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An Examination of Peer-related Risk and Protective Factors for Body Image Disturbance
and Disordered Eating Among Adolescent Girls

by

Hemal M. Shroff

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
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Dedication

This dissertation is dedicated to the people who have taught me some of the most valuable lessons in life - my parents and sisters. There have been many friends and family members along the way who have supported my efforts and egged me on, but to my mother, father and sisters I owe a wealth of thanks for their enthusiastic support of my efforts coupled with their interminable faith in me. My parents have always encouraged me to 'do my own thing' and even if that meant leaving home and living far away for a long time, they have never stood in the way of my pursuing my dreams. If it were not for my sisters, I would never have conceived pursuing a doctorate degree. They were my inspiration and still are my role models. I cannot end this dedication without acknowledging the strength I drew from family members and friends who espoused my decisions and helped me get through tough times.

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An Examination of Peer related Risk and Protective Factors for Body Image Disturbance
and Disordered Eating among Adolescent Girls

Hemal Shroff

ABSTRACT

Research has documented the impact of peer influences on adolescents for health risk behaviors such as smoking and drinking alcohol. However, few studies have done an in-depth investigation of peer-related risk and protective factors affecting body dissatisfaction and disordered eating among adolescent girls. The study sample consisted of 344 adolescent girls from high schools in Pasco County, Florida. Participants completed questionnaires assessing the impact of peers on their weight and appearance attitudes, beliefs and behaviors. Participants also identified their close friends (using a coding system) and rated their own figures. Trained research assistants provided objective figure ratings for the participants. The participants completed measures assessing body dissatisfaction, drive for thinness, bulimic symptoms and self-esteem (criterion variables).

Results of the analyses indicated that participants were not significantly similar to their nominated friends in the criterion variables. Correlations between peer variables and criterion variables were significant supporting peer-related risk factors. Findings of correlation and regression analyses were inconsistent for the predicted protective factor of friend anti-dieting advice. A significant amount of variance in the criterion variables of body dissatisfaction, drive for thinness, bulimic symptoms and self-esteem was predicted by the peer influence variables. Results supported the hypothesis that comparison would

serve as a mediator between peer influence and the criterion variables. Internalization and peer suppression of feelings functioned as mediators in the relationship between peer influence and self-esteem, bulimic symptoms and body dissatisfaction. Implications for future research and application of findings in intervention programs discussed.

Chapter One

Introduction

Overview

In society today, it is almost impossible to avoid the references to appearance, shape, weight and body build that appear on magazine covers, television, and in everyday conversations. This emphasis on shape and appearance may affect adults, children and adolescents (Thompson & Smolak, 2001). The attention given to shape and appearance has made people more conscious of their physical appearance and has led to an increase in dissatisfaction with weight and shape. This dissatisfaction was found to be so common among women that researchers labeled this phenomenon “normative discontent” (Rodin, Silberstien & Striegel-Moore, 1985). Among children and adolescents, studies have found a high level of body dissatisfaction in nonclinical samples (Levine, Smolak and Hayden, 1994; Grigg et al., 1996; Field et al., 1999).

Body image has been described as an individual’s internal representation of his or her own outer appearance (Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999). The construct of body image is multidimensional and is associated with feelings and thoughts that may influence behavior. The basis of body image is an individual’s subjective perceptions and experiences (Cash, 1990) and it has both perceptual (size-perception accuracy) and subjective (attitudes towards body size/weight and other body parts or overall physical appearance) components (Cash & Brown, 1987). The term ‘body image’

has been used to refer to several different self and body related constructs. For the purposes of this paper, body image will refer to the physical appearance aspect. Body image is an important component of the self and can affect the way in which an individual perceives the world (Smolak & Levine, 2001).

Body image disturbance is a component of certain clinical disorders and can contribute to poor self-concept, depression and general psychological distress (Leon, Fulkerson, Perry & Cudeck, 1993; Killen et al., 1994; Fabian & Thompson, 1995; Gardner, 1999). Specifically, one of the criteria for diagnosing an individual with an eating disorder is “disturbance in the way in which one’s weight or shape is experienced” as per the DSM-IV-TR (American Psychiatric Association, 2000). A majority of the research has been done with female samples. Among female adolescent samples, longitudinal studies have found that negative body image and body dissatisfaction are associated with the onset or intensification of eating disorder symptoms (Cattarin & Thompson, 1994; Leon et al., 1999). Additional support for the importance of body dissatisfaction has come from research with younger female samples that has found strong relationships between body dissatisfaction and weight concerns and weight loss behaviors (Oliver & Thelen, 1996; Wood, Becker & Thompson, 1996; Steinberg, Phares & Thompson, 2000).

Thus, children and adolescents who are dissatisfied with their appearance are likely to engage in weight loss practices and are more likely to have low self-esteem. Engaging in weight loss practices can be especially detrimental to the physical growth and development of children and adolescents. Moreover, research suggests that engaging in dieting is one of the risk factors for the development of an eating disorder (Shisslak &

Crago, 2001). The question then arises as to what makes adolescent girls assign importance to appearance and what convinces them that they should diet?

Two aspects of female gender role expectations make appearance salient for females and worsen the tension between the cultural ideal of female beauty and the reality of the female body (Striegel-Moore, 1993):

- 1) Identity among females is defined in relational terms (i.e. girls are expected to care about others' feelings and interests and are required to be interpersonally oriented). As a consequence of this expectation they are more sensitive to others' opinions of them and are likely to be affected by them as opposed to boys.
- 2) Physical beauty remains an integral part of female identity in our culture and other cultures as well. Physical attractiveness is linked to interpersonal success, making it more likely that adolescent girls pursue beauty as a way to achieving popularity and respect. Additionally, physically attractive girls are perceived as more feminine than less attractive girls or women (Mazur, 1986).

The dual cultural messages provided to girls of caring about other's opinions and of defining themselves in terms of their physical appearance when combined with the current cultural ideal of ultra-thinness provides adolescent girls with sufficient reason to pursue thinness (Striegel-Moore & Cachelin, 1999).

In addition, risk factor models that have been proposed emphasize the impact of the sociocultural environment on the adolescent girls' perception of her appearance (Thompson et al., 1999). These environmental influences include the media, family and peer influences. The current study is designed to examine in-depth the ways in which peers influence adolescent girls' satisfaction with their weight and shape and their

decisions to engage in weight-loss behaviors. Potential risk factors that increase body dissatisfaction and likelihood to engage in weight loss behaviors and protective factors that decrease dissatisfaction and internalization or reduce likelihood of dieting will be examined. The study also aims to investigate whether there is similarity among members of a friendship clique on the variables of body dissatisfaction, drive for thinness, bulimia and self-esteem. A review of the relevant literature, rationale for the importance of peers and description of the study follows.

Development of friendships from childhood to adolescence

As children develop, the importance and salience assigned to friends and peers increases sharply. Children and adolescents' concerns about acceptance in a peer group intensify as a result of the increase in the prominence and frequency of gossip (Rubin, Bukowski & Parker, 1998). These discussions are not necessarily degrading, but relate more to children's concerns about strengthening their separate 'social maps' of the structure of the larger group (Teasley & Parker, 1995).

In terms of relationships, a child's understanding of friendships changes as he/she develops. From the ages of 11 to 13, children understand that their friends are those who share similar interests, make active attempts to understand each other and are willing to engage in self-disclosure (Bigelow, 1977). With the advent of middle childhood, children's friendship choices are more secure and likely to be reciprocated. In middle childhood, children are also more likely to participate in social groups or cliques (that are stable and polydyadic) that almost always consist of same-sex, same-race members. More importantly, with this change in social structure, children are more inclined to evaluate their own behavioral performance by comparing themselves with others, as opposed to

younger children who judge themselves against a set of definitive standards (Rubin et al., 1998).

Brown, Way and Duff (1999) have identified the central feature in adolescent girls' relationships as being intimacy and disclosure. In early adolescence, girls rely more on their best friends and prefer intense dyadic relationships when compared with boys. This is not as true for girls from ethnically diverse groups who may have people from their extended family who serve the role of close friends (unlike the usual notion of "nonfamilial peers"). Therefore, research supports the notion that peers influence the behavior, attitudes and beliefs of teenagers (Kandel, 1978).

The Importance of Peer influence for Body Image

In their discussion on the risk and protective factors for the development of eating disorders in adolescents, Shisslak and Crago (2001) have identified teasing about weight and shape and weight concerns or eating disorders among friends as two of the possible sociocultural risk factors for sub clinical eating disorder symptoms and eating disorders themselves. Additionally, their survey of the research suggested that having a close relationship with a friend or romantic partner who is unconcerned with weight and/or having positive peer interactions in relation to weight and shape serve as protective factors that may increase resistance to eating disorders.

Studies examining the importance of peers, relative to other influences on body image among adolescent girls have reported mixed findings. In a large-scale study assessing the comparative influences of parents, peers and the media, Field et al. (2001) found that peer influences were not predictive for 9 to 14 year-old girls becoming highly concerned with weight. In another comparative study on the role of sociocultural

influences on body image and body change strategies of adolescent girls, McCabe and Ricciardelli (in press) found that feedback from best female friend was an important predictor for body change strategies among the girls. However, these body change strategies included strategies to increase weight and the use of food supplements. Feedback from best female friend did not predict weight loss behaviors. In a follow-up study by the same authors, results suggested that female friends had an impact on body change strategies aimed at increasing muscle tone among girls and on binge eating. Steinberg et al. (2000) reported that family and peer influences accounted for significant variance in body dissatisfaction, bulimia and drive for thinness for a sample of younger children when BMI was not included in the model. With the inclusion of BMI, peer influence was no longer a significant predictor, whereas family influence was.

Levine and Smolak (1992) found that 41.5% of the middle school girls they surveyed reported talking with their friends about weight, shape and dieting at least sometimes. Higher levels of these peer interactions were significantly correlated with higher scores on the chEAT (children's Eating Attitude Test). In a later study, Levine, Smolak and Hayden (1994) compared the influence of parents, peers and the media on the dependent variables of body image dissatisfaction, investment in thinness, weight management behavior and disturbed eating. They found that peer teasing was strongly related to body image dissatisfaction, but that peer communication about the importance of being thin did not contribute significant variance to the dependent variables. The researchers also identified a group of girls in their sample who encountered and participated in a subculture of dieting based in part, on a message from peers about the

importance of thinness. Additionally, this subsample had high dysfunctional eating attitude and behavior scores.

In an interview study done with a sample of adolescent girls from Australia, Wertheim, Paxton, Schutz and Muir (1997) found that media influences experienced by adolescent girls were reinforced by messages from peers and family members about the value of thinness. Many of the girls in their sample stated that variables like teasing, other girls' verbalized concerns, wanting to be a part of a group or please friends and friends' dieting behaviors led them to engage in dieting themselves. Based on the interviews, the researchers also found that those inclined to engage in social comparison had greater body concerns. Girls who frequently compared their bodies with others and those who compared themselves with others on a diet reported higher levels of distress and greater motivation to diet.

Taylor et al. (1998) reported similar findings, wherein the main risk factor for the development of excessive weight concerns was the importance that peers assigned to weight and eating. In a longitudinal study examining the development of purging behaviors in adolescent girls, Field et al. (1999) found that girls changed their eating patterns around peers, such that there was a direct relationship between the emphasis placed on thinness by a girls' friends and the likelihood of her using laxatives or vomiting to control weight. In a study with younger girls, Vander Wal and Thelen (2000) found that peer teasing and belief in the importance of thinness to peers were significant predictors of body image dissatisfaction. Thus, research supports the notion that peer variables are important in influencing adolescent eating attitudes and behaviors.

