters.

Social Influence Measures

Utilizing the method adopted by Strong & Huon (1998), we assessed the extent of modeling by family and friends by asking the subjects whether members of their family and their five closest friends dieted in order to lose weight (0= No, 1= Yes) and then asking them to indicate how committed each of those people were to their dieting by choosing from four alternatives, ranging from "not at all committed" (1) to "strongly committed" (4). Separate scores were calculated for each friend or family member by multiplying the dieting score by the commitment score. Perceived family influence was calculated by adding the dieting by commitment scores for family members, and perceived friend influence was calculated by adding the dieting by commitment scores for the five friends indicated by the subject.

Conformity and compliance pressures were also assessed following the method utilized by Strong & Huon (1998). Conformity pressure was measured utilizing two questions that ask whether their friends and parents endorse their dieting (1= "strongly disagree," 5= "strongly agree"). To measure compliance, or more direct pressure to diet, subjects were asked to indicate how often their parents and friends told them they *should* diet to lose weight, using a five-point scale (1= "never," 5= "always").

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Peer Social Influence & Support Measures

Dieting Peer Competitiveness Scale (DPC). The DPC scale (Huon, Piira, Hayne, & Strong, 2002) assesses dieting- and appearance- related competitiveness among adolescent girls. The measure contains nine items, consisting of two underlying factors, including: (1) comparison of appearance, including body shape and size, and (2) competitiveness about eating and specific foods to be eaten or avoided. Items are scored on a five-point scale (1= "not at all like me," 5= "extremely like me"), such that higher scores are indicative of greater dieting competitiveness with peers. This measure demonstrated a standardized alpha coefficient of .77, indicating good internal consistency (Huon, Piira, Hayne, & Strong, 2002). The DPC scale also demonstrated a test-retest reliability correlation of .75, indicating good test-retest reliability. Strong convergent validity was demonstrated by a correlation of .71 with the EDI Body Dissatisfaction scale, and .63 with the EDI Drive for Thinness scale (Huon, Piira, Hayne, and Strong, 2002).

Perceived Social Support from Friends (PSS-Fr). The PSS-Fr (Procidano & Heller, 1983) measures the extent of perceived social support from friends. The scale consists of 20 statements to which the participant may answer "Yes," "No," or "Don't Know." Responses indicative of perceived social support are scored as +1 (the "don't know" and "no" responses are not scored), and are summed to form an overall social support score. Thus, scores on the scale ranged from zero (no perceived social support) to 20 (maximum perceived social support). Examples of items from the PSS-Fr include: "My friends give me the moral support I need," "I have a deep sharing relationship with a number of friends," "Most other people are closer to their friends than I am." The PSS-Fr

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proved to be a reliable measure with a Chronbach alpha coefficient of .88 (Procidano & Heller, 1983). High test-retest reliability was also demonstrated (r=.83). The PSS-Fr demonstrated adequate construct validity as evidenced by a significant correlation (r=.40, p<.002) with the social competence scale of the Dating and Assertion Questionnaire (DAQ, Levenson & Gottman, 1978), with the CPI (Gough, 1969) social presence scale (r=.51, p<.001) and CPI sociability scale (r=.33, p<.005) (Procidano & Heller, 1983).

Eating Disorder Inventory, Interpersonal Distrust (EDI-id). The EDI-id subscale was used to assess the absence of close emotional relationships. The EDI-id measures an individual's tendency to keep others at a distance and to refrain from developing close relationships. Internal consistency reliability in a nonclinical sample for the Interpersonal Distrust subscale has been reported as .80 (Garner & Olmsted, 1984). The test-retest reliability estimate in a nonpatient sample for this subscale was .81 (Garner, 1991).

Family Social Influence & Support Measures

The Brief Current Form of the Parental Bonding Instrument (PBI-BC). The PBI-BC (Klimidas, Minas, & Ata, 1992) consists of eight items that measure perceptions of current parental characteristics that contribute to bonding, including parental care and parental overprotection. The PBI-BC was derived from the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979), and has been found to closely replicate the two-factor structure reported for the original 25-item PBI (Klimidas, Minas, & Ata, 1992). The eight items assess various attitudes and behaviors of respondents' parents, and are scored on a three-point scale ("never," "sometimes," or "usually"). Separate care and overprotection subscale scores are calculated for the mother and father, and used

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together, the two subscales allow for four types of parental bonding: high care-low overprotection (considered optimal bonding), low care-low overprotection (considered weak bonding), high care- high overprotection (considered affectionate constraint), and low care- high overprotection (considered affectionless control). Huon et al (1999) utilized a different scoring procedure, in which an overall score was computed for each parent by subtracting the total "control" score from the total "care" score. High scores are considered indicative of greater parental support and autonomy, and therefore more positive parental bonding. The present study followed the scoring protocol utilized by Huon et al (1999). The PBI-BC has demonstrated reasonable reliability and validity (Klimidas, Minas, & Ata, 1992). For the father ratings, the care subscale demonstrated an alpha coefficient of .80, and the autonomy subscale had an alpha of .72. The mother ratings for the care and autonomy subscales demonstrated alphas of .75 and .72, respectively (Klimidas, Minas, & Ata, 1992). No validity information was reported for the PBI-BC; however, because the PBI-BC was found to retain the original factor structure of the PBI (Parker, Tupling, & Brown, 1979), validity figures for the original PBI will be reported here. Concurrent validity was demonstrated by correlating raters' scores of 'care' and 'overprotection' obtained during an interview with scores determined by the scales. The Pearson correlation for the two 'care' measures were .77 ($p<.001$) for one rater and .78 ($p<.001$) for the second rater. The Pearson correlation for the two 'overprotection' scores were .48 ($p<.001$) for the first rater and .51 ($p<.001$) for the second rater (Parker, Tupling, & Brown, 1979).

Perceived Social Support from Family (PSS-Fa). The PSS-Fa (Procidano & Heller, 1983) measures the extent of perceived social support from family members, and

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also provides a measure of family cohesion and intimacy. Each scale consists of 20 statements to which the participant may answer "Yes," "No," or "Don't Know." Responses indicative of perceived social support were scored as +1 (the "don't know" and "no" responses are not scored), and were summed to form an overall social support score. Thus, scores on each scale ranged from zero (no perceived social support) to 20 (maximum perceived social support). Examples of items from the PSS-Fa include: "I rely on my family for emotional support," "When I confide in the members of my family who are closest with me, I get the idea that it makes them uncomfortable," and "My family is sensitive to my personal needs." The PSS-Fa proved to be a reliable measure with a Chronbach alpha coefficient of .90 (Procidano & Heller, 1983). High test-retest reliability was also demonstrated ($r=.83$). The PSS-FA demonstrated appropriate construct validity as indicated by significant correlations with the social competence scale of the DAQ ($r=.35$, $p<.005$) (Procidano & Heller, 1983).

Permeability of Boundaries Scale. The Permeability of Boundaries Scale (Olver, Aries, & Batgos, 1989) assesses the degree of maternal involvement and intrusiveness in the domains of appearance, space, relationships, thoughts, and property. Subjects were asked to rate the frequency of occurrence of each of the 17 statements on a five-point scale ranging from "often" (5) to "never" (1). Scale scores ranged from 17 to 85, with higher scores indicating greater permeability of boundaries between parents and daughter. Sample items include: "My mother expresses concern about my weight," "My mother enters my room without knocking," "My mother gives unsolicited advice about my relationships." The present study slightly modified the wording of these items to assess the degree of *parental*, rather than merely maternal, involvement and

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intrusiveness. The scale's authors (Olver, Aries, & Batgos, 1989) found satisfactory internal consistency (alpha=.77).

Social Influence from Media

Media social influence was assessed by examining exposure to fashion and entertainment magazines and to television. Following the procedure utilized by Tiggemann (2003), a list of 15 popular women's fashion and entertainment magazines were listed, with an additional space to add 'others.' The magazines included: In Style, Glamour, Marie Claire, Cosmopolitan, Elle, Jane, Seventeen, Vogue, Self, People, Us Weekly, In Touch, Rolling Stone, Entertainment, and Spin. For each magazine, participants were asked to indicate whether they had bought, read, or looked at someone else's copy in the last four weeks, and to estimate how much time they had spent reading each magazine. Two measures were calculated: the number of different magazines read, and the total amount of time spent reading fashion/entertainment magazines. The fashion and entertainment/gossip magazine genres were chosen because these have been observed to be explicitly thinness-focused (Zucker et al, 2001).

Television exposure to thin models was assessed following the procedure employed by previous studies (Bissell & Zhou, 2004; Harrison, 2001; Vaughan & Fouts, 2003). Participants were asked to record the number of hours of entertainment television (excluding news programs) viewed on an average weekday, an average Saturday, and an average Sunday. A weekly entertainment television viewing score was created by multiplying the number of weekday hours by five and adding the Saturday and Sunday hours. Participants were also asked to report the number of hours per week that they spent watching music videos (Hatoum & Belle, 2004).

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Norms for Appearance

Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ). The SATAQ (Heinberg, Thompson, & Stormer, 1995) assesses women's awareness and internalization of culturally-sanctioned standards of appearance. The SATAQ is composed of two subscales: Awareness and Internalization. The questionnaire consists of 14 items, which are scored on a five-point Likert scale (1= "completely disagree," 5= "completely agree"). Convergent validity correlations of the SATAQ and other measures were: EDI- Body Dissatisfaction (.35), EDI-Drive for Thinness (.43). Item-total correlations alphas were .88 for the Internalization scale and .71 for the Awareness Scale (Heinberg, Thompson, & Stormer, 1995).

Assertiveness

The Assertiveness Self-Report Inventory (ASR). The ASR (Herzberger, Chan, & Katz, 1984) is a 25-item measure of assertiveness. The construct of assertiveness was defined in terms of affective, behavioral, and cognitive domains, and the items selected represent the free expression of emotion, standing up for one's rights, and positive reactions to being assertive. The scale utilizes a true/false format, with half of the items scored true for assertiveness and half false to control for acquiescent responses. The items demonstrated strong internal consistency (α=78). Test-retest reliability over a five-week period was considered adequate (r=.81, p<.001). Convergent validity of the ASRI with the Rathus Assertiveness Schedule (Rathus, 1973) was strong (r=.69, p<.001). The ASRI also demonstrated discriminant validity, as indicated by a low, nonsignificant correlation with the Crowne-Marlowe Social Desirability Inventory (Crowne & Marlowe, 1964).

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The Self-Other Differentiation Scale (SOD). The SOD Scale (Olver, Aries, & Batgos, 1989) is an 11-item scale that assesses the degree to which an individual experiences a separate sense of self. According to Olver et al (1989), "Items assessed such aspects as deferring to the wishes of others, taking on the interests and orientations of others, reliance on others for criteria of worth, vulnerability to evaluation by others, lack of independent judgment, and use of dialogue to know one's feelings" (p.314). The items were scored using a true-false format, and scores ranged from 0 to 11 with higher scores indicating greater self-other differentiation. According to Olver, Aries, & Batgos (1989), the scale demonstrated adequate internal consistency (α=.76). The scale also demonstrated adequate convergent validity (Olver, Aries, & Batgos, 1989), as indicated by correlations with Jackson's (1965) Personality Research Form (PRF) Autonomy Scale (r=.45) and Spence et al's (1974) Personal Attribute's Questionnaire (PAQ) Masculinity scale (r=.50). Discriminant validity was demonstrated by a significant negative correlation with Jackson's (1965) Succorance Scale (r=-.52).

Self-Esteem Measures

The Rosenberg Self-Esteem Scale (RSE). The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a widely used measure of self-esteem. Self-esteem, as measured by this scale, refers to the idea that "the individual respects himself, considers himself worthy; he does not necessarily consider himself better than others, but he definitely does not consider himself worse... Low self-esteem, on the other hand, implies self-rejection, self-dissatisfaction, self-contempt" (Rosenberg, 1965, p.31). The scale consists of 10 items, scored on a 4-point Likert scale, ranging from "strongly agree" to "strongly disagree." Higher scores are indicative of higher levels of self-esteem. The scale has

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high reliability, with test-retest correlations in the range of .82 to .88, and Chronbach alphas for various samples ranging from .77 to .88 (Blascovich & Tomaka, 1993). The measure has also demonstrated good construct validity (Crandal, 1973) as indicated by a correlation of .60 with the Coopersmith Self-Esteem Inventory (Coopersmith, 1967). Additionally, Griffiths et al (1999) found that the Rosenberg Self-Esteem Scale demonstrated strong construct validity with a dieting disordered sample, and that it was a better predictor of self-esteem than the Coopersmith Self-Esteem Scale.

The Self-Esteem Scale. The Self-Esteem Scale (Swaim & Wayman, 2004) is a nine-item self-report measure that assesses three subdimensions of self-esteem: (a) self-confidence, (b) competence, and (c) social acceptance. Examples of items include: "I am able to do things well," "I like myself," and "People like to be with me." Concurrent validity was demonstrated by a validity coefficient of .59 with the Coopersmith Self-Esteem Inventory (Coopersmith, 1967). Estimates of reliability for the scale were: total scale (.84), self-confidence subscale (.74), competence subscale (.62), and social acceptance subscale (.80) (Swaim, personal communication, April 2005).

Eating Disorder Inventory- Ineffectiveness (EDI-I). The EDI-I measures feelings of inadequacy, worthlessness, insecurity, and emptiness, and has been said to be similar to the construct of self-esteem (Garner, 1991). Internal consistency reliability in a nonclinical sample for this subscale has been reported as .88 (Garner & Olmsted, 1984). Test-retest reliability estimate in a nonpatient sample for the Ineffectiveness subscale was .85 (Garner, 1991).

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Sex Roles and Attitudes towards Women Measures

Attitudes toward Women Scale (ATW). The ATW Scale (Spence & Helmreich, 1978) is a 15-item measure that assesses attitudes regarding the rights, roles, and privileges of women. Respondents were asked to indicate their agreement with each of the statements using a four-point scale, where 3="agree strongly" and 0= "disagree strongly." Scores ranged from 0 to 45, and high scores were indicative of an egalitarian, pro-feminist attitude, whereas lower scores were indicative of more conservative attitudes. Examples of items include: "Women should assume their rightful place in business and all the professions along with men;" "Sons in a family should be given more encouragement to go to college than daughter;" "Swearing and obscenity are more repulsive in the speech of a woman than a man." The Chronbach alpha of the 15-item measure was .89, indicating strong internal consistency (Spence & Helmreich, 1978).

The Bem Sex-Role Inventory (BSRI). The BSRI (Bem, 1974) assesses masculine, feminine, and androgynous personality traits in men and women. The BSRI consists of 60 items (20 feminine, 20 masculine, and 20 androgynous) that describe personality characteristics. Participants were asked to indicate how well each of the personality characteristics describe themselves on a 7-point scale (1= "never or almost never true," 7= "always or almost always true"). Each participant received three scores based on her responses: a Masculinity score (the mean self-rating for all endorsed masculine items), a Femininity score (the mean rating for all endorsed feminine items), and an Androgynous score (the Student's t ratio for the difference between a person's masculine and feminine self-ratings). The femininity and masculinity scores range from one to seven, with higher scores indicating more sex-typed personalities. Individuals with Androgyny scores closer

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to zero are considered to be more androgynous (Bem, 1974). According to Bem (1974), adequate internal consistency was demonstrated by the following Coefficient alpha scores: Masculinity (.86), Femininity (.82), and Androgyny (.86). Test-retest reliability scores also demonstrated a high degree of reliability of the measure (Masculinity, r=.90; Femininity, r=.90; Androgyny, r=.93). Construct validity was demonstrated by appropriate and significant correlations between the BSRI scores and scores on the Masculinity-Femininity scales of the California Psychological Inventory (CPI; Gough, 1969). The correlation between the BSRI Masculinity scale and the CPI for males and females were -.42 and -.25, respectively; between the BSRI Femininity scale and CPI for males and females were .27 and .25, respectively; and between the BSRI Androgyny scale and CPI for males and females were .50 and .30, respectively (Bem, 1974). The scale has also been shown to have relatively good validity in recent studies (Oswald, 2004).

Procedure

Students were recruited via the departmental website listing of research opportunities for Introductory Psychology. Students were informed of a two credit study regarding dieting in college-aged women. Participation was expected to take approximately 90 minutes; however, two full hours were allotted for participation. Subjects received an informed consent form, along with the demographic form, and the first of two packets of questionnaires. The questionnaires were divided into two packets, one yellow and one green. The order in which each participant received each of the two packets was randomized. Subjects were instructed to complete packet one before they were able to receive the second packet of questionnaires. Research assistants encouraged

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the participants to take a five-minute stretch break between completing the two packets in order to reduce subject fatigue and to maintain the subject's motivation. Upon completion of both questionnaire packets, each subject handed in her second packet and checked out with the research assistant in order to receive credit for participation. The research assistant handed each participant a debriefing form and inquired whether the student had any questions or concerns. Data collection was conducted in 12 sessions, each containing between 20-30 participants. Two trained undergraduate research assistants conducted the data collection, and the Co-PI thoroughly trained these research assistants on how to respond to questions, how to proceed if a student wishes to discontinue participation, how to confidentially store the data, and how to respond to debriefing questions or subject discomfort.

Data Analysis

Data was analyzed using structural equation modeling (SEM), a statistical technique that tests a priori models and allows for both direct and indirect relationships among variables (Byrne, 1995). This method is appropriate for testing latent variables, constructs that cannot be measured directly (i.e., body dissatisfaction, self-esteem), and for complex models with possible mediating variables, and is thus well-suited for the present study. A strong advantage of structural equation modeling is that it is a latent variable model which attenuates for measurement error, and thus more accurately specifies the relationships between model components. This model provides a good alternative to manifest variable models (such as path analysis) that do not attenuate for measurement error and thus may overestimate the relationships between model components. SEM utilizes a series of structural equations (i.e., regressions) which

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represent the relationships among latent variables. The hypothesized model is tested statistically in a simultaneous analysis of the entire system of variables (i.e., the entire model) to determine the extent to which it is consistent with the data. If goodness of fit is considered adequate, the hypothesized relations among variables are likely; if it is inadequate, the likelihood of these relations is rejected and the model is revised.

A full, or complete, latent variable model was examined for the present study. A full latent variable model considers the impact of one latent construct on another so that causal direction may be hypothesized. This model is considered a full model because it includes both a measurement model and a structural model. The measurement model [i.e., the confirmatory factor analyses (CFA) model] assesses the links between the latent variables and their observed measures. The structural model assesses the relationships amongst all of the latent variables themselves.

Models were evaluated in a stepwise manner using EQS with maximum likelihood estimation (Bentler, 1995). Measurement models were examined with confirmatory factor analyses (CFAs), followed by examination of the structural model. The fit of the models (measurement models and the structural model) were determined with multiple indices. Chi-square and degrees of freedom are reported for each model. A nonsignificant chi-square indicates a good fit; however, it is highly sensitive to the number of participants and the complexity of the model (Bentler, 1980; Bentler & Bonett, 1980). Therefore, three measures of fit were utilized to supplement Chi-square: the comparative fit index (CFI; Bentler, 1990); the normed fit index (NFI); and the Standardized RMR. Models that meet the criteria of a CFI of greater than .90 are considered to be good fits and are sufficiently stringent to reject poorly fitting models.