However, few studies have examined the various mechanisms by which peers and friends influence each other's body dissatisfaction and eating disturbance.

Studies of Multiple Peer Influences

Lieberman, Gauvin, Bukowski and White (2001) conducted a study with a large sample of middle and high school girls in Canada to examine the influence of peer pressure and interpersonal relations on eating attitudes and behaviors of adolescent girls. Aspects of peer influence that were examined included social reinforcement, modeling and teasing and these were examined using self-reports as well as peer-reports. Results of their study suggested that girls who were more interpersonally oriented, who believed that if they were thinner and more attractive they would be popular and girls who were identified by their peers as being more popular had lower body esteem and engaged in restrictive eating and bulimic behaviors. Self-reported teasing about weight was found to be a significant predictor of dieting and teasing about weight, appearance and body-shape were found to predict body esteem. Peer modeling was found to predict dieting behavior but social reinforcement was not. The authors highlighted that these findings point to the salience of indirect (modeling) behavior over direct (social reinforcement) behavior in predicting dieting. In terms of prediction of bulimic behavior, both social reinforcement and modeling were found to be significant predictors.

In their study with a sample of Australian adolescent girls, Paxton, Williams, Wertheim and Anderson (in press) hypothesized that girls with unreciprocated best friend ties would have higher eating disorder symptomatology. Results did not support this hypothesis. The researchers found significant relationships between best friend pairs for eating disorder variables. However, these relationships were diminished when self-

esteem was controlled for, suggesting that self-esteem mediates the relationship between the weight loss behaviors of best friend pairs.

Jones, Vigfusdottir and Lee (in press) also examined mediational relationships involving peer influence and body dissatisfaction. They examined two variables of peer influence – appearance conversations with friends and peer criticism about appearance. According to their model, appearance conversations with friends would affect adolescent girls by directing their attention to appearance-related issues, reinforcing the value and importance of appearance to close friends and advocating the creation of appearance ideals. Additionally, they theorized that peer criticism about appearance might reinforce the value of appearance to peers and emphasize specific desirable appearance attributes, the absence of which presumably led to criticism. The authors proposed that both of these peer influence variables (appearance conversations and peer criticism) would lead to greater internalization of the cultural ideal and would thus affect body image dissatisfaction. Jones et al. (in press) found that internalization mediated the relationship between appearance conversations with friends and body dissatisfaction and it mediated the relationship between peer criticism and body dissatisfaction. The strongest contributor to internalization was appearance conversations with friends. Thus, it is possible that interactions with peers that are appearance related, led to greater internalization, which in turn led to higher levels of body dissatisfaction.

In another study with adolescent girls in Australia, Paxton, Schutz, Wertheim and Muir (1999) examined whether members of a friendship group shared body image attitudes and other eating disturbance symptoms and whether friendship group related variables affected body image and eating behaviors. They found that friendship cliques

shared similar levels of body image concern, dietary restraint and use of weight-loss behaviors, but not binge-eating behavior. They also found similar levels of depression and self-esteem in members of a group. The authors postulated two mechanisms to explain this similarity among friendship cliques: a) girls modeling the behavior of their friends (peer influence) and b) girls selecting friends with similar attitudes (peer selection). Additionally, their results suggested that there was a correlation between the level of body image concern and weight loss behaviors in groups and the variables of i) talking about weight and dieting with friends, ii) friend perceived as source of influence for dieting, iii) friend perceived as concerned with thinness and dieting, iv) peer teasing about weight and v) body comparison.

In examining the impact of friendship relation variables on individuals, Paxton et al. (1999) took into account previously identified variables (individual, psychological, familial) before accounting for variance predicted by friendship variables using hierarchical regression. They found that the variables of friends as a source of influence, friend concern with thinness and dieting, friend talk, body comparison and peer teasing contributed significant variance to individual body image concern, levels of dietary restraint and extreme weight loss behaviors. Reasons offered by the researcher for these findings were that girls with higher body image concerns and dieting were likely to be part of a group where weight and shape had prominence and that girls with poor body image perceived their friendship environments to be involved with weight and shape.

In their study on comparison among girls, Schutz, Paxton and Wertheim (in press) found that their sample of Australian adolescent girls reported that they compared themselves more frequently with friends than with distal peers. Additionally, they were

significantly more likely to begin dieting as a result of comparing their bodies with immediate peers (which included friends, other girls and popular girls) than sisters or mothers. Variables that predicted dieting in response to comparison in this sample included importance of thinness, body dissatisfaction, teasing, friends being concerned with weight, body anxiety and BMI.

Similar results have been found with younger children. Oliver and Thelen (1996) found that there were significant correlations between the frequency of messages from peers about weight and beliefs about a link between being thin and being liked more and body image and eating disturbance variables for the girls in their sample (3rd and 5th graders). Variables like drive for thinness, dieting, concerns about being overweight and body image were found to be predicted most consistently by children's perceptions of being liked more if they were thinner and extent of interaction with peers about eating or body-related issues. The researchers hypothesized that children may learn (via sociocultural influences) that they will be liked and accepted more by their peers if they are thin and that as a result of this learning, they will attempt to improve their peer relationships by being concerned with eating and body image.

Smolak (1999) identified three ways in which peer groups at the elementary school level influence the development of eating disorders: they talk about weight and shape issues, bring these to the forefront and they tease other children about weight and shape. She theorized that prevention programs should aim to change children's attitudes in a manner that prevents the development of a culture that promotes dieting and negative commentary about weight and shape among peers.

Nichter and Vuckovic (1994) discussed the functions of talking about weight ("fat talk") in peer group interactions. They identified that such talk could facilitate group affiliation, be a way to solicit encouragement from friends, while reinforcing the belief within the group that rejection of fatness and importance of thinness are values shared by members of the group and as a means to exchanging information about controlling weight. Additionally, results of their study indicated that thinness was not considered a prerequisite for friendships with other girls, but it was considered a salient factor for membership in popular groups.

Paxton (1999) identified several variables that suggest that peers are invested in dieting and thinness, including, talking about dieting, perceived peer investment in dieting, observable dieting behaviors, perceptions of weight loss techniques used by friends as well as actual body image attitudes and dieting behaviors of friends. Data indicated that in those groups where there is frequent dieting and talk about dieting, there is an accompanying collection of weight and shape concerns. Wertheim et al. (1997) hypothesized that girls who engage in similar extreme weight-control strategies as their friends are motivated by the fact that they will have mutual support from their friends in their efforts.

Studies that have examined the relationship between popularity and dieting behaviors have had controversial results. Paxton et al. (in press) found there was no relationship between BMI and dieting behaviors and popularity. However, Lieberman et al. (2001) found that girls who were nominated as popular by their peers were more likely to engage in disordered eating and have lower body esteem. It is likely that adolescent girls perceive a link between being thin or looking more like the cultural ideal and being

popular and this perceived link may lead them to engage in weight loss behaviors as a means to increasing their social acceptance. Literature supports the notion that social relationships play a role in eating disorder symptomatology (e.g. studies have shown that variables such as insecurity in social relationships, low levels of perceived social support from friends and low levels of social competence are higher in those diagnosed with an eating disorder, Paxton, 1999).

In summary, results from studies examining peer influences indicate that there are multiple ways in which peers and friends influence adolescent girls. Due to the importance of friendships in adolescence and the value assigned to attitudes and beliefs of friends, many teenagers may become dissatisfied with their appearance and engage in dieting and other weight loss behaviors. The hypothesized mechanisms by which peers may influence teenagers include teasing about weight and shape (Paxton et al., 1999; Lieberman et al., 2001; Schutz et al., in press) modeling (Lieberman et al., 2001), appearance conversations and peer criticism (Paxton et al., 1999; Jones et al., in press), engaging in comparison with peers (Schutz et al., in press), friends' concern with thinness (Paxton et al., 1999) and beliefs about the link between thinness and greater social acceptance (Oliver & Thelen, 1996).

Limitations of research

Few studies have examined positive peer influences and it is plausible that while some friendship groups focus on weight and shape excessively and lead to the development of eating concerns, others may dissuade a girl from engaging in unhealthy weight-loss behaviors and may provide a protective environment (Paxton, 1999). This remains one of the limitations of research examining peer influences. Few studies have

investigated factors that may protect teenage girls from being dissatisfied with her appearance, engaging in weight loss behaviors and internalizing society's ideals of thinness. Notable exceptions include Rodin, Striegel-Moore and Silberstein's (1990) study, which identified that having a close relationship with a friend who is unconcerned with weight may serve as a protective factor and Wertheim et al.'s (1997) findings that being talked out of dieting by friends served as a protective factor against continued engagement in weight loss behaviors.

However to-date, the research on protective factors has not been extensive enough to aid in the development of prevention and/or intervention programs. It is possible that the pathway models for risk and protective factors work in different ways (Shisslak & Crago, 2001). Research that examines protective factors may in turn lead to the creation of prevention programs that are more effective and targeted to reduce the likelihood of body dissatisfaction and internalization (as opposed to reducing the likelihood of dieting). One such potential protective factor that has not been studied is having a friend who is overweight. Based on social reinforcement theory, individuals internalize attitudes about weight and shape from their support groups (Thompson & Stice, 2001). Family, peers and the media are the agents that support and reinforce the thin ideal and convey the idea to adolescent girls that being thin has benefits, such as increased social acceptance. Having one or more friends who is/are overweight may protect an adolescent from pursuing the thin-ideal as they are less likely to buy into the notion that being thin will lead to greater social acceptance. Also, keeping in mind social comparison theory, having one or more overweight friends may reduce level of body dissatisfaction as the

adolescent is likely to feel less dissatisfied with their appearance when they compare themselves with their overweight friends (Schutz et al., in press).

Based on Wertheim al.'s (1997) finding that positive peer influences (e.g. being dissuaded from dieting or purging) reduced dieting and purging behaviors, it is possible that friends and peers may protect adolescents from engaging in disturbed eating behavior that have been found to lead to eating disorders like anorexia and bulimia. Thus, anti-dieting advice received from peers and friends may serve as a protective factor in the likelihood to engage in dieting and purging. Shisslak & Crago (2001) have noted that Wertheim et al.'s study was a qualitative analysis of risk and protective factors and the effect of positive peer influences on adolescents warrants further investigation.

Rationale for current study

Insufficient research and inadequate exploration of peer influence variables makes it difficult to delineate the manner in which peers affect body dissatisfaction, internalization, dieting and bulimic behaviors and self-esteem in adolescent girls. The current study seeks to examine friend and peer factors that increase the risk for adolescent girls to develop high levels of internalization, body dissatisfaction and disturbed eating practices. Importantly, this study will also evaluate possible protective factors that may be associated with low levels of these variables.

Theory and research support the idea that peers affect the beliefs, attitudes and behaviors of adolescents (Heaven, 1994). Additionally, studies have found similarities among adolescent friends on a wide range of attributes and behaviors (Tolson & Urberg, 1993). Results from studies in the area of body image indicate that peers influence the body image concerns and weight loss behaviors of adolescent girls by having

conversations about appearance, engaging in appearance comparison, teasing, valuing thinness and appearance, linking thinness with social acceptance and modeling dieting behavior (Levine et al., 1994; Oliver & Thelen, 1996; Paxton et al., 1999; Lieberman et al., 2001; Schutz et al., in press; Jones et al., in press). All of these variables may lead to internalization of the importance of thinness and a greater likelihood of engaging in comparison leading to dieting (Jones et al., in press; Schutz et al., 1999; Shroff & Thompson, 2001). Research indicates that individuals with eating disorders or subsyndromal symptoms of eating disorders have a tendency to misperceive their physical shape as larger than it objectively is (Thompson et al., 1999). Thus, it is possible that misperception of body shape may be a risk factor for body dissatisfaction and eating disordered behaviors.

In spite of numerous reports of the influence of friends and peers on an adolescent girls' level of body dissatisfaction, drive for thinness, engagement in bulimic behaviors and self esteem, no one study has examined multiple mechanisms by which peers influence these dependent variables. Additionally, few studies have examined factors that may protect adolescents from being dissatisfied with their appearance or engage in dieting and purging or variables that mediate the effects of peers and adolescents on dissatisfaction and internalization. The current study aims to be a comprehensive exploration of possible risk factors and protective factors related to the effect of friends and peers on body image and eating disturbance among adolescent girls. In addition, the mediational effects of comparison and internalization will be examined to test if the results obtained in a previous study (Shroff & Thompson, 2001) are found with these comprehensive peer measures.

Specifically, this study will evaluate similarities among girls in self-identified friendship groups on the following variables: body image dissatisfaction, drive for thinness, bulimic behaviors and self-esteem. Additionally, the associations between several protective factors and risk factors and levels of body image and eating disturbance will be examined. Possible protective factors include: having one or more overweight/obese friend(s) and positive peer influences (i.e. being advised by a friend to not diet or purge). Possible risk factors include: having friends who are preoccupied with weight and dieting, having conversations with friends about dieting and food, assigning importance to friends' beliefs about weight and dieting, making attributions about popularity and appearance, being teased by friends and being inaccurate in self ratings of weight status.

It is hypothesized that:

- 1) Members of friendship groups will be more similar to each other in body dissatisfaction, drive for thinness, bulimic behaviors, and self-esteem than they will be to adolescents belonging to groups other than their own.
- 2) The following hypothesized risk factors will be significantly related to higher levels of body dissatisfaction, drive for thinness, bulimic symptoms and lower levels of self-esteem: having friends who are preoccupied with weight and dieting, having conversations about appearance with friends, being teased about weight and appearance by friends, making attributions about popularity and thinness, assigning importance to friends' beliefs about weight and dieting and being inaccurate in figure ratings of self.

- 3) The following protective factors will be negatively correlated with the dependent variables of body dissatisfaction, drive for thinness, bulimic symptoms and positively correlated with self-esteem: being a member of a group that includes one or more overweight individuals and being advised by a friend to not diet.
- 4) A significant amount of variance in the dependent variables of body dissatisfaction, drive for thinness, bulimic symptoms and self-esteem will be accounted for by the proposed risk variables of friend appearance influence ratings, protective variables and mediators.
- 5) The variables of peer suppression of feelings (i.e. similar to relational self-esteem), thin-ideal internalization and appearance comparison will mediate the relationship between friend appearance influence variables and body dissatisfaction, drive for thinness, bulimic symptoms and self-esteem.

Chapter Two

Method

Participants

The sample consisted of 352 high school girls from the Pasco County school system ranging in age from 14 to 17 years old. Data from 8 participants were not used because the questionnaires were incomplete. The samples were recruited from grades nine, ten, eleven and twelve at Wesley Chapel High School, Land O Lakes High School and Hudson High School. All analyses, except those involving friendship groups were done with a sample of 344 participants. The mean age of the sample was 14.57 (SD = 1.01). Seventy-five percent of the participants were in grade 9, 12% were in grade 10, 6% in grade 11 and 7% in grade 12. In terms of ethnic background, 74% of the sample identified themselves as Caucasian, 12% as Hispanic/Latino, 5% as African-American, 2% as Asian, 1% as Native American and 5% as Other. An additional 1% of the participants did not provide information about their ethnic background.

For the analyses involving friendship groups, participants in the 11th and 12th grade were removed from the sample because 70% of this sample (11th and 12th graders) had identified that they had close friends outside the class (in a question asking if they had three or more close friends who were not in their class they circled 'yes'). After removal of these participants and participants who had not provided a code number (N = 60), the final sample for the friendship analyses consisted of 245 participants. This sample will be referred to as the 'friendship subsample' henceforth, to maintain ease of

communication. The mean age of the friendship subsample was 14.26 (SD = 0.59) and approximately 77% of this subsample identified themselves as Caucasian, 9% as Hispanic/Latino, 4% as African-American, 2% as Asian/Pacific Islander, 2% as Native American and 5% as Other. An additional 1% of these participants did not identify their ethnic background.

Measures

Demographic Sheet. The subjects were asked to complete a Demographic Sheet including information on Date of Birth, Age, Grade, Ethnicity, weight and height. Body Mass Index (BMI) was calculated based on participants' estimates of their height and weight using Quetlet's measure (Garrow & Webster, 1985). Please see Appendix B.

Friend Appearance Influence Scales. The Perceived Friend Preoccupation with Weight and Dieting Scale. This is a nine-item scale that assesses the frequency of a variety of different manifestations of weight and dieting preoccupation among friends (Schutz et al., 1999). It also measures perceptions of the general importance of each others' weight among friends. An alpha of 0.87 has been reported with a sample of middle schoolgirls (Schutz et al., 1999). Please see Appendix D.

Appearance Conversations with Friends (Jones et al., 2001). This is a five-item measure that assesses how often adolescents discussed with friends their expectations for their bodies and for appearance-enhancements. Cronbach's alpha for a sample of adolescent girls was .85 suggesting good reliability (Jones et al., 2001). Please see Appendix D.

The Silencing the Self Scale (Jack & Dill, 1992). This is a 26-item measure that has been modified for an adolescent sample (Sippola & Bukowski, in press). This

variable will be called 'Peer Suppression of Feelings' for the purpose of this study. The scale contains items that assess adolescents' cognitive schemas about their relationships with their peers. Subscales relate to judging oneself by external standards (relational self-esteem), putting the needs of others before the self, inhibiting one's self expression in an effort to avoid conflict and presenting oneself as compliant. Lieberman et al. (2001) reported alphas between .73 and .82 for the subscales in their study with adolescent girls. Items were modified slightly for this study to provide clarity in the wording. In addition, only 18 of the items from the original measure were retained for this study as these items pertained to friend influence (judging oneself by external standards and inhibiting one's self expression in an effort to avoid conflict). Please see Appendix D.

The Peer Attribution Scale (Lieberman, 2000). This is an eight-item measure that assesses attributions made about same and opposite-sex peers that relate to appearance. The peer attribution subscale was found to have an alpha of .90 (Lieberman et al., 2001). Four items relating to attributions about female friends were used for this study and the four items pertaining to male friends were deleted. Please see Appendix D.

The Friends as a Source of Influence Scale (Paxton et al., 1999). This is a modified version of the Magazines as a Source of Influence scale (Levine et al, 1994). It consists of 5-items and measures the importance of friends in influencing an individual's ideas of the perfect body and their use of weight loss strategies. The scale has a Cronbach's alpha of .87 (Paxton et al., 1999). Please see Appendix D.

The Perception of Teasing Scale for Friends (Shroff & Thompson, 2000). This is based on the original 11-item scale that measures weight and competency teasing. Two

items relating to teasing from friends were used to measure perception of weight and appearance teasing by peers. Please see Appendix D.

The Friend Anti-Dieting Scale. This is a five-item likert response scale that was created for this study to index friends' positive influence on dieting behaviors and beliefs. Items were created to measure the extent to which friends and peers advise adolescents against dieting (e.g. "How many times have your friends talked you out of dieting?"). Please see Appendix D.

The Physical Appearance Comparison Scale (Thompson, Heinberg & Tantleff, 1991). This is a five-item measure that assesses the tendency to compare one's own appearance to the appearance of others. The scale has adequate reliability ($\alpha = 0.78$ and test-retest = 0.72). Please see Appendix E.

The Sociocultural Internalization of Appearance Questionnaire – Adolescents (Keery et al., 2004). This is a five-item scale measuring internalization of media influence. The internal consistency (Cronbach's α) for the measure ranged from 0.83 to 0.92 across US and cross-cultural samples (Keery et al., 2004). Please see Appendix F.

The Eating Disorder Inventory-Body Dissatisfaction Scale. This scale contains nine items that measure satisfaction with specific body sites such as the waist, thighs and buttocks (Garner, Olmstead & Polivy, 1983). Shore and Porter (1990) found an α of 0.91 for 11-18 year-old females for this scale. Please see Appendix G.

The Eating Disorder Inventory – Drive for Thinness Scale. This measure contains seven items that assess restricting tendencies, desire to lose weight and fear of weight gain (Garner et al., 1983). An α of 0.81 was found for 11-18 year-old females (Shore & Porter, 1990). Please see Appendix G.

The Eating Disorder Inventory – Bulimia Scale. This is a seven-item scale that assesses impulsive eating patterns and purgative use (Garner et al, 1901). It has an internal consistency (Cronbach’s alpha) of 0.79 (Thompson et al., 1995). Please see Appendix G.

Rosenberg’s Self-Esteem Inventory. This measure is a 10-item measure of general feelings of self-esteem (Rosenberg, 1965). It has adequate reliability (test-retest = .85), and it has been demonstrated to have adequate reliability with adolescent samples (Wylie, 1989). Please see Appendix H.

Formation of Friendship Groups. All participants were provided with a list of names of all the girls in their class (each name had a corresponding code number) and asked to write down the code numbers for the people who they identified as their friends or as part of their close friendship circle. Please see Appendix I for an example with names. Because dyads function differently from groups of 3 or more, dyads were not included in the analyses on friendship groups (Paxton et al., 1999). An evaluation of the friendship subsample indicated that there were very few mutually identified exclusive groups of friends. A mutually identified exclusive group consisted of people who had nominated each other, been nominated in return and did not have any one belonging to their group nominate someone other than the group members. Even with mutually identified groups, the sample size was small (N = 45). Additionally, code data was missing for some of the participants (N = 60). Thus, the sample for the friendship analysis (friendship clique sample) included participants and their nominations of two or more friends. The final ‘friendship subsample’ consisted of 174 participants.

Self and Friend Weight Status Classification. The Contour Drawing Rating Scale (Thompson & Gray, 1995). This is a visual figure rating scale containing black and white outlines of nine figures ranging in size from very thin to obese. Participants were asked to identify the figure that was closest to their current self (self-rating of weight status classification) and a figure that most closely resembled each of their friends' figures and put the number that corresponds with that figure next to the numbers that represent their friends from the list (ratings of friends' weight status classification). See Appendix J.

Additionally, three research assistants were trained to objectively identify the figure that reflected the weight status of each participant (objective rating of weight status classification). The reliability of raters was computed prior to collecting data by having them do figure estimates for pictures of females and actual estimates of female college students. The minimal level of reliability for concordance among the raters was set at 0.70. The objective raters underwent a training program consisting of rating magazine pictures and live undergraduate female models. The raters completed ratings on a total of 16 models and pictures. The reliability of the research assistants' ratings during the training was computed using the Pearson Product Moment Correlation and was found to be 0.94. Pearson Product Moment Correlations were computed between body mass index, objective figure ratings and self-ratings for the participants. The correlations are presented in Table 1. The correlations range between .71 and .77 and are significant indicating that there is a moderate amount of concordance between BMI, self-ratings of figures and objective ratings. As the correlations are significant, the variable of BMI was used to categorize individuals as overweight/obese for further analyses. The discrepancy

between self-rating of weight status and objective rating of weight status was calculated and labeled 'weight status discrepancy' and included as a risk variable.