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Several Multivariate Analyses of Variance (MANOVAs) were also utilized to discern mean differences in each model variable across levels of dieting status. Though the focus was primarily on the structural equation model, the MANOVA analyses provided additional information to clarify the nature of the relationships between the variables in the present model.

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RESULTS

Means and standard deviations for all variables are presented in Table 1 and scale reliabilities may be viewed in Table 2. Data were analyzed in three stages. In the first step, a series of MANOVAs were conducted to provide descriptive data on individual instruments and to test mean differences in model variables for each construct. In the next stage, study instruments were entered in a confirmatory factor analysis (CFA) to determine the appropriateness of the proposed latent construct model. After necessary revision, a final CFA model was established. Finally, a structural model was tested predicting dieting status from the other latent constructs.

Demographic Information

Subjects ranged in age from 17 to 31, with a mean age of 18.6 (SD=1.38 years). Seventy-five percent of the participants were freshmen, 18% were sophomores, 4% were juniors, and 3% were seniors or above. Subjects' self-reported ethnicity included: .7% Native American, 2% African American, 3.3% Asian American, 5% Latino/Hispanic, 1% multiethnic, 85% Caucasian/Euro-American, 2.3% other, and .7% chose not to identify. Participants' self-identified height ranged from 59 to 72 inches (4'11" to 6'0"), with a mean height of 65.3 inches (approximately 5'5"; SD=2.6 inches). Subjects' self-reported weight in pounds ranged from 96 to 220 pounds, with a mean weight of 134 pounds (SD=21.87 pounds) and a median weight of 130 pounds. Participants' body mass index (BMI) ranged from 15.7 to 35.5, with a mean BMI of 22.14 (SD=3.00). Ninety-one percent of the subjects indicated that they were not involved in a sorority, while 7%

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identified as sorority members. Seventy-four percents of respondents indicated that they were not currently on a diet, while 26% of subjects acknowledged that they were currently restricting their food intake for the purpose of weight loss. Subjects reported having been on between zero to 20 diets in their lifetime, while the mean number of diets was 2.39 (SD=3.21). Approximately 7% of the subject pool reported that they had never been on a diet. The age at which participants first began dieting ranged from age 7 to age 20, with a mean age at first diet of 15.50 years (SD=2.80). It should also be noted that approximately 18% of the sample began dieting during college. When asked to indicate how active subjects had been as children, subjects reported the following: 62% very active; 24% somewhat active; 4% somewhat sedentary; 1% very sedentary; and 9% did not respond. Eighty-two percent of the subjects reported that they were involved in sports as children, while nine percent indicated that they were not involved in any sports or athletic activities as children. Furthermore, 75% of the participants responded that they were involved in sports in high school, while 15% did not play any sports during high school.

MANOVA

As a descriptive analysis of model variables, tests of mean differences were conducted using a oneway multivariate analysis of variance (MANOVA) strategy. First, the TFEQ and Dieting Status Measure (DSM) scores were divided into three groups and separate sets of analyses were run with first the TFEQ and then the DSM as independent variables. Dependent variables were clusters of scales for each of the latent variable constructs (i.e., peer support, parental support, etc.). Significant tests indicated mean differences in the dependent variable across levels of dieting status. All significant

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results were clarified by univariate pairwise comparisons on each construct-related scale, corrected for familywise α inflation by Bonferonni correction. Thus, all univariate pairwise contrasts discussed in the text and presented in Table 4 were tested for significance at an adjusted per comparison α, set to $(.05 \div 3) = .02$.

Three-Factor Eating Questionnaire (TFEQ). Table 3 presents summary data for the multivariate tests of model constructs with the TFEQ. The first analysis examined TFEQ with regard to family support, revealing a non-significant effect of TFEQ on family support, Pillais' V = .02, $F(4,596) = 1.62$, $p = .17$. The test of peer support was also not significant, Pillais' V = .01, $F(4,596) = .67$, $p = .61$. Thus there does not appear to be mean differences in the levels of family and peer support variables across different levels of dieting status as measured by the TFEQ (see Table 4).

Testing the norms for appearance construct yielded significant results, Pillais' V = .18, $F(4,596) = 15.12$, $p < .01$. Analysis of means (Table 4) for the Sociocultural Attitudes towards Appearance- awareness (SATAQa) indicates that those low in dieting status ($M = 19.63$), were less aware of society's appearance norms than individuals in the moderate ($M = 20.83$) or high ($M = 20.98$) dieting status groups. For the Sociocultural Attitudes towards Appearance- internalization (SATAQi), all three groups were significantly different from each other, with the low dieting status group ($M = 20.85$) having internalized the norms for appearance less than the moderate dieting group ($M = 24.42$), who in turn had internalized these norms less than the high dieting group ($M = 29.98$).

There was also a significant effect for assertiveness, Pillais' V = .08, $F(4,596) = 5.78$, $p < .01$. Analysis of means (Table 4) for the Assertiveness Self-Response measure

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(ASR) indicates that those low (*M* = 14.29) and moderate (*M* = 13.99) in dieting frequency had significantly higher average assertiveness scores than individuals in the high dieting group (*M* = 12.33). For the Self-Other Differentiation Scale (SOD), the low dieting group (*M* = 6.61) had a more separate, independent sense of self than the moderate (*M* = 5.64) and high (*M* = 4.98) dieting groups. Thus, assertiveness and individuation were associated with low dieting scores on the TFEQ.

The multivariate test of social influence (conformity disposition) was also significant, Pillais' V = .06, $F(4,502) = 3.65$, $p = .01$ (Table 3). Moderate (*M* = 3.00) and High (3.05) responders on the TFEQ had significantly higher Social Influence from Family-Conformity (SIfa) scores than the low TFEQ group (*M* = 2.35). The same pattern was found for the Social Influence from Friends-Conformity (SIfr) scale with lower scores in the low TFEQ group (*M* = 2.32) than the moderate (*M* = 2.78) and high (*M* = 2.77) groups. Thus, higher conformity with friends and family is associated with more frequent dieting status on the TFEQ.

Dieting group distinctions on the TFEQ resulted in differentiation on the self-esteem measures, Pillais' V = .08, $F(6,594) = 3.97$, $p < .01$ (Table 3). Looking at the measure means for each TFEQ level, it appears that low, moderate, and high dieting groups do not significantly differ on the RSE or SE scales (see Table 4). For the EDI-I, however, low TFEQ individuals had a mean score of 21.25, which was significantly lower than the moderate (*M* = 23.75) and high (*M* = 26.17). Thus, low feelings of ineffectiveness were associated with low dieting scores.

Finally, body dissatisfaction also resulted in a significant multivariate test, Pillais' V = .43, $F(6,594) = 27.09$, $p < .01$ (Table 3). Across the EDI-bd, EDI-dt, and the BTW,

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means were significantly higher in the moderate TFEQ group than the low TFEQ group and significantly higher in the high group than the moderate group (see Table 4). Thus more frequent dieting is associated with higher body dissatisfaction.

Taken together, results demonstrate differences across levels of TFEQ-measured dieting status on awareness/internalization of appearance norms, assertiveness, conformity to social influence, self-esteem, and body dissatisfaction. In all cases, significant differences were in the expected direction, with more frequent dieting being associated with greater awareness and internalization of appearance norms, less assertiveness, greater conformity disposition, lower self-esteem, and greater body dissatisfaction. The next section discusses the results from the analysis using the Dieting Status Measure (DSM) as an independent variable.

DSM. Table 5 presents summary table data for the multivariate tests of model constructs with the DSM. The first analysis examined DSM with regard to family support, revealing a non-significant effect, Pillais' V = .00, $F(4,596) = 0.32$ $p = .86$. Unlike the TFEQ, the test of peer support on dieting status as measured by the DSM was significant, Pillais' V = .04, $F(4,596) = 3.22$, $p = .01$. Thus, while there does not appear to a relationship between family support and DSM, the relationship between peer support and DSM was significant. Analysis of means (see Table 4), indicate that this effect was driven by the Perceived Social Support- friends (PSSfr), with individuals in the low (M = 3.09) and moderate (M = 1.60) dieting groups significantly higher in peer support than individuals in the high DSM group (M = 1.19). As predicted, higher peer support was associated with low dieting. There were no group differences on the EDI-id.

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Testing the awareness/internalization of appearance norms construct yielded significant results, Pillais' V = .17, $F(4,596) = 14.12, p < .01$ (Table 5). Analysis of means (Table 4) for the SATAQa indicates that those low ($M = 19.71$) and moderate ($M = 20.46$) in dieting status were less aware of societal norms for appearance than those who were high on DSM dieting status ($M = 22.33$). Results for the SATAQi revealed significant differences between each group characterized by lower internalization of appearance norms in the low DSM group ($M = 20.55$) than the moderate ($M = 25.41$) groups and lower internalization in the moderate group than the high DSM group ($M = 31.61$). Thus, results support the expectation that individuals who diet more frequently have higher awareness and internalization of cultural norms of appearance than individuals who diet less frequently.

With regard to assertiveness, a significant multivariate test, Pillais' V = .07, $F(4,596) = 5.00, p < .01$ (Table 5), is clarified by the Assertiveness Self-Report Inventory (ASR) and Self-Other Differentiation (SOD) means in Table 4. Assertiveness, as measured by the ASR, is significantly higher in the low DSM group ($M = 14.38$) than the high DSM group ($M = 11.70$). Self-Other Differentiation (SOD) is higher in the low DSM group ($M = 6.71$) than the moderate ($M = 5.54$) and high ($M = 4.52$) groups. These results indicate that greater assertiveness and self-other differentiation is associated with lower frequency of dieting, as expected.