Table 1. Correlations between BMI, objective and self-ratings of figures

	BMI	Self rating
Self rating of figure	.71***	
Objective rating of figure	.77***	.74***

Note. *** - $p < .001$

Procedure

Prior to collecting the data, the researcher and research assistants visited the schools and obtained permission from the vice-principals and/or principals. Lists of students were obtained from the principals and the researcher compiled a list of female students in the class and assigned each student a code number. The students were given a letter to take to their parents one week prior to data collection. The letter explained the purpose of the study and stated that parents should contact the school if they did not want their child to participate and should contact the researcher if they had any questions (see Appendix A).

On the days of data collection, assent was obtained from the students (see Appendix A). The researcher requested permission from the Principal to have one-two research assistants sit in the classrooms when students were completing questionnaires. The researcher or research assistants provided instructions, introduced the study and emphasized that students should not discuss the survey among peers. The students were asked to provide demographic information, complete self-ratings (including body dissatisfaction, drive for thinness, internalization, self-esteem and comparison) followed

by friend and peer ratings. At the end of these surveys, the questionnaire packet contained a copy of the figure rating scale and an alphabetically ordered (by last name) list of students in their class with the assigned code numbers. The students were first asked to identify their own weight status classification on the figure rating scale (“Please circle the number under the figure that comes closest to how YOU think you look currently.”) Then the students were asked to write down the numbers that corresponded with their close friends’ names from the list provided to each of them. Based on their perception of the weight status that their friends fit into, the students were asked to write down a number from the weight status classification measure next to the number for their friend (“Put a number from the figures that comes closest to how each of your friends looks.”).

Participants were given the option to identify if they did not spend a lot of time with girls in their class and if they had friendship groups outside their class. Please see Appendix K.

After completing the questionnaires, the participants were asked to come up to the front of the classroom to return the questionnaire packet to the research assistant. When they turned in their questionnaires, the research assistant ensured that they had completed all surveys and then rated each individual’s figure rating on the questionnaire itself (‘objective rating for weight status’) without the knowledge of the participant. The researcher and/or research assistants provided participants with debriefing information and requested that they not discuss their answers with friends (see Appendix L). The same procedure was followed across classes and schools.

*Proposed Design and Statistical Analyses**Preliminary Analysis*

Approximately 70% of the original sample was included in the ‘friendship subsample.’ Those individuals who had nominated two or more close friends from the provided code lists and those who had provided their own code numbers were part of this subsample. With this sample size of 245 participants, the power was .80 for detecting a medium effect size with an alpha at .05. Univariate analysis was conducted to identify means, totals and standard deviations for scores. Cronbach’s alphas were computed on each of the measures to ensure sufficient reliability. A factor analysis was done on the multiple measures of friendship and peer influence to determine if a smaller set of dimensions existed for further analyses. Also, the new scale developed for this study, the friend anti-dieting advice measure, was factor analyzed to explore the factor structure of the items. The scree plot and eigenvalues guided the interpretation for the factor analyses.

Planned Analyses

To examine if individuals were similar to their nominated friends on the variables of body dissatisfaction, drive for thinness, bulimic behaviors and self-esteem (hypothesis 1) correlations were computed between the individual’s score and the mean score for her nominated friends for these variables. These correlations were compared to correlations between an individual’s score and the mean score for friends randomly drawn from the participant sample.

To examine the relationship between the hypothesized risk factors and dependent variables (hypothesis 2), Pearson Product Moment correlations were computed between

body dissatisfaction, drive for thinness, self esteem and bulimia (dependent variables) and the risk factors of: having friends who are preoccupied with weight and dieting, having conversations about appearance with friends, being teased about weight and appearance by friends, having friends whose opinions are valued in judging one's own weight and appearance, making attributions about friends' opinions and weight status discrepancy (i.e. being inaccurate in self ratings of weight status). Weight status discrepancy for the individuals was calculated by computing the discrepancies between students' reports of their current weight status classification and objective reports by research assistants. This difference was correlated with body dissatisfaction, drive for thinness, self-esteem and bulimia.

For the protective factors hypothesis (hypothesis 3), the variables of body dissatisfaction, drive for thinness, self esteem, internalization and bulimia were correlated with scores obtained on the Friend Anti-Dieting Scale. A subsample was created of participants who had nominated one or more friends who are overweight/obese (N = 86) and this was compared to a subsample of participants who had nominated non-overweight friends (N = 100). The CDC cutoffs for overweight status (based on height, weight and age) were used to identify individuals who were overweight. There were a total of 90 participants across all ages that were overweight or obese (approximately 27% of total sample). T-tests were computed to examine if individuals having one/more overweight friends had differences in the peer appearance influence measures and criterion variables when compared with those who had no overweight friends. Higher means on the dependent variables of body dissatisfaction and drive for thinness for the participants with no overweight friends might indicate that having an overweight friend

serves as a protective factor for the variables of body dissatisfaction and drive for thinness.

Simultaneous multiple regressions were computed to examine if a significant amount of variance in the proposed criterion variables (body dissatisfaction, drive for thinness, bulimia and self-esteem) was predicted by the peer risk factor measures, weight discrepancy, anti-dieting advice, internalization, comparison and peer suppression of feelings (hypothesis 4). In order to compute the regression in an efficient and comprehensive manner, a 'Composite Peer Influence' variable was created consisting of a combination of the individual peer risk factors (friend preoccupation with weight and dieting, conversations with friends, attributions and teasing and friends as a source of influence). However, so as to not lose the individual effects of the peer appearance influence measures, regressions were computed with the individual peer variables predicting variance in the mediators (internalization, comparison and peer suppression of feelings).

The possibility of the peer suppression of feelings variable, internalization and comparison serving as mediators (hypothesis 5) were examined using regression weights (Baron & Kenny, 1986; MacKinnon, Warsi & Dwyer, 1995). The 'sobel test' is a statistical measure that estimates if the indirect effect of the IV on the DV via the mediator is significantly different from zero (Sobel, 1960; Goodman, 1960). An online application of this test, developed by Preacher & Leonardelli (2003) was used to test the mediational effects of internalization, comparison and peer suppression of feelings. Simple path models were created using unstandardized beta weights, wherein a simple regression was computed with the 'composite peer influence' variable as the predictor

and the mediator variables as the criterion. A second regression was computed with the composite peer influence variable and the mediators as the predictors and body dissatisfaction, drive for thinness, bulimic symptoms and self-esteem as the criterion variables. The resulting unstandardized regression weights and standard errors of the weights were used to compute the critical ratio for the test.

Chapter Three

Results

Psychometric Analyses

As a measure of reliability, coefficient alphas were calculated for the measures used in the study. Table 1 contains the means, standard deviations and internal consistencies (Cronbach's alphas) for the scales. As Table 1 reveals, most of the influence scales had internal consistencies that were in the acceptable range (i.e., $> .70$). All scales with the exception of the Physical Appearance Comparison Scale (PACS) and the Friend Anti-Dieting Advise Scale (FADS) were retained with all their items, as they fulfilled the criteria of an alpha of 0.70 or higher. Inspection of the items in the PACS revealed that one of the items was not correlated with the item total (item 4). The item was the only item that was reverse-coded in the scale. Internal consistency was computed without this item and the resultant Cronbach's alpha was 0.81. In previous studies, similar results have been found with this reverse-coded item (Shroff & Thompson, 2000). Thus, the item was deleted and the revised scale had only the positively worded items. With regard to the FADS, inspection of the correlation between the items and the item-total revealed that item 5 had a negative correlation with the total. In addition, the internal consistency without the item was 0.74. Item 5 is also a reverse-coded item. Thus, the item was deleted and the revised measure had 4 items.

Table 2. Means, standard deviation and coefficient alphas for Friend and Self Measures

Scale name (number of items)	Mean	SD	Alpha
Sociocultural internalization appearance questionnaire – adolescents (5)	14.72	4.95	.90
EDI-Body dissatisfaction (9)	28.53	10.63	.89
EDI-Drive for thinness (7)	20.44	9.10	.89
EDI-Bulimia (7)	14.20	5.53	.75
Rosenberg self-esteem (10)	18.80	5.49	.88
Peer suppression of feelings (18)	43.28	11.52	.87
Perceived friend preoccupation with weight and dieting (9)	22.47	7.46	.86
Conversations about appearance (5)	14.95	4.90	.88
Friends as a source of influence (5)	11.59	4.80	.86
Peer attribution scale (4)	7.55	4.24	.85
Perception of teasing Scale (2)	3.10	1.57	.78
Attribution and teasing scales (7)	10.64	5.13	.84
Physical appearance comparison scale (5 items)	11.88	3.82	.69
Physical appearance comparison scale (4 items)	9.16	3.56	.80
Friends anti-dieting advice scale (5 items)	11.83	3.43	.48
Friends anti-dieting advice scale (4 items)	7.82	3.57	.73

The friend appearance influence rating scales (i.e. Perceived friend preoccupation with weight and dieting, Conversations about appearance, Friends as a source of influence, Peer attribution, Perception of teasing) were factor analyzed to evaluate if the

scales could be combined for further analyses. Analyses were done with a 1, 2, 3 and 4 factor solution. Results revealed that the 4-factor solution paralleled the original items within each of the friend measures. For one of the factors, the two Perception of teasing scale items loaded with the Peer attribution scale items. Of the original 25 items, 23 loaded onto one of the four factors and met the apriori criteria. Two of the items from the perceived friend preoccupation with weight and dieting scale did not meet the criteria and were deleted. Table 2 contains a list of the items along with their loadings. The Perceived friend preoccupation with weight and dieting items loaded onto factor 1, the Conversations about appearance items loaded onto factor 2, the Peer attribution and Perception of teasing items loaded onto factor 3 and the Friends as a source of influence items loaded onto factor 4. Table 3 displays the correlations among the four factors.

Table 3. Factor loadings for items in friend measures

Item	Factor 1	Factor 2	Factor 3	Factor 4
How often do your friends encourage each other to lose weight	0.54	.11	.02	.09
How often do your friends talk about weight or dieting	0.78	.12	-.03	.02
How often do your friends worry about their weight	0.84	.09	-.09	-.04
How often do your friends worry about what they eat	0.82	-.03	-.05	.06
How often do your friends diet	0.74	-.13	-.02	.25
How often do your friends skip meals	0.60	-.24	.08	.13
Do you think that your friends take a lot of notice of	0.55	.24	.10	-.14

each other's weight and shape				
My friends and I talk about what we can do to look our best.	.04	0.79	-.05	.04
My friends and I talk about how our bodies look in our clothes	.02	0.82	-.09	.02
My friends and I talk about what we would like our bodies to look like	.21	0.64	.06	.11
My friends and I talk about how to look attractive	-.07	0.81	.03	.14
My friends and I talk about our "looks"	-.00	0.82	.06	.01
My friends would like me more if I lost weight.	.05	-.10	0.81	.02
I would be more popular if I lost weight	-.03	.00	0.76	.08
My friends would like me more if I was better looking	-.06	.08	0.87	-.06
If I was better looking I would be more popular	-.13	.15	0.72	.07
Your friends and classmates made comments or teased you about your appearance	.11	.02	0.57	-.08
Your friends and classmates made comments or teased you about being heavy	.16	-.14	0.67	.04
How important are your friends in influencing your idea of the perfect body	-.07	.13	.13	0.70
How important are your friends in influencing the diet products you use	.08	-.13	.05	0.77
How important are your friends in influencing exercises to 'tone up' for you	-.01	.15	-.16	0.74

How important are your friends in influencing your ideas on how to get a good body	-.03	.20	-.06	0.79
How important are your friends in influencing diets to lose weight for you	.12	-.04	.17	0.76

Table 4. Inter-factor correlations

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1.00	0.39584***	0.34065***	0.36277***
Factor 2			0.21232***	0.33814***
Factor 3				0.32333***

Note. *** - $p < .0001$

As the Friend Anti-Dieting advice Scale (FADS) was a scale created for this study, the items were factor analyzed using a 1 and 2 factor solution. The 1 factor solution provided the best fit for the items. Results of the factor analyses revealed that the fifth item from the FADS did not meet the apriori criteria and was therefore deleted. The items and loadings are presented in Table 4.

Table 5. Factor loadings for FADS items.

Item	Loading
How often do your friends discourage you from going on a diet?	.74
How often do your friends talk about reasons why dieting can be dangerous?	.81
How often do your friends encourage you to put on weight?	.45
How often do your friends tell you not to diet because its unhealthy?	.86

Analyses to test Hypotheses

In order to examine if there was similarity among nominated friends in the criterion variables (hypothesis 1), correlations were computed between the scores of each participant in the ‘friendship subsample’ on the criterion variables (body dissatisfaction, drive for thinness, bulimia and self-esteem) and the mean scores for the same variables for their nominated friends. The correlations were positive and ranged from .01 to .24 and are presented in Table 5. All correlations were non-significant with the exception of the correlation for the variable of self-esteem. This suggests that higher levels of the variables of body dissatisfaction, drive for thinness and bulimic symptoms in individuals could be associated with higher levels of the same variables among their nominated friends and that this relationship is significant for self-esteem.

Table 6. Correlations between individual scores and mean score for nominated friends

Criterion variable	Correlation
EDI – Body Dissatisfaction	.13 ^{ns}
EDI – Drive for Thinness	.01 ^{ns}
EDI – Bulimia	.08 ^{ns}
Self-Esteem	.24**

Note. ** - $p < .01$, ns – non-significant

It was postulated that the friend appearance influence variables would be risk factors for the dependent variables (hypothesis 2). To test this hypothesis, Pearson Product Moment correlations were computed for the entire sample between the risk and dependent variables. The results of these analyses are presented in Table 6. All correlations were found to be significant with the exception of some correlations for the

variables of age and grade. The significant correlations indicate that higher levels of the risk variables (appearance-related: friend preoccupation, conversations with friends, attributions and teasing, friends as a source of influence and higher weight status discrepancy) are associated with higher levels of internalization, comparison and peer suppression of feelings and both of these are positively linked with higher levels of body dissatisfaction, drive for thinness, bulimic symptoms and negatively linked with self-esteem.

Table 7. Correlations among variables

	Gr	BMI	Int	BD	DRT	Bul	SE	FSI	Pfpw	Conv	PSF	Att- teas	Disc.	Pacs	Fads
Age	.90	.04	.00	-.01	-.03	.05	-.05	-.06	.08	-.06	.07	-.07	-.04	-.00	.06
Grd		-.00	.05	-.02	-.03	.05	-.06	-.05	.11*	-.04	.09	-.06	-.05	-.03	.05
BMI			.20***	.42***	.34***	.12*	.20***	.11*	.21***	.003	.14*	.35***	.14*	.02	-.16**
Int				.60***	.65***	.35***	.42***	.41***	.50***	.51***	.42***	.44***	.09	.60***	.09
BD					.67***	.39***	.58***	.38***	.44***	.32***	.43***	.51***	.20**	.48***	-.04
DRT						.36***	.48***	.37***	.52***	.50***	.59***	.45***	.16**	.55***	.04
Bul							.41***	.34***	.33***	.30***	.34***	.36***	.07	.37***	.09
SE								.51***	.32***	.25***	.37***	.44***	.13*	.41***	.04
FSI									.23***	.23***	.32***	.46***	.05	.39***	.04
Pfpw										.52***	.46***	.39***	.16**	.49***	.13*
Conv											.46***	.29***	.03	.55***	.23***
PSF												.37***	.20**	.49***	.08
Att-													.16**	.46***	.09

To examine whether or not friend anti-dieting advice served as a protective factor (hypothesis 3), correlations were computed between the Friend Anti-Dieting Scale and the criterion variables and are included in Table 6. Body mass index was found to have a significant, negative relationship with FADS, indicating that level of adiposity was associated with less anti-dieting advice from friends. Additionally, there were positive associations between anti-dieting advice and conversations about appearance and perceived friend preoccupation with weight suggesting that those who receive anti-dieting advice from friends are also likely to discuss appearance and weight with friends and perceive their friends to be preoccupied with weight. In order to verify if having an overweight/obese friend serves as a protective factor (hypothesis 3), two subsamples were created from the overall sample. One subsample consisted of participants who had nominated one or more friends who were overweight/obese (based on BMI) (N = 86). CDC cutoffs for overweight status (based on height, weight and age) were used to identify individuals who were overweight/obese. The second subsample consisted of participants with nominated friends who were not overweight/obese (N = 101). In comparing the two subsamples, significant differences were found for the following variables: body dissatisfaction was higher for the sample of participants with overweight friends and the score for conversations about appearance and dieting was higher for the participants with no overweight/obese friends. There were no significant differences found for drive for thinness, bulimic symptoms, self-esteem, internalization, comparison, peer suppression of feelings, teasing and friends as a source of influence. These are presented in Table 8.

Table 8. Differences in means (t-test) between participants with overweight friends (group 1) and participants with no overweight friends (group 2).

	Mean for group 1	Mean for group 2	t	Sig. (2-tailed)
SIAQ	14.48	14.73	-.36	.718
EDI-BD	30.47	26.84	2.39	.018
EDI-DRT	21.38	19.44	1.45	.149
EDI-BUL	14.36	14.30	.08	.935
Self Esteem	18.95	18.80	.18	.857
Peer Suppression of Feelings	43.49	42.35	.69	.491
Friend Preoccupation with Weight and dieting	21.86	23.71	-1.68	.094
Conversations	13.64	15.58	-4.29	.0001
Friends as a Source of Influence	11.64	11.55	.12	.898
Attributions + Teasing	11.39	10.51	1.13	.260
PACS	8.91	9.76	-1.65	.101
FADS	7.51	8.29	-1.53	.127

In order to investigate whether a significant amount of variance is accounted for among the dependent variables (hypothesis 4) and to study the contributors to that variance, multi-step regression analyses were computed. In the initial step, the mediators were analyzed as dependent variables with the individual peer influence measures (perceived friend preoccupation, conversations with friends, attributions about popularity

and perception of teasing and friends as a source of influence) as predictors. The results of the regressions are presented in Table 9. A significant amount of variance among the variables of internalization, comparison and peer suppression of feelings was predicted by the individual peer appearance influence measures. Specifically, for internalization, all of the peer measures were significant predictors with conversations about appearance predicting the greatest amount of variance. All the peer measures were significant predictors for appearance comparison as well and the greatest amount of variance was predicted by conversations. With regards to peer suppression of feelings, the significant predictors were attribution and teasing and friends as a source of influence.

Table 9. Regression results for mediator variables

	Beta weights	T	p	R-square
Friend preoccupation	.21	3.90	.000	
Conversations	.29	5.37	.000	
Friends as a source of influence	.13	2.43	.016	
Attribution-Teasing	.22	4.49	.000	
Internalization				.390
Friend preoccupation	.11	2.16	.032	
Conversations	.35	6.98	.000	
Friend as a source of influence	.18	3.57	.000	
Attribution – teasing	.26	5.79	.000	
Comparison				.454
Friend preoccupation	-.06	-.97	.331	

Conversations	.08	1.40	.162	
Friend as a source of influence	.15	2.52	.012	
Attribution-teasing	.41	7.45	.000	
Peer Suppression of Feelings				.228

Simultaneous multiple regressions were computed for the dependent variables of body dissatisfaction, drive for thinness, bulimia and self-esteem with the risk and protective factors and mediator variables as the predictors. The individual peer influence measures were combined to form a 'Composite Peer Influence' variable, which was used as a predictor in the regression analyses. Results are presented in table 9. For the variable of body dissatisfaction, the model was significant $F_{(8,311)} = 38.369$, $p < .0001$ and 46% of the variance was accounted for. Composite peer influence, weight discrepancy, internalization and peer suppression of feelings contributed a significant amount of variance to body dissatisfaction, while friend anti-dieting advice contributed negative variance. In the case of drive for thinness, the model was significant, $F_{(8,308)} = 52.430$, $p < .0001$ and 53% of the variance was accounted for. The significant contributors were the composite peer influence and internalization. For bulimic symptoms, the variance accounted for was 24%, the model was significant, $F_{(8,305)} = 14.123$, $p < .0001$ and composite peer influence and suppression of feelings accounted for significant variance. 35% of the variance was accounted for in the case of self-esteem and the model was significant, $F_{(8,311)} = 23.975$, $p < .0001$. The variables that contributed significantly were composite peer influence and peer suppression of feelings.

Table 10. Regressions for criterion variables with risk, protective and mediator variables

	Beta weights	T	p	R-square
Composite Peer Influence	.30	4.61	.000	
Friend anti-dieting advice	-.12	-2.53	.012	
Weight discrepancy	.12	2.53	.012	
Internalization	.36	5.91	.000	
Comparison	.01	.11	.911	
Peer Suppression of feelings	.05	2.01	.045	
Body Dissatisfaction				.456
Composite Peer Influence	.42	6.86	.000	
Friend anti-dieting advice	-.08	-1.95	.052	
Weight discrepancy	.03	.72	.475	
Internalization	.32	5.66	.000	
Comparison	.06	1.08	.281	
Peer Suppression of feelings	.03	.69	.493	
Drive for thinness				.534
Composite Peer Influence	.27	3.46	.001	
Friend anti-dieting advice	.005	.10	.924	
Weight discrepancy	-.005	-.09	.928	
Internalization	.10	1.37	.173	
Comparison	.07	.84	.401	
Peer Suppression of feelings	.17	2.89	.004	

Bulimia				.238
Composite Peer Influence	.21	2.85	.005	
Friend anti-dieting advice	-.03	-.68	.495	
Weight discrepancy	.05	.96	.341	
Internalization	.11	1.63	.104	
Comparison	.05	.75	.452	
Peer Suppression of feelings	.36	6.59	.000	
Self-esteem				.331

Unstandardized regression weights from simple regression analyses were used to examine if the variables of internalization, appearance comparison and peer suppression of feelings served as mediators between the composite peer influence variable and the dependent variables (hypothesis 5). The path model for internalization are illustrated in figure 1 using standardized beta weights. For internalization, mediation effects were non-significant for body dissatisfaction and drive for thinness and significant for bulimic symptoms ($z = 2.64, p < .01$) and self-esteem ($z = 2.28, p < .05$) using the sobel test. Thus, internalization did not serve as a mediator between the composite peer influence and the dependent variables of body dissatisfaction and drive for thinness. However, internalization did mediate the relationship between the composite peer influence and bulimic symptoms and self-esteem. Tests of the paths for appearance comparison (model illustrated in figure 2) revealed mediation for the variables of body dissatisfaction ($z = 2.74, p < .01$), drive for thinness ($z = 3.36, p < .001$), bulimic symptoms ($z = 2.19, p < .05$) and self-esteem ($z = 2.78, p < .01$). Thus, comparison mediated the relationship

between composite peer influence and all the criterion variables. With regards to peer suppression of feelings (see figure 3), mediation was non-significant for drive for thinness and bulimic symptoms and was significant for the variables of body dissatisfaction ($z = 4.72, p < .0001$) and self-esteem ($z = 2.44, p < .05$). This suggests that there is a direct relationship between the composite peer influence variable and drive for thinness and bulimic symptoms and there are mediational effects of peer suppression of feelings in the relationship between peer influence and the variables of body dissatisfaction and self-esteem.