The social influence (conformity disposition) scales yielded a relatively large effect, Pillais' V = .21, $F(4,502) = 14.53, p < .01$ (Table 5). For both the Social Influence- Conformity from Family (SIFA) and Social Influence- Conformity from Friends (SIFR) scales, low DSM groups ($M = 1.70$ and $M = 1.65$, respectively) were

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significantly lower in the endorsement of conformity to friend and family influence than the moderate ($M = 3.07$ and $M = 2.88$, respectively) and high ($M = 3.22$ and $M = 2.84$, respectively) groups.

The three self-esteem items resulted in a significant multivariate result, Pillais' V = .11, $F(6,594) = 5.65$, $p < .01$ (Table 5). Analysis of means in Table 4 reveals that the RSE scores were significantly higher in the low DSM group ($M = 33.64$) than the moderate ($M = 31.65$) and high ($M = 29.94$) dieting groups. For the SE scale, low dieters ($M = 32.05$) were higher in self-esteem than the moderate group ($M = 30.65$), but not the high dieting group ($M = 39.24$). Moderate and high groups did not significantly differ. Finally, for the EDI-I measure, each of the groups was significantly different from each other with lower scores (signifying *higher* self-esteem) in the low DSM group ($M = 21.02$) than the moderate DSM group ($M = 23.90$) and higher mean EDI-I scores in the high dieting group ($M = 29.39$) than the other groups. Thus overall, results support the idea that low self-esteem is associated with greater frequency of dieting behavior.

For the body dissatisfaction construct, the multivariate test revealed the largest of the DSM effects, Pillais' V = .44, $F(6,594) = 27.87$, $p < .01$ (Table 5). Means in Table 4 reveal that each of the groups were significantly different from each other, with lower means (indicative of less body dissatisfaction) in the low frequency dieting groups than the moderate dieting group, and lower body dissatisfaction in the moderate group than in the high dieting group.

MANOVA Conclusions. MANOVA analyses were conducted to assess for mean differences among a variety of constructs across three levels of dieting behavior. These analyses were considered descriptive to clarify the relationships among model variables.

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Taken together, results indicate that family support is not related to dieting behavior, thus this construct is not considered further. Because the peer support model was significant for the DSM analysis, we continued to include it in the SEM analyses. All other constructs were significant, indicating their relevance to the SEM.

Despite significance, results are tempered by the small multivariate effect size. The omnibus Pillai's V values reported here represent the multivariate proportion of total variance explained by dieting group. Pillai's V for all the constructs except awareness/internalization of appearance norms and body dissatisfaction were below .10, indicating a large amount of unexplained variance, but also the relative importance of the internalization of appearance norms and body dissatisfaction variables. TFEQ analyses had higher effect size (i.e., Pillais V) but most remained relatively low, with the exception of body dissatisfaction, awareness and internalization of appearance norms, and social influence.

Measurement Model

In the first stage, a confirmatory factor model was specified, but did not provide a good fit to the data. Analysis of factor loadings revealed that several instruments had small and nonsignificant factor loadings. The Peer Influence construct was initially composed of the Perceived Social Support scale, Peer Social Influence from Modeling/Conformity/Compliance, The EDI-Interpersonal Distrust, and the Dieting Peer Competitiveness scale. However, these measures did not load well onto the Peer Influence construct, as evidenced by low factor loadings. Therefore, the constructs were divided into Peer Social Support and Peer Social Influence. Likewise, The Parental Influence construct (initially composed of the Perceived Social Support-Family, The

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Permeability of Boundaries Scale, the Parent Social Influence from Modeling/ Conformity/Compliance, and the Parental Bonding Instrument) did not load well onto the factor. Therefore, the Parental Influence construct was separated into Parental Social Influence and Parental Social Support. The Permeability of Boundaries Scale (Olver, Aries, & Batgos, 1989) was removed, as it was shown to be a poor measure of the parental social influence latent variable as indicated by a low, non-significant factor loading. Additionally, the Dieting Peer Competitiveness Scale (Huon, Piira, Hayne, & Strong, 2002) was removed, as it did not load with any of the peer influence or support variables. Finally, the Family Social Influence modeling and compliance (Strong & Huon, 1998) measures (SI-famod and SI-facomp, respectively) and the Friend Social Influence modeling and compliance measures (SI-frmod and SI-frcomp, respectively) were removed from the analysis due to low factor loadings with the Peer Social Influence and Family Social Influence constructs. The Peer Social Influence- Conformity and Parental Social Influence-Conformity measures were combined to form an overall Social Influence Construct. Thus, the new Social Influence construct was composed of social influence from both parents and peers.

Additionally, the measures that composed the Media Influence and the Gender Roles constructs did not load well onto their respective constructs. Therefore, these two constructs were removed from the present analysis.

A second model, excluding these variables, provided a reasonably good fit to the data. Although significant, χ^2 (107) = 225.04, $p < .001$, the CFI for the model was .95 and the NFI was .91. The SRMR at .05 suggests some deviance from an ideal fit. All factor loadings were significant ($p < .001$) and, with the exception of the Sociocultural

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Attitudes Toward Appearance- Awareness scale (Heinberg, Thompson, & Stormer, 1995), were greater than .50, suggesting that the measures were good indicators of the latent constructs (see Figure 2).

Structural Model

In the initial structural model, the path from parental support to dieting status was not significant. In addition, it was decided that BMI should be included as a predictor of Body Dissatisfaction. Table 6 contains goodness of fit indicators for the final model, predicting dieting status from body dissatisfaction. As displayed in Figure 3, the final model specifies that the relationship between Self-Esteem and Dieting Status is fully mediated by Body Dissatisfaction (which is also predicted by BMI). The model is significant, χ^2 (136) = 475.54, $p < .001$, with a CFI slightly below the .90 recommended cutoff and NFI of .81. The standardized RMR was .11 indicating slightly higher residual covariance than the recommended .10 cutoff (Kline, 2004). A test of chi square change comparing the initial structural model to the final structural model, was significant, χ^2 (29) = 250.50, $p < .001$. Thus, there appears to be a significant improvement in model fit between the two models. The final model accounted for 66% of the variance in dieting status.

As seen in Figure 3, nearly all structural coefficients were significant. Of the paths predicting Self-Esteem, Peer Support was the largest (.67), indicating that greater Peer Support was associated with greater Self-Esteem. The path between the Assertiveness factor and the Self-Esteem factor was also positive, but this path was not significant. The path between Norms for Appearance and Self Esteem was significantly negative (-.32), indicating that higher Self-Esteem is associated with lower levels of

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awareness and internalization of cultural norms for appearance. Similarly, higher Self-Esteem is associated with lower scores on the Social Influence factor, a path which was also significant (-.18). Thus, higher self-esteem is associated with lower levels of conformity to social pressure to from peers and parents.

Self-Esteem, in turn, had a significant negative relationship to Body Dissatisfaction (- .50), indicating that greater Body Dissatisfaction is associated with lower Self-Esteem. Body Dissatisfaction was also significantly predicted by BMI (.31). Thus, greater dissatisfaction is associated with greater BMI. Finally, there was a very large positive relationship between Body Dissatisfaction and Dieting Status (.82). Individuals who were dissatisfied with their body were more likely to be dieting (see Figure 3).

Table 7 provides a correlation matrix for the exogenous latent constructs. Although no direct paths were specified between parental support and self-esteem, the correlation between parental and peer support was relatively large ($r = .52$) and significant ($p < .001$), suggesting a fair amount of overlap between these factors. Assertiveness was significantly associated with both Peer Support ($r = .43, p < .001$) and Norms for Appearance ($r = -.67, p < .001$). No other correlations between exogenous factors were significant.

Taken together, results suggest that high self-esteem is predicted by high peer support, low adherence to norms for appearance, and low susceptibility to social influence. Although the direct path from assertiveness to self-esteem was not significant, this result may be attributable to multicollinearity between assertiveness and peer support and norms for appearance. As specified in the model, increases in self-esteem and

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reduction in BMI result in reduction of body dissatisfaction. Lower body dissatisfaction results in less frequent dieting status.

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DISCUSSION AND CONCLUSIONS

Given the pervasiveness of dieting in western culture and its link to eating disorders and other negative psychological and physiological states, the purpose of this study was to gain a better understanding of the factors that predispose college-aged women to cosmetic dieting, as well as those factors that appear to serve as buffers. The dieting literature is replete with psychological, sociocultural, familial, social, and intra- and interpersonal factors that have been linked to dieting (Huon et al, 1999; Huon, Lim, & Gunewardene, 2000; Schutz, Paxton, & Wertheim, 2002; Thompson & Stice, 2001). However, there have been no studies to date which have attempted to integrate all of these various factors into a single model of dieting initiation. Additionally, there has been a paucity of research that examines dieting initiation among college-aged women, which is surprising given the pervasiveness of dieting, eating disorders, and body dissatisfaction in the college population (Klemchuk et al, 1990; Mintz & Betz, 1988, Nations, 1989; Pyle et al, 1986; Streigel-Moore et al, 1989; Strober & Yager, 1989; Whitaker & Davis, 1989). Given that it has been reported that a number of factors within the college environment may increase vulnerability to the initiation and maintenance of eating-related problems (Bowen-Woodward & Levitz, 1989; Dickstein, 1989; Streigel-Moore et al, 1989), it seemed important to study dieting within this at-risk population. Thus, the purpose of this study was to create an inclusive model of psychological, sociocultural, familial, and intra- and interpersonal factors that both predispose and buffer college-aged women from engaging in dieting behavior.