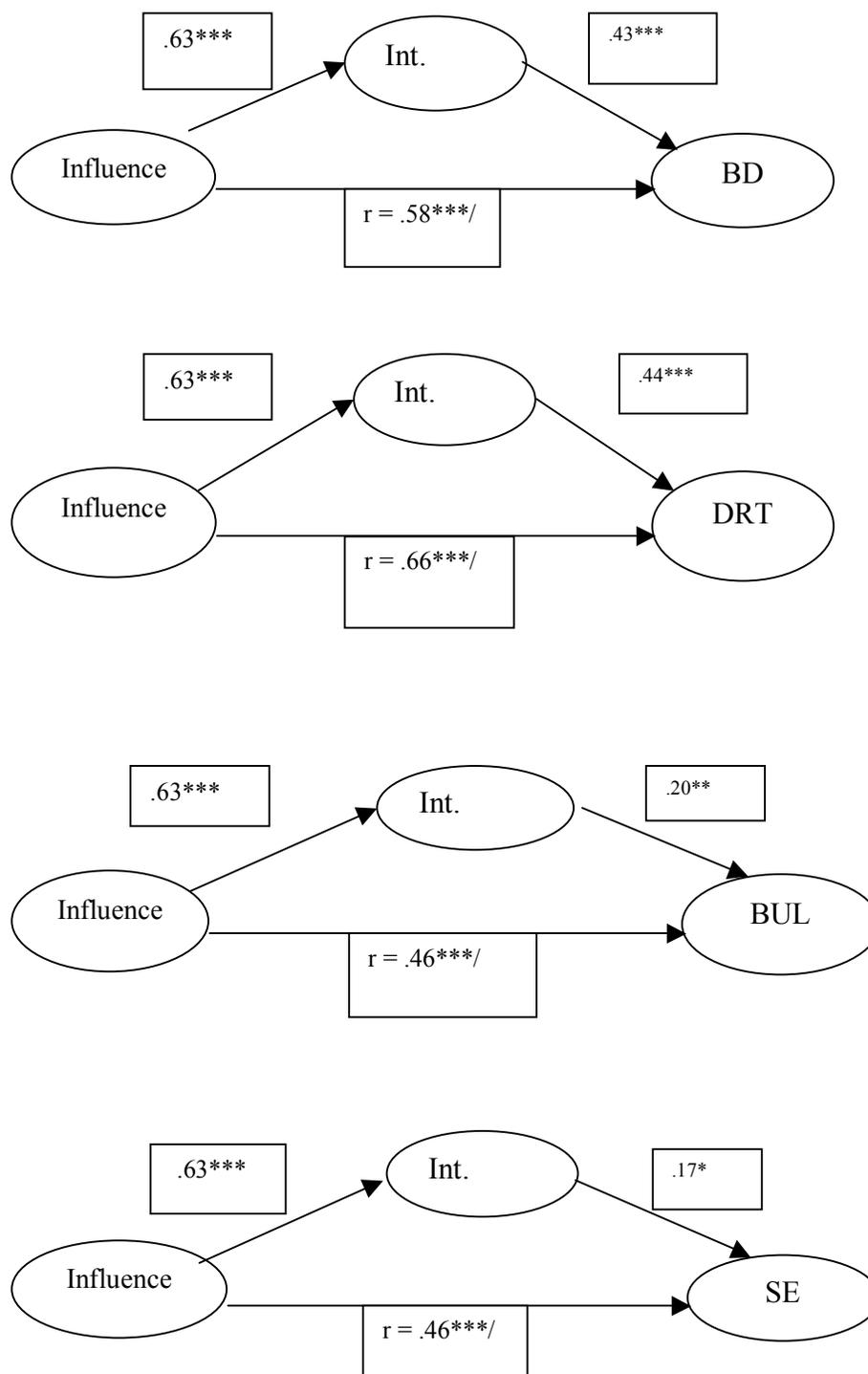


Figure 1. Path models with Internalization as the mediator (using standardized weights)

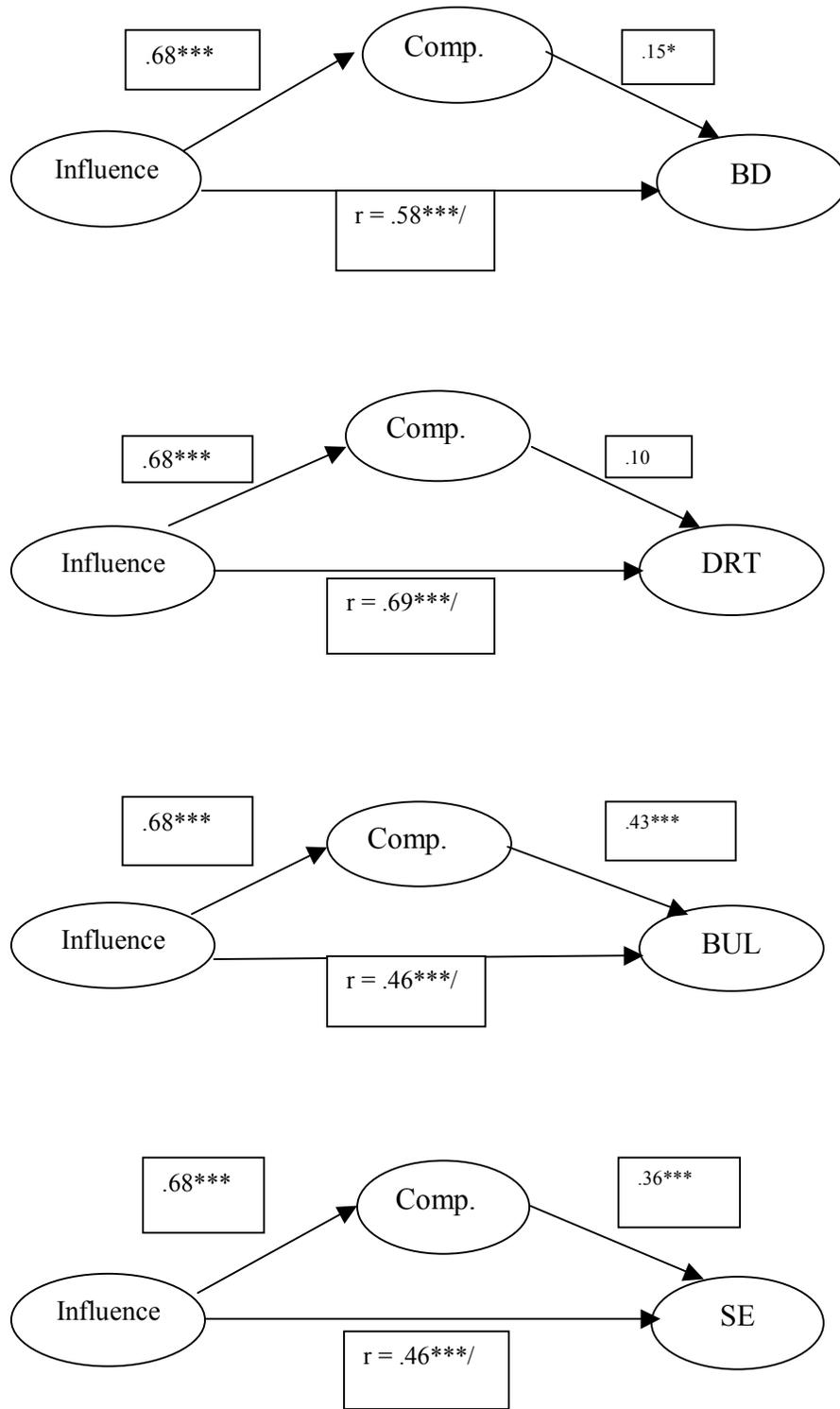


Figure 2. Mediation analyses with comparison as the mediator

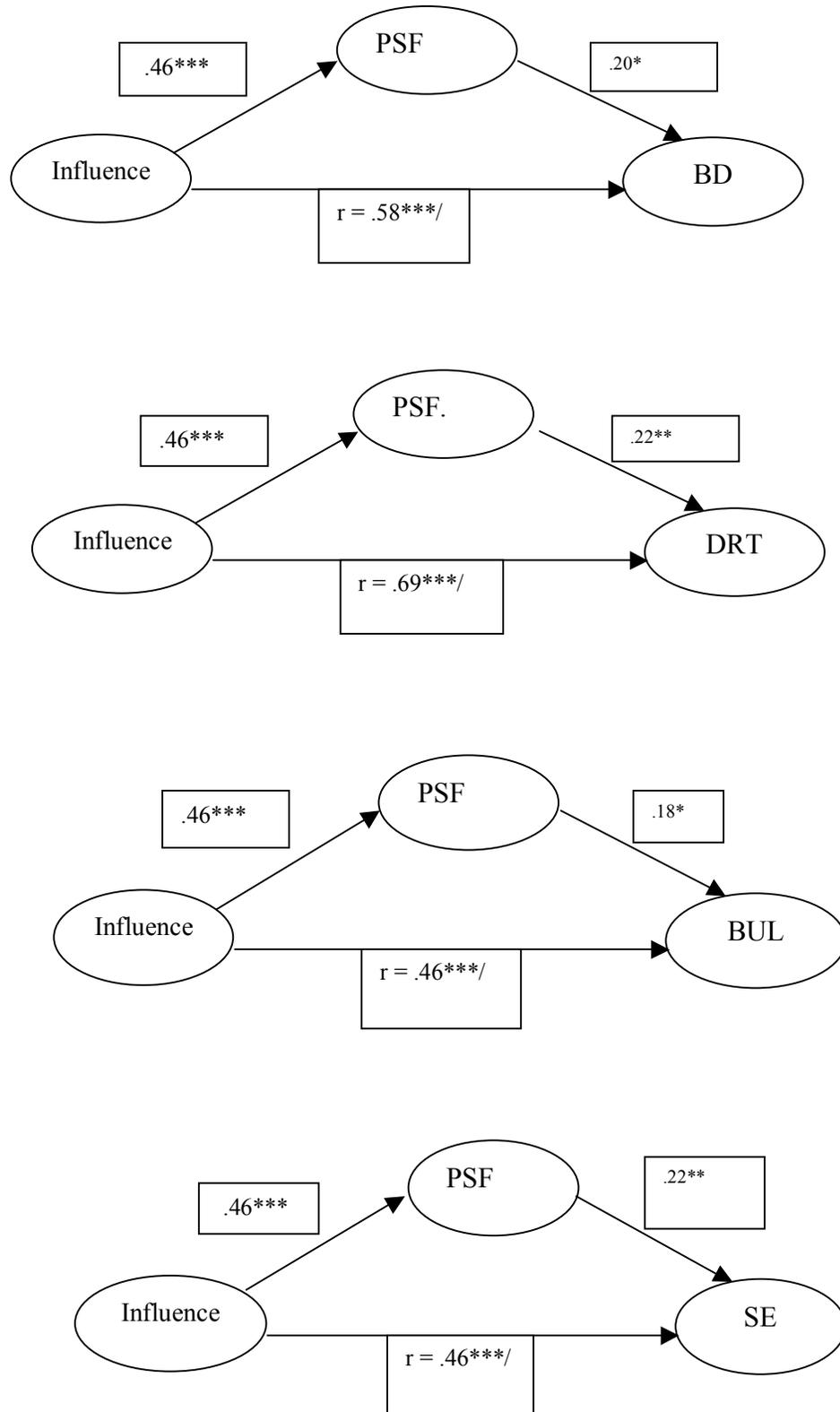


Figure 3. Mediation analyses with Peer suppression of feelings

Note. Influence = Composite Peer Influence, Int.= Internalization; BD = EDI-Body

Dissatisfaction; DRT = EDI-Drove for Thinness; BUL = EDI-Bulimia; SE = Self Esteem; Comp
= Comparison; PSF = Peer Suppression of Feelings

Note. *** = $p < .0001$ ** = $p < .001$ * = $p < .05$

Chapter Four

Discussion

Overall, the results support the importance of friend and peer influences as risk factors affecting the variables of eating disorders, body image and self-esteem among adolescent girls. Findings for the protective factors indicate that there are potential protective factors, but they need to be examined in greater detail. There is no similarity found among friends on the criterion variables, with the exception of self-esteem. Regression analyses with internalization, comparison and peer suppression of feelings indicated that a significant amount of variance was accounted for by the individual peer measures. Further analyses with the criterion variables of body dissatisfaction, eating disorder and self-esteem variables suggested that variance is predicted by the composite peer influence variable and internalization in most cases and the protective factors and peer suppression of feelings in some cases. This supports the notion that adolescent girls value the opinions of their peers in judging their appearance and that a great amount of importance is assigned to peers and this likely impacts body satisfaction and likelihood of engaging in disturbed eating. Results of the mediational analyses suggest that internalization, comparison and peer suppression of feelings may serve as mediators in the relationship between the composite peer influence variable and the criterion variables.

The results of the analyses on similarity among friends were inconclusive for the body image and eating disorder variables. This may be due to various reasons: 1) a large percentage of the sample consisted of freshmen girls who identified non-reciprocated

friends (i.e. friends who did not nominate them back), 2) a part of the sample could not be used as they had not provided their code numbers and 3) a large percent of the sample identified that they spent time with friends outside of their class. In the initial proposal, the correlations obtained from the friendship subsample were to be compared with correlations drawn from a randomly created subsample. However, as the correlations for the eating disorder and body image variables were very low, the comparison to a random sample would not have added more information. The analyses revealed that individuals are similar to their nominated friends for the variable of self-esteem. This significant correlation suggests that adolescent girls spend time with friends who have similar beliefs about themselves. Drawing from Paxton et. al's (1999) theories on similarities among friends on body image and eating disorder variables, it is possible that adolescent girls choose friends who are similar to them in levels of self esteem or that the girls become similar to their friends over time. Given the higher correlation for self-esteem when compared with the other criterion variables for this sample of freshmen and sophomore girls, it may be that similarity in level of body satisfaction/dissatisfaction develops over time and that similarity in self-esteem develops initially.

In looking at the correlations among the variables, there is strong evidence for the relationship between the risk factors (perceived friend preoccupation with weight and dieting, conversations about appearance with friends, friends as a source of influence, attributions about popularity and teasing about appearance from peers and weight discrepancy) and the mediators (internalization, comparison and peer suppression of feelings) and criterion variables (body dissatisfaction, drive for thinness, bulimic symptoms and self-esteem). The highest correlations are between friends as a source of

influence and drive for thinness, perceived friend preoccupation and drive for thinness and attributions and body dissatisfaction among the criterion variables. Many of the predicted mediational variables had high correlations with the predictor and criterion variables (e.g. conversations and comparison, internalization and drive for thinness). Weight discrepancy was identified as a risk factor because individuals with eating disorder symptoms tend to have perceptual distortions about their size and shape. Although the variable is not a peer-related risk factor, it was included, as few other studies have looked at the relationship between an objective figure rating and self-rating and examined the discrepancy between the two as a risk factor for body image disturbance and eating disorder symptoms. Results of the correlation analyses indicated that the weight discrepancy index had significant positive correlations with BMI, body dissatisfaction, drive for thinness, self-esteem, peer suppression of feelings, perceived friend preoccupation, friends as a source of influence and attribution and teasing. This suggests that individuals who tend to misperceive their own figure are also likely to have a higher BMI, suppress their feelings more, have greater body dissatisfaction, higher drive for thinness and lower self-esteem. In addition, their friends are more preoccupied with weight and dieting, their friends influence their ideas of weight and shape and they believe that thinness is linked to popularity and are more likely to be teased.

In order to examine if receiving anti-dieting advice from friends serves as a protective factor, correlations were computed between FADS and the dependent variables. In general, the correlations with the dependent variables were found to be nonsignificant. However, FADS was negatively correlated with BMI indicating that individuals with higher BMI were less likely to receive anti-dieting advice and

individuals with lower BMI were more likely to receive it. Although irregular dieting can be detrimental to health, for overweight and obese people, some form of food control is essential to weight loss and health (Brownell & Henderson, 2004). Based on the results obtained for this sample, it is possible that the overweight and obese girls did not receive anti-dieting advice from their peers. FADS was also correlated positively with peer measures on conversations about appearance and perceived friend preoccupations with weight and dieting. Conceptually, all three measures ask individuals if their friends spend time talking about weight and dieting. Thus, the positive correlations indicate that individuals having friends who talk about and are preoccupied with appearance, weight and dieting also tend to receive anti-dieting advice from their friends.

Another variable that was hypothesized to serve as a protective factor was having an overweight/obese friend. It was postulated that individuals with overweight/obese friends would have lower levels of body dissatisfaction, drive for thinness and bulimic symptoms as they are more likely to compare themselves to their friends and they would have positive attitudes towards overweight people. Differences between those with overweight/obese friends and those without were examined and the results indicated that individuals with overweight/obese friends had higher levels of body dissatisfaction. However, they also had a higher mean BMI. It is possible that individuals tend to befriend others whose weight status is closer to their own. The results also indicated that individuals without overweight/obese friends tended to have more conversations about dieting and appearance with their friends. Adolescent girls may be sensitive to having conversations about appearance and/or weight with their overweight/obese friends.

Alternatively, in light of increasing obesity among teens, having these discussions may lead to a lower BMI and greater body satisfaction.

Previous studies have examined peer influences using one or two peer measures. The inclusion of multiple measures in this study is an important step in examining the impact of peers on adolescents more comprehensively. Additionally, a measure was created to examine a potential protective factor (friend anti-dieting advice). To both these ends, factor analyses were done with the various peer influence measures and the new friend anti-dieting advice scale. With regards to the peer measures, the results of the factor analysis confirmed the differences among the peer appearance influence measures. With the four-factor solution, almost all the items from the scales loaded onto distinctive factors indicating that they are measuring discrete peer influences. The moderate correlations among the peer measures support the suggestion that they are similar in their examination of peer effects but are sufficiently unique so as not to be assessing overlapping constructs. Two items needed to be removed, as they did not meet criteria. These were items that tended to have high loadings on more than one factor. With respect to FADS, the factor analyses indicated that a one-factor solution was the best fit for the data. One of the items that was found to have poor consistency with the rest of the measure (using coefficient alphas) was also found to have poor loadings on the factor and was removed. The items that tended to load well asked specific questions about being discouraged to diet by friends or receiving information about the hazards of dieting and the item that had a moderate loading asked about being encouraged to put on weight.

With regards to regression, the initial analyses were done with the individual peer influence variables predicting variance in the mediators. For internalization and

comparison all the peer measures predicted a significant amount of variance. In addition, conversations with friends about appearance and dieting contributed the greatest amount of variance for internalization and comparison. Thus, having friends preoccupied with weight and dieting, discussing appearance with them, assigning importance to them, making attributions about popularity and being teased about one's weight is associated with higher levels of thin-ideal internalization and comparison for adolescent girls. This has important implications for preventive work as internalization and comparison have been linked with greater body dissatisfaction, drive for thinness and bulimic symptoms in previous studies (Shroff & Thompson, 2000). For the variable of peer suppression of feelings, the significant predictors were the attribution-teasing variable and friends as a source of influence. This indicates that individuals who have beliefs about the links between thinness and popularity, may have been teased and rely on their friends' opinions to make decisions about their appearance, tend not to express their feelings to their friends. It is possible that as a result of having beliefs about popularity and thinness, having been teased and giving importance to their friends, those individuals also refrain from openly expressing their feelings to their friends. Overall, these findings also support the need for further path analyses.

In the second set of regressions, the risk and protective factors and mediators predicted variance in the criterion variables. Specifically, for the criterion variable of body dissatisfaction, the composite peer influence, weight discrepancy, internalization and peer suppression of feelings predicted significant variance. Additionally, receiving anti-dieting advice from friends predicted variance, but with a negative beta weight. Thus, friend influences, believing that thinness is ideal, holding back from expressing

feelings to friends and being inaccurate in rating one's own figure impact level of body dissatisfaction. It is possible that girls who don't discuss how they feel with their friends continue to have inaccurate beliefs about thinness and their own appearance, which leads to greater dissatisfaction with their own appearance. Notably, receiving anti-dieting advice from friends may lead to lower body dissatisfaction.

For the variable of drive for thinness, the significant predictors were composite peer influence and internalization. This suggests that peer variables strongly impact an adolescent girls' tendency to restrict and focus on being thin, as does thin-ideal internalization. With regards to bulimic symptoms, significant predictors were composite peer influence and peer suppression of feelings. Research on patients with bulimia has found that they can get ideas about the use of compensatory behaviors from peers and friends. It is possible that discussing weight loss techniques with friends and being aware of friends' preoccupation with appearance can make an adolescent engage in bulimic behaviors. Additionally, there is shame associated with the binge eating that can occur among people with bulimic symptoms. Thus, such individuals may have difficulty with openly expressing their feelings. The variables of composite peer influence and peer suppression of feelings were the significant predictors for self-esteem. Adolescent girls' beliefs about her self and her self-worth are impacted by her peers and the importance she assigns to them. Moreover, the extent to which she thinks she can discuss her feelings with her friends may affect her self-esteem because she may think that her opinions are not important enough or will be devalued. These results indicate that the variable of peer suppression of feelings should be investigated further, especially given the possible clinical implications for individuals with bulimic symptoms or the disorder.

In order to assess if internalization, comparison and peer suppression served as mediators, regression analyses were done with the composite peer influence variable as the independent variable and body dissatisfaction, drive for thinness, bulimic symptoms and self-esteem as the dependent variables. Overall, results supported previous research that has found mediation between peer effects and internalization and comparison (Shroff & Thompson, 2000). With internalization, mediation was significant for the variables of body dissatisfaction and self-esteem, indicating that attitudes and beliefs shared by peers affect adolescent body dissatisfaction and self-esteem to the extent that they internalize societal ideals of thinness and beauty. In the case of comparison, mediation was significant for all the criterion variables, which suggests that the degree of comparison an adolescent engages in, will affect the relationship between her friends' influence on her and her levels of body dissatisfaction, drive for thinness, likelihood of engaging in bulimic behavior and self-esteem. This has important implications for intervention studies that could specifically target appearance comparison among adolescent girls to reduce body image disturbance and disordered eating. Results of the mediational analyses with peer suppression of feelings indicated significant mediation for the variables of bulimic symptoms and self-esteem. Thus, the likelihood of engaging in bulimic behavior and levels of self-esteem is differentially impacted by peer influence variables depending on whether or not the adolescent feels she can openly express her feelings to her peers.

The limitations of this study include the fact that it was a prospective study and only self-report questionnaires were used. Additionally, the samples were not large enough to obtain comprehensive information about friendship groups. However, this

study is unique in the comprehensiveness of peer and mediation measures included and the results point to numerous avenues for future research.