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Summary and Interpretation of Findings

Results from the MANOVA analyses illustrated that more frequent dieting was associated with greater awareness and internalization of appearance norms, lower perceived social support from peers, lower levels of assertiveness, greater conformity disposition to social influence from friends and family, lower self-esteem, and greater body dissatisfaction. Surprisingly, family support was not related to dieting behavior. The MANOVA results suggested that the factors that posed the greatest risk for the initiation of dieting included the internalization of cultural messages that emphasize thinness and dissatisfaction with one's body.

Although the MANOVA results provided valuable information, they did not paint the complete picture, as they did not offer any information about *how* the variables associated with dieting were related to one another. The final structural model suggested that high self-esteem is predicted by high peer support, low adherence to norms for appearance, and low susceptibility to conformity. Subsequently, increases in self-esteem and reduction in Body Mass Index (BMI) resulted in reduction of body dissatisfaction, which, in turn, resulted in less frequent dieting status. Thus, while the MANOVA suggested that more frequent dieting was associated with greater awareness and internalization of appearance norms, lower perceived social support from peers, lower levels of assertiveness, greater conformity to social influence from friends and family, lower self-esteem, and greater body dissatisfaction, the SEM analysis suggested that each of the aforementioned factors was associated with dieting *through* the effect of body dissatisfaction. Given that the model was only slightly below the recommended CFI cutoff of .90, this model can be considered an adequately-fitting model. The finding that

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the model accounted for 66% of the variance in dieting status suggests that the chosen variables were successful in predicting dieting status in college women.

The finding that the parental support variable did not contribute to dieting either directly or indirectly was initially somewhat surprising. Prior studies have demonstrated that girls who diet excessively have been shown to perceive their families as more conflictual, and less cohesive, emotionally bonded, empathic, and warm (Byely et al, 2000; Strober & Humphrey, 1987; Wertheim et al, 1992). Additionally, lower vulnerability to dieting in adolescent daughters has been associated with higher levels of perceived mother attachment and father attachment (Sarigiani, 1987) and greater perceived emotional support from parents (Huon et al, 1999). Our unexpected finding could be due to the possibility that the measures utilized in the present study did not adequately capture the parental support variable. It should be noted that the Perceived Social Support measure (Procidano & Heller, 1983) allowed participants to leave items blank in order to answer "I don't know," which resulted in substantial missing data. Perhaps subjects who were high in social desirability or who did not want to respond negatively about their families chose to leave the item blank, thus leaving an invalid measure of parental social support.

It should be noted that the studies mentioned above that did find an association between dieting and peer support focused on adolescent dieting, rather than on dieting in the college population. Given that college women are frequently surrounded by peers and are bombarded by social pressure to fit in and achieve status by being thin (Rodin, Silberstein, & Striegel-Moore, 1984) it is not entirely surprising that the support of parents was not sufficient to directly or indirectly circumvent the influences of peer and

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other social pressures to diet in the college environment. Social learning theory (Bandura, 1977b) suggests that individuals model their behavior after those in their immediate surroundings. Given that traditional college students are predominantly surrounded by peers, social learning theory would likely support the current findings. Previous research in other health-related domains also suggests the stronger predictive power of peers over parents in the college population. For example, studies examining substance use among college students have also suggested that peer influence was more predictive of alcohol, marijuana, and poly-substance use than was parental influence or parental support (Brennan, Walfish, & AuBuchon, 1986a; Kandel, 1982; Minugh & Harlow, 1994). Additionally, given that college is often a time marked by quests for independence and individuation from parental influence (Barth, 2003; Lapsley & Edgerton, 2002), it would make sense that the influence of parents becomes somewhat less pronounced during this phase of life.

Though this study was largely influenced by Huon et al's (1999) and Strong and Huon's (1998) studies on dieting initiation, the findings of the present study differed in significant ways. First, Huon et al (1999) found that peer competitiveness was the strongest predictor of dieting status, even when taking all other variables into account. However, in the present study, the peer competitiveness variable did not load onto the peer support or peer social influence constructs in the initial CFA. This was a rather surprising finding given the strong support this variable has found in Huon et al's (1999) research. Upon closer examination of Huon et al's (1999) paper, it was observed that little information was provided to clarify the measurement characteristics of their model. Additionally, this study utilized path analysis, which does not attenuate for measurement

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error and thus may overestimate the relationships between model components. Therefore, the influence of peer competitiveness may have been overstated in Huon et al's (1999) model, and may provide some rationale as to why this variable did not fit into the present model.

Another marked difference between the present study and those by Strong and Huon (1998) and Huon et al (1999) was the strong predictive role of parental support and parental social influence (via modeling and compliance) in the initiation of dieting. As mentioned earlier, the parental support variable and the parental influence from modeling and compliance did not hold up in the present author's structural model. This could be attributed to the fact that Strong and Huon (1998) and Huon et al (1999) used an adolescent sample rather than a college sample. Additionally, the differences might be attributed to the statistical techniques used by the abovementioned authors.

The findings of this study shed light on the predictors of dieting, and therefore, provided information which may aid in the design of prevention and outreach programs in the college population. The results may also be useful to college counselors and mental health care practitioners in helping to identify the factors that may be useful in treating chronic dieters. Additionally, the results of this study could be tested in younger populations to determine whether these findings could be generalized to these groups, thus proving valuable in the design of comprehensive primary prevention and empowerment programs to be used in child and adolescent populations. For the current purpose, however, discussion will be limited to implications for treatment and prevention in the college population.

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Implications for Treatment & Prevention

The SEM results suggested that high self-esteem was predicted by high peer support, low adherence to norms for appearance, and low susceptibility to social influence. Furthermore, as specified in the model, increases in self-esteem and reduction in BMI resulted in reduction of body dissatisfaction, which, in turn, resulted in less frequent dieting. Thus, in providing direct services to enable young women to refrain from or reduce dieting, counseling interventions should focus on building self-esteem as a mechanism to reduce body dissatisfaction. Counseling interventions should also be aimed at providing psychoeducation and discussion about the harmfulness of western cultural norms that promote unhealthy, unrealistic standards for appearance.

Given the evidence from this study that peer support can boost self-esteem, reduce body dissatisfaction, and ultimately reduce dieting, college counseling centers could consider offering strength-based support groups composed of women who encourage each other to value and accept their bodies, critically evaluate and dispute media and cultural messages that emphasize an unrealistic body ideal, and emphasize a healthy, non-dieting approach. Such efforts could also be incorporated into residence halls and sororities on college campuses, as such communities have been said to be "breeding grounds" (Squire, 1983) for unhealthy dieting and eating disorders (Alexander, 1998; Allison & Park, 2004; Becker, Smith, & Ciao, 2005; Berg, 1988; Crandall, 1988; Meilman et al., 1991; Schulken et al., 1997).

The results of this study largely point to the significant role that body dissatisfaction plays in the initiation of dieting. This finding has been supported by previous research (Ackard et al., 2002; Klemchuk et al., 1990). Furthermore, the

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association between poor self-esteem and body dissatisfaction has also been supported by the literature (Dykens & Gerard, 1986; Rosen, Gross, & Vara, 1987). Thus, body dissatisfaction appears to be a necessary focus for both clinical intervention and prevention efforts. Residence halls, sororities, and university counseling centers could benefit students by providing ongoing outreach programming to promote body satisfaction and body acceptance, and individual and group therapy should address this important issue.

Since findings of the present study pointed to the support of peers as influential in determining dieting status, prevention and outreach efforts might also be aimed at incorporating peer support and peer education. Peer education, or the teaching or sharing of health information by individuals of similar age, ethnicity, or status group (Sciacca, 1987), has been utilized for prevention efforts in numerous health-related domains (Parkin & McKeganey, 2000) across many different populations and age groups. Peer education interventions within the college population have targeted the following: tobacco prevention (Morrison & Talbott, 2005), HIV prevention (Ergene, Cok, Turner, & Unal, 2005; Richie & Getty, 1994), STD prevention (Bauman, 1993), interpersonal violence (Hong, 2000); high-risk sexual behavior (Brigham et al., 2003); sexual assault (Black et al., 2000; Caron, 1993; Foubert & Marriott, 1997; Foubert & McEwen, 1998), promotion of positive health beliefs and behaviors (Sloane & Zimmer, 1993), access to mental health services by culturally diverse students (Nolan, Levy, & Constantine, 1996), and eating disorders (Martz, Graves, & Sturgis, 1997; Wittenburg, 2000).

Peer education in the domain of prevention of eating disorders on a college campus was examined in an unpublished dissertation (Wittenberg, 2000). This study

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found that, although the peer education program did not change disordered cognitions or eating behaviors, individuals in the peer education group did access campus counseling resources for eating disorders treatment at a higher rate than did the control group. Thus, peer education was viewed as a preliminary change strategy that could be combined with more intensive strategies to incite change. Despite these somewhat encouraging results, the findings of this study have not been published or replicated.

There has been one published study to date that has examined peer education as applied to eating disorders in the college population, though results were somewhat disappointing. Martz, Graves, and Sturgis (1997) developed and implemented an eating disorders peer education prevention program for use in college sororities. This study was grounded in Rogers's (1983) social diffusion theory, which asserts that an individual's attitudes and behaviors are influenced most strongly by respected peers. Specifically, "this intervention model is based on the premise that behavior change in a population can be initiated and then will 'diffuse' to others if enough natural and influential opinion leaders within the population visibly adopt, endorse, and support an innovative behavior" (Kelly, 2004, pp. 139-140). The Martz et al (1997) intervention also capitalized on Bandura's (1986) suggestions for successful implementation of the diffusion-of-innovations model, such that sorority members who were already identified by others as being influential role models within the sorority were selected to be peer educators. This approach was also successfully utilized by Kelly (1992), who identified 'popular opinion leaders' (POLs) to prevent the spread of HIV. The peer leaders in the Martz et al (1997) study were trained by doctoral students in two 3-hour group training sessions that taught healthy eating and nondieting approaches, listening and persuasive skills, how to assess

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dietary behavior and commitment to change, and how to help others to create and implement change strategies. Training also incorporated hypothetical scenarios designed to encourage peer leaders to practice their skills. Pre- and post-tests were utilized to measure knowledge gains.

Following the training, the peer educators in each sorority house wore "Don't Diet" symbol buttons, which corresponded to posters placed throughout the sorority houses. These buttons were designed to encourage other sorority members to approach and ask the peer educators about the meaning of the symbol in order to encourage dialogues about healthy eating practices. The prevention program lasted for a period of one month. Though the peer leaders who participated reported less dieting and healthier eating and exercise behaviors themselves, no significant differences were found between experimental and control participants. The authors attributed the lack of significant results to the limited one-month intervention time and to the time of the semester in which the intervention took place.

This peer education program could be strengthened and utilized by other college campuses by following Kelly's (2004) description of the essential elements of the popular opinion leader model, as successfully utilized by HIV peer prevention programs. These elements include:

> (1) identification and selection of the popular opinion leaders representing different segments of a target population who are trained to deliver risk reduction messages to others; (2) achieving a 'critical mass' of POLs that is large enough to establish new norms and behaviors within a community population; (3) developing prevention messages for POLs to deliver to others that are not merely AIDS education but that specifically target critical, theory-based psychosocial determinants of behavior change that are relevant for the population; (4) using weekly small-group sessions to carefully train and then engage engage POLs to deliver behavior change endorsement messages during their naturally occurring conversations with other members of the target population; (5) repeatedly over

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> time inspiring and motivating POLs to maintain their roles as HIV prevention endorsers; and (6) establishing an ongoing program with enough momentum to establish and sustain safer behavior as a new social norm and –in fact- as an expanding social movement (Kelly, 2004, pp.141-142).

Specifically, Kelly (2004) recommended training opinion leaders in small groups (fewer than 20 participants) that met weekly for five, 2-hour sessions, followed by ongoing weekly support meetings that incorporated role plays of conversations and discussions with other peer leaders. Kelly (2004) also suggested that the peer education efforts should occur in smaller, socially-oriented venues; that peer educators should deliver informal, conversational messages to friends and acquaintances; and that the prevention efforts must be sustained for long periods of time to ensure repeated exposure. Other authors have also suggested a number of useful guidelines for designing and implementing successful peer education approach in the college population (see Bauman, 1993; Milburn, 1995). Given that peer education approaches have been found to be cost-effective and effectual (Milburn, 1995), such approaches to the prevention of dieting in the college population should be examined further.

Limitations

The limitations that restrict generalizability and future clinical considerations are important to note. Though the MANOVA analyses provided highly valuable information regarding predictors of dieting initiation in college-aged women, these results were tempered by small effect sizes. It should be noted, however, that the small multivariate effect size of the MANOVA predictors (with the exception of internalization of cultural appearance norms and body dissatisfaction), did actually support the findings of the structural model, as it pointed to the importance of body dissatisfaction as the primary driving force behind dieting. It should also be noted that the CFI of the final structural

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model narrowly missed the commonly-accepted cutoff of .90, indicating that it was a good, but not an ideal-fitting, model. However, it was thought to be preferable to stay with this current model rather than to attempt to statistically manipulate the data to fit the model, in essence to "overfit" (MacCallum, Roznowski, & Necowitz, 1992) the model. Overfitting the model, though creating greater fit indices, would only serve to fit the peculiarities of this particular sample, and would therefore limit generalizability to other samples. Future research efforts may benefit by testing alternative paths using the present sample, and subsequently attempting to replicate those findings in a new sample. However, given that previous models (i.e., Huon et al, 1999) accounted for approximately 45% of the variance in dieting while the current model accounted for 66% of the dieting variance, the model did provide highly useful information.

Some of the measures that were selected did not load onto their desired constructs and had to be removed from the analyses. For example, the Dieting Peer Competitiveness measure (Huon, et al., 2002) did not load onto either the Peer Support or Peer Influence constructs, as expected. Likewise, the Permeability of Boundaries Scale (Olver, Aries, & Batgos, 1989) was removed, as it was demonstrated to be a poor measure of the parental social influence latent variable. Finally, the Family Social Influence modeling and compliance (Strong & Huon, 1998) measures (SI-famod and SI-facomp, respectively) and the Friend Social Influence modeling and compliance measures (SI-frmod and SI-frcomp, respectively) were removed from the analysis due to low factor loadings with the Peer Social Influence and Family Social Influence constructs. Perhaps different measures could have better captured our desired latent constructs.

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Another possible statistical limitation of the present study was the fact that two of the exogenous latent constructs were highly correlated with one another, which suggests the possibility of multicollinearity. Due to the high correlation between the norms for appearance and assertiveness ($r=-.67$) constructs, the shared variance between these exogenous variables may have clouded their individual impacts on the self-esteem variable. Multicollinearity (often suggested by a correlation coefficient of .70 or higher) is considered undesirable because it weakens the analysis through reduction of degrees of freedom error, and subsequently makes it more difficult to partition out the individual effects of each independent variable (Pedhazur, 1997).

Other limitations of the study involve sampling restrictions and methodological concerns. It should be noted that the participants in this study were predominantly freshmen enrolled in an introductory psychology course. Given that many of these students had only been in college for approximately two months prior to completing the study, perhaps students who had been in the college environment for longer periods of time would have responded differently. Future studies examining dieting in the college population should aim to collect a representation of the entire student body. Additionally, the title of the research was listed on the website where students signed up for the study. There could have been a selection bias, in which students who signed up for the study were those who were interested or invested in the topic of dieting for reasons that could have impacted their responses. Additionally, generalizability of the results was limited given that the sample consisted primarily of European-American students, and did not adequately represent students of color. Finally, it should be noted

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that the measures used in the present study were all self-report measures, which could have been influenced by social desirability.

Directions for Future Research

Given the strong association noted between body dissatisfaction and dieting, future research should examine specific interventions that might aid in improving body satisfaction. Some research (Paxton et al., 2002; Smolak & Levine, 2001) has suggested that such interventions are more effective when introduced prior to the establishment of dieting behavior (i.e., childhood and early adolescence), but research regarding outreach and prevention efforts in the college population could also prove beneficial. As mentioned earlier, future research should also examine the effectiveness of peer education programming focused on reduction of dieting and unhealthy eating behaviors, critical examination of media and cultural messages about thinness, and body satisfaction.

It should be noted that 26% of the subjects sampled in this study indicated that they were currently dieting, and 43% of the sample acknowledged that they dieted either sometimes, often, or always. This is consistent with dieting prevalence rates identified in other similar college samples (Fairburn & Beglin, 1990; Kurth et al., 1995; Krahn et al., 1992). Given that dieters have been found to be eight times more likely to develop bulimia nervosa than non-dieters (Patton et al., 1990), and that the prevalence and frequency of bulimia nervosa correlates strongly with increased use of weight control efforts (Kurth et al., 1995), further studies of intense or chronic dieting are needed to shed light on risk factors that influence the progression from dieting to disordered eating. The strong association between dieting and the development of eating disorders also points to

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the importance of developing additional studies that examine both the predictors and buffers of cosmetic dieting. The findings of the present study provide a solid foundation for continued research examining the relationships between peer support, conformity disposition, internalization of appearance norms, self-esteem, body dissatisfaction, and cosmetic dieting in the college-aged population.

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Table 1
Means and Standard Deviations of Indicator Variables Comprising Latent Constructs

Latent Construct Variable Name	Mean	Standard Deviation
Parental Support		
PSS Family	16.20	4.87
PBI	20.99	2.93
Peer Support		
EDI id	30.83	6.09
PSS Friend	1.64	2.68
Norms for Appearance		
SATAQ-appearance	20.45	3.50
SATAQ-internalization	24.70	8.12
Assertiveness		
ASR	13.53	4.40
SOD	5.76	2.77
Social Influence		
SI FA-conformity	2.84	1.29
SI FR-conformity	2.65	1.12
Self-Esteem		
RSE	32.03	5.53
SE	31.00	4.05
EDI-I	23.68	8.20
Body Dissatisfaction		
EDI-bd	31.72	10.48
EDI-dt	22.02	8.15
BTW	112.98	17.92
Dieting Status		
DSM	2.73	1.48
TFEQ	8.72	5.61

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Table 2
Reliabilities of Measures

Name of Measure	Cronbach's Alpha
Parental Bonding Instrument (PBI)	.749
Perceived Social Support- Friends (PSS-fr)	.908
Perceived Social Support- Family (PSS-fa)	.924
Sociocultural Attitudes toward Appearance (SATAQ)	
Internalization (SATAQ-i)	.899
Awareness (SATAQ-a)	.544
Self-Other Differentiation Scale (SOD)	.730
Rosenberg Self-Esteem Scale (RSE)	.909
Self-Esteem Scale (SES)	.909
Eating Disorder Inventory (EDI)	
Interpersonal Distrust (EDI-id)	.849
Body Dissatisfaction (EDI-bd)	.911
Drive for Thinness (EDI-dt)	.898
Ben-Tovim Walker Body Attitudes Questionnaire (BTW)	.872
Three Factor Eating Questionnaire (TFEQ)	.901

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Table 3

Multivariate Tests of Model Coefficients for TFEQ

Dependent Variable	Pillais V	Hypothesis df	Error df	F	*P*
Parental Support	.02	4	596	1.62	.17
Peer Support	.01	4	596	0.67	.61
Norms for Appearance	.18	4	596	15.12	< .01
Assertiveness	.08	4	596	5.78	< .01
Social Influence	.06	4	502	3.65	.01
Self-Esteem	.08	6	594	3.97	< .01
Body Dissatisfaction	.43	6	594	27.09	< .01

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Table 4

Scale Means & Standard Deviations by Dieting Status on the TFEQ[1] & DSM[2]

	TFEQ						DSM					
	Low		Moderate		High		Low		Moderate		High	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Parental Support												
PSSfa[3]	16.02^{a}	4.95	16.38^{a}	4.97	16.22^{a}	4.75	16.03^{a}	5.17	16.18^{a}	4.86	16.70^{a}	4.19
PBI[4]	20.69^{a}	3.36	21.53^{a}	2.45	20.82^{a}	2.80	21.05^{a}	3.37	20.98^{a}	2.76	20.91^{a}	2.65
Peer Support												
EDI-id[5]	30.96^{a}	6.14^{a}	31.13^{a}	5.40	30.43^{a}	6.63	31.13^{a}	6.08	30.88^{a}	5.86	29.82^{a}	7.32
PSSfr[6]	1.38^{a}	2.29^{a}	1.82^{a}	3.02	1.76^{a}	2.73	3.09^{a}	1.57	1.60^{b}	2.56	1.18^{b}	4.58
Norms for Appearance												
SATAQa[7]	19.63^{a}	3.64	20.83^{b}	3.21	20.98^{b}	3.48	19.71^{a}	3.73	20.46^{a}	3.22	22.33^{b}	3.76
SATAQi[8]	20.85^{a}	6.74	24.42^{b}	7.05	29.98^{c}	8.32	20.55^{a}	7.01	25.41^{b}	6.92	31.61^{c}	10.91
Assertiveness												
ASR[9]	14.29^{a}	3.99	13.99^{a}	4.46	12.33^{b}	4.55	14.38^{a}	4.27	13.47^{ab}	4.23	11.70^{b}	5.17
SOD[10]	6.61^{a}	2.57	5.64^{b}	2.93	4.98^{b}	2.61	6.71^{a}	2.72	5.54^{b}	2.77	4.52^{b}	2.21
Social Influence												
SIFA[11]	2.35^{a}	1.44	3.00^{b}	1.14	3.05^{b}	1.22	1.70^{a}	1.49	3.07^{b}	1.08	3.22^{b}	1.16
SIFR[12]	2.32^{a}	1.30	2.78^{b}	1.11	2.77^{b}	0.93	1.65^{a}	1.37	2.88^{b}	0.89	2.84^{b}	1.11
Self-Esteem												
RSE[13]	32.75^{a}	5.84	32.10^{a}	5.12	31.23^{a}	5.51	33.64^{a}	5.27	31.65^{b}	5.54	29.94^{b}	5.28
SE[14]	31.58^{a}	4.09	30.75^{a}	4.08	30.63^{a}	3.96	32.05^{a}	3.90	30.65^{b}	4.09	30.24^{ab}	3.84
EDI-I[15]	21.25^{a}	7.42	23.75^{ab}	8.11	26.17^{b}	8.37	21.02^{a}	7.61	23.90^{b}	7.48	29.39^{c}	10.36
Body Dissatisfaction												
EDI-bd[16]	25.79^{a}	9.21	31.90^{b}	10.10	37.77^{c}	8.42	23.88^{a}	9.13	33.63^{b}	9.03	41.58^{c}	7.83
EDI-dt[17]	15.92^{a}	5.83	21.80^{b}	6.41	28.62^{c}	6.42	15.23^{a}	5.71	23.29^{b}	6.82	32.73^{c}	4.76
BTW[18]	100.90^{a}	16.29	112.85^{b}	14.31	125.77^{c}	13.07	97.76^{a}	15.63	116.59^{b}	14.13	132.76^{c}	11.42

Note. Subscripts of means indicate significant pairwise comparisons at Bonferonni corrected .02 alpha level.

[1]TFEQ = Three Factor Eating Questionnaire. [2]DSM = Dieting Status Measure. [3]PSSfa = Perceived Social Support, Family. [4]PBI = Parental Bonding Instrument. [5]EDI-id = Eating Disorder Inventory, interpersonal distrust. [6] PSSfr = Perceived Social Support, Friends. [7]SATQa = Sociocultural Attitudes toward Appearance, Awareness. [8] SATQi = Sociocultural Attitudes toward Appearance, Internalization. [9]ASR = Assertiveness Self-Report Inventory. [10]SOD = Self-Other Differentiation Scale. [11]SIFA = Social Influence from Family, Conformity. [12]SIFR= Social Influence from Friends, Conformity. [13]RSE = Rosenberg Self-Esteem Scale. [14]SE = Self-Esteem Scale. [15]EDI-I = Eating Disorder Inventory – Ineffectiveness. [16]EDI-bd = Eating Disorder Inventory = Body Dissatisfaction. [17]EDI-dt = Eating Disorder Inventory – Drive for Thinness. [18]BTW = Ben-Tovim Walker Body Attitudes Questionnaire.

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Table 5

Multivariate Tests of Model Coefficients for DSM

	Pillais V	Hypothesis df	Error df	F	*p*
Parental Support	.00	4	596	0.32	.86
Peer Support	.04	4	596	3.22	.01
Norms for Appearance	.17	4	596	14.12	< .01
Assertiveness	.07	4	596	5.00	< .01
Social Influence	.21	4	502	14.53	< .01
Self-Esteem	.11	6	594	5.65	< .01
Body Dissatisfaction	.44	6	594	27.87	< .01

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Table 6

Goodness-of-Fit Indicators

Model	X^2	df	p	CFI	NFI	SRMR
Final Measurement	225.04	107	<.001	.95	.91	.05
Initial Structural	386.63	118	<.001	.88	.84	.11
Final Structural	475.54	136	<.001	.86	.81	.11

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Table 7

Intercorrelations of Exogenous Latent Variables

	Parental Support	Peer Support	Norms for Appearance	Assertive	Social Influence
Parental Support	1				
Peer Support	0.52***	1			
Norms for Appearance	0.10	-0.18	1		
Assertive	0.08	0.43***	-0.67***	1	
Social Influence	-0.10	0.17*	0.06	0.15	1

*$p < .01$ **$p < .01$ **$p < .001$

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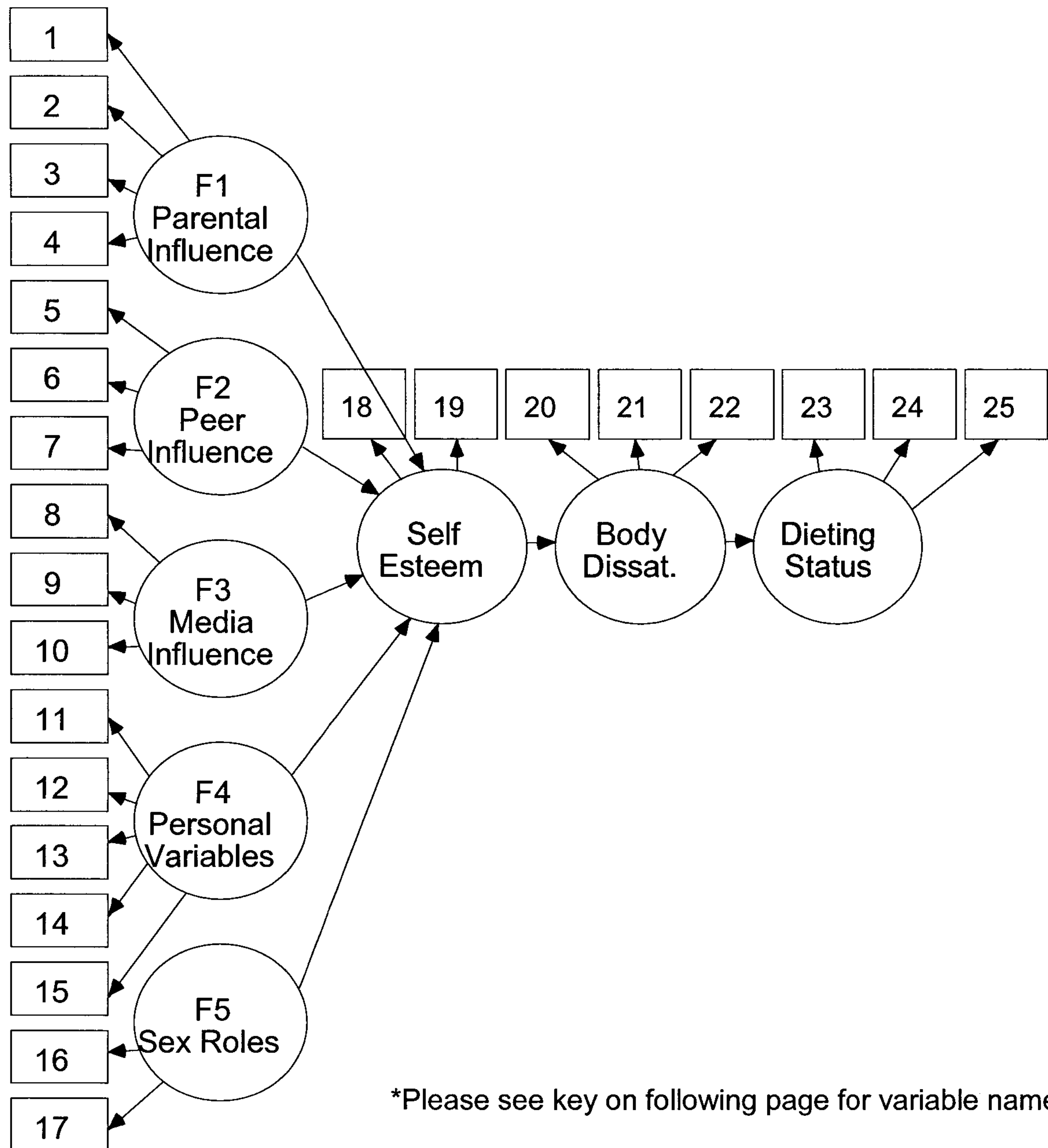
Figure 1



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Key for above model:

Parental Influence Measures
1= Permeability of Boundaries Scale (PBS)
2= Perceived Social Support- Family (PSS-Fa)
3= Parental Bonding Instrument- Brief Current Version (PBI-BC)
4= Parental Social Influence questions (modeling, conformity, and compliance)

Peer Influence Measures
5= Perceived Social Support-Friends (PSS-Fr)
6= Dieting Peer Competitiveness Scale (DPC)
7= Parental Social Influence questions (modeling, conformity, and compliance)

Media Influence Measures
8= influence from magazines (Mag)
9= influence from tv (TV)
10= reflected appraisals questions (RA)

Individual Variable Measures
11= Sociocultural Attitudes towards Appearance (SATAQ)
12= Reasons for Exercise Inventory (REI)
13= College Self-Expression Scale (CSES)
14= Self-Other Differentiation Scale (SODS)
15= Perfectionism subscale of EDI (EDI-P)

Sex Roles and Attitudes towards Women Measures
16= Attitudes towards Women Scale (ATWS)
17= Bem Sex Role Inventory (BSRI)

Self-Esteem Measures
18= Rosenberg Self-Esteem Scale (RSES)
19= Self-Esteem Scale (SE)

Body Dissatisfaction Measures
20= EDI- Body Dissatisfaction (EDI-BD)
21= Body Figure Perception Questionnaire (BFPQ)
22= Ben-Tovim Walker Body Attitudes Questionnaire (BWQ)

Dieting Measures
23= Dieting Status Measure (DSM)
24= Revised Restraint Scale (RS)
25= Three-Factor Eating Questionnaire (TFEQ)

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Figure 2 Confirmatory Factor Analysis

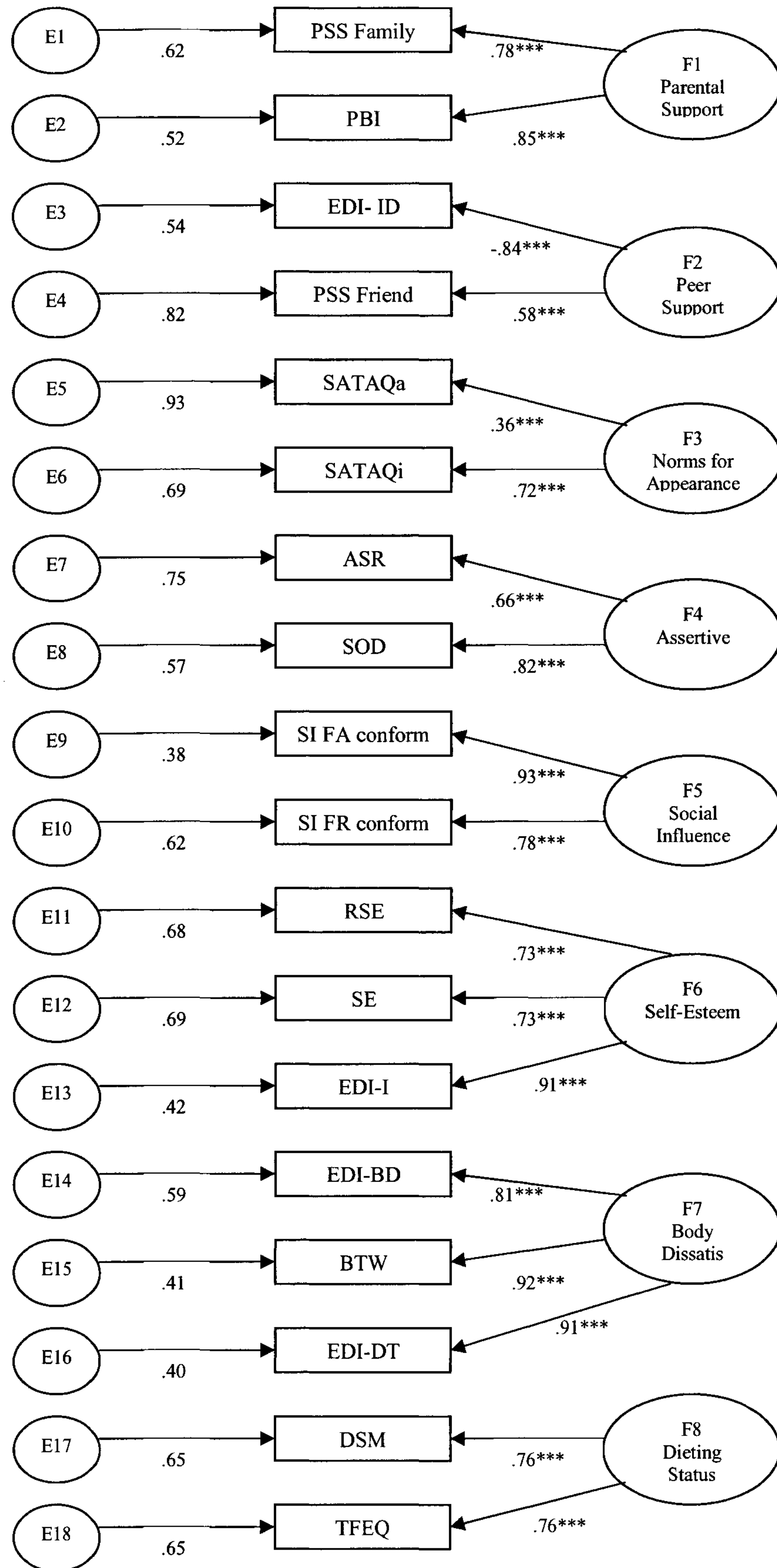

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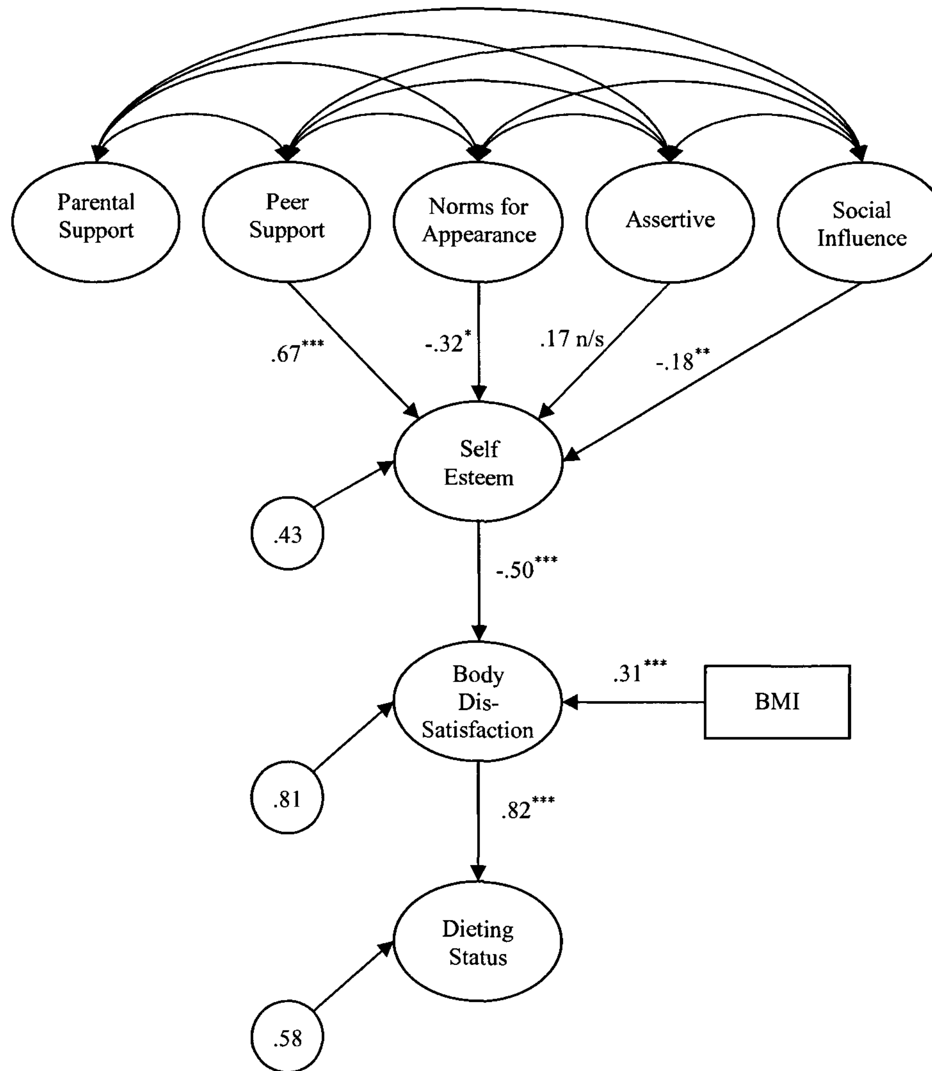
Figure 3

Final Structural Model Predicting Dieting Status from Self-Esteem and Body Dissatisfaction.



Note. All coefficients are standardized and significant, except scaling paths and where noted.

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