In sum, the study results indicate that adolescent girls are similar to their friends in levels of self-esteem, but similarity in body dissatisfaction, drove for thinness and bulimic symptoms needs further exploration. Additionally, the combination of peer measures (composite peer influence) remained the largest predictor of variance for all the dependent variables suggesting that the impact of peers on adolescent girls' attitudes about weight and appearance and related behaviors cannot be overstated. The risk and protective factors of inaccuracy in judging one's own figure and receiving anti-dieting advice from friends respectively predicted variance for body dissatisfaction. Thus, these variables can be explored for intervention and prevention purposes. Having a friend who is overweight/obese did not serve as a protective factor. Further exploration of the data indicated that individuals chose friends whose BMI was closer to their own. Findings from the mediational analyses of the composite peer influence variable and internalization, comparison and peer suppression of feelings supported the hypotheses that they could serve as mediators.

Findings from this study have important implications for the future. Numerous studies have documented the impact of parents and the media on girls' body dissatisfaction and eating disorder symptoms. Few have examined the effects of peers as extensively. While there are efforts to challenge the impact of the media, the results of this study point to the possibility of another approach in creating interventions for eating disorders. Friend preoccupation with weight and dieting, conversations with friends about appearance, assigning importance to friends' beliefs about weight and appearance,

making attributions about popularity and being teased are all risk factors for higher levels of body dissatisfaction, drive for thinness, bulimia and lower self-esteem. School intervention programs that target some of these variables may be successful in changing levels of body dissatisfaction and drive for thinness to positively impact behavior. Friend anti-dieting advice may serve as a protective factor to reduce levels of body dissatisfaction and impact eating disorders indirectly. Thus, prevention programs can target these by ensuring that adolescent girls not only have the right information about weight and dieting and are realistic in their judgments about their weight and appearance, but also are not overly preoccupied with being thin.

Moreover, the measures used in this study are comprehensive indices of peer influences and can be used in other studies to identify their reliability across ages. Adolescent girls spend a large part of their day with their peers and friends. This study points to the impact their friends have on their ideas, beliefs and feelings. With weight becoming a big health concern all over the US in more ways than one, it is essential that peers and friends are the target of programs that provide the right information about weight.

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Appendices

Appendix A: Parent Consent Letter (English and Spanish)

Dear Parents,

, 2003

We are asking permission to allow your child to participate in a research study that will examine aspects of your child's environment that influence his/her perceptions of his/her body, or body image. Body image is the internal picture individuals have of their appearance. Everyday occurrences such as comments from friends or advertisements on television influence the view that we have of our appearance and ourselves. The idealized standards of beauty and thinness shown in the media lead to discussions among children/adolescents about weight and shape. The present research study was designed to examine the extent to which adolescents discuss body shapes in the media with people in their environment as well as how these possible discussions may influence their body image and eating behavior. The information will help us in developing a model that identifies the factors that affect disturbances in body image and those that prevent dissatisfaction.

As a participant in the study, your child will be asked to complete a questionnaire packet that asks about his/her attitudes towards body image and what they believe their peers think of weight and shape. Your child's responses will be anonymous, and only authorized research personnel, the USF Institutional Review Board and the Department of Health and Human Services may inspect the records from this research project. Only the researcher and her research advisor will have access to the records. The results of this study may be published. However, the children will not be asked to provide their names on the questionnaires and the published data will not contain any information that would personally identify your child.

Questionnaires like these have been used in past research studies, and participants usually do not find them stressful. Your child can discontinue participation at any time during the session. The session will take approximately 1 class period and will be conducted in one of your child's regularly scheduled classes during the week of , 2003. Participation in this study is voluntary. You or your child will not be paid for your child's participation in this study. Your child will not directly benefit from participating in this study. Your decision about participation will on no way affect your child's status at school.

It is important to note that mild concern over one's appearance is normal. However, if your child is bothered or preoccupied by this concern, please contact the School Psychologist or Guidance Counselor at your child's school. For your own reference, please keep this letter. This study has been approved by the District School Board of Pasco County. **If you or your child are not comfortable with the material presented, please send a note to school.** His or her teacher will arrange an alternate assignment for the class period.

Your child's participation is very valuable! Thank you!

For more information about this study, feel free to contact me or my advisor.

Hemal Shroff
Department of Psychology, PCD 4118G
University of South Florida
Tampa, FL 33620-8200

J. Kevin Thompson, Ph.D.
Department of Psychology, PCD 4118G
University of South Florida
Tampa, FL 33620-8200
(813) 974-0367

This research project/study and consent form were reviewed and approved by the University of South Florida Institutional Review Board for the protection of human subjects. If you have any questions about you and your child's rights as participants in a research study, you may contact a member of the Division of Compliance Services of the University of South Florida at (813) 974-5638.

Appendix A Continued

Sincerely,

Hemal Shroff, M.A.
Clinical Psychology Graduate Student

J. Kevin Thompson, Ph.D.
Professor of Psychology

Parent Consent Letter in Spanish

Queridos Padres,

Con la presente les estamos pidiendo permiso para que dejen a su hijo (a) que participe en un estudio que examinará aspectos ambientales que afecta lo que su hijo\ (a) piensa sobre su cuerpo o cómo luce llamado (“auto-imagen del cuerpo”). “Auto Imagen del cuerpo” es la impresión o idea de como creemos es nuestra apariencia física. Muchas cosas puede formar este criterio cómo comentarios de las amistades or comerciales en la televisión. Esto y mucho mas influyen en la percepción que nosotros tenemos de nuestra apariencia física y de nosotros mismos. La sociedad nos presenta unos modelos de un peso y belleza ideal. Esto conduce a los niños/adolescentes a tener discusiones sobre el peso y la figura de sus cuerpos.

Este estudio fue diseñado para examinar hasta que punto los adolescentes discuten con otros, en sus ambientes, sobre la figura del cuerpo que los medios de comunicación presentan a nuestra sociedad. También, este estudio fue diseñado para examinar como estas discusiones afectan la “auto-imagen de su cuerpo” y hábitos de comer. La información obtenida en este estudio será usada para desarrollar una teoría que indentifique los factores que afectan o destruyen la auto imagen personal de estos jovenes o “auto-imagen de su cuerpo”, y factores que pueden prevenir la falta de satisfacción con el cuerpo de uno.

Cómo participante en este estudio, su hijo (a) completará un cuestionario que incluye preguntas sobre lo que el (ella) piensa sobre “la auto-imagen de su cuerpo” y lo que ellos creen que sus amigos piensan sobre el peso y la figura física de un cuerpo. Las respuestas de su hijo (a) serán anónima. Solamente trabajadores de este estudio, el “USF Institutional Review Board,” y el Departamento de Salud y Servicios Humanos (Department of Health and Human Services) podrán inspeccionar los datos de este proyecto académico. Solamente la encargada del estudio y su supervisor tendrán acceso a los datos coleccionados para este estudio. Los resultados de este estudio podrían ser publicados, no obstante, los nombres de los participantes no se les pedirán en los cuestionarios y la data publicada no tendra ninguna información que pueda personalmente identificar su hijo(a).

Cuestionarios como estos se han usado en el pasado con otros estudios y los participantes no encuentran que los cuestionarios le dan mucho trabajo ni preocupación. Su hijo(a) puede parar su participación en cualquier momento durante la sesión. La sesión tomará aproximadamente un periodo de clase y tomará lugar en una de las clases que su hijo(a) toma parte normalmente durante la semana de ----- del 2003. La participación en este estudio es voluntario de su parte. Usted ni su hijo(a) seran pagados por la participación en este estudio. La participación en este estudio no garantiza que su hijo(a) recibirá beneficios directos por participar. Su decisión sobre si

Appendix A Continued

deja o no deja a su hijo(a) participar no afectará nada en el lo que consiste la vida de su hijo(a) en el colegio.

Es bien importante notar que es normal un poco de preocupación con la apariencia personal. Sin embargo, si su hijo(a) se molesta o se preocupa por esto, favor de llamar al psicólogo escolar or el consejero en el colegio de su hijo(a). Mantenga esta carta para cualquiera referencia. Este estudio ha sido aprobado por el Distrito Escolar del Condado de Pasco. **Si Usted o su hijo(a) no se sienten cómodo con el material presentado en esta carta, por favor mandar una nota al colegio.** La maestra de su hijo(a) entonces le dará otro trabajo a su hijo(a) para completar mientras que el resto de la clase completa el cuestionario.

¡Nosotros valoramos la participación de su hijo(a)! ¡Gracias!
Para mas información sobre este estudio pueden ponerse en contacto conmigo o con mi supervisor.

Hemal Shroff
Department of Psychology, PCD 4118G
University of South Florida
Tampa, Fl 33620-8200

J. Kevin Thompson, Ph.D.
Department of Psychology, PCD 4118G
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Este proyecto/estudio y formulario de permiso fueron revisados y aprobados por la “Institutional Review Board” de la Universidad del Sur de la Florida (University of South Florida) para la protección de participantes humanos. Si tienen alguna pregunta sobre los de derechos de participación suya o de su hijo(a) por favor llamen a la “Division of Compliance Services of the University of South Florida” a (813) 974-5638.

Muchas Gracias,

J. Kevin Thompson, Ph.D.
Profesor de Psicología

Hemal Shroff, M.A.
Estudiante del Doctorado en Psicología Clínica

Appendix B: Adolescent Assent Letter

Hello! My name is Hemal Shroff and I am a graduate student at the University of South Florida. The packet you have in front of you contains some questions about you and your feelings about your body. It is important that you answer every item, and that you circle your answers clearly. The first page is an information sheet with questions about you. Please answer the questions about height and weight to the best of your ability. The next page asks you questions related to your group of friends and their attitudes towards weight and shape.

The rest of the packet asks you questions about whether you and your friends discuss weight. One of the questionnaires asks you to judge a visual figure that comes closest to how you look. Please consider your own opinion when filling out the questions and do not discuss your answers with anyone else. It will help me in judging whose opinion you take into consideration when thinking about your body. Some of the questions may seem repetitive, but it is important that you answer every item carefully.

These questionnaires do not ask for your name, so no one will know how you answer the questions. Your participation is voluntary, and you may choose to stop at any time. Once you have finished your packet, please check to make sure that you have answered all the questions. Then wait for instructions from me. Thank you!

Ms. Hemal Shroff has explained her research study to me.

I agree to be in this study.

Signature of Adolescent

Printed Name of Adolescent Date

Signature of Investigator

Printed Name of Investigator Date

Signature of Witness

Printed Name of Witness Date

Appendix D: Peer Appearance Influence Ratings

Perceived Friend Preoccupation with Weight and Dieting Scale

For each question rate how often you think your friends do that (for example, if your friends comment on each other's weight "often", you would circle number 4 for Qs. 1a).

1. How often do your *friends*:

	Never	Rarely	Sometimes	Often
Always				
a) comment on each other's weight	1	2	3	4 5
b) encourage each other to lose weight	1	2	3	4 5
c) talk about weight or dieting	1	2	3	4 5
d) worry about their weight	1	2	3	4 5
e) worry about what they eat	1	2	3	4 5
f) diet	1	2	3	4 5
g) skip meals	1	2	3	4 5

2. Do you think that your *friends* take a lot of notice of each other's weight and shape?

1	2	3	4	5
definitely not	probably not	not sure	a little, yes	a lot, yes

3. Are weight and shape important to your *friends*?

1	2	3	4	5
definitely not	probably not	not sure	a little, yes	a lot, yes

Appearance Conversations with Friends

Write a number in the blank to indicate how often you experience the following things.

1	2	3	4	5
Never	Almost Never	Sometimes	Often	Very Often

_____ 1. My friends and I talk about what we can do to look our best.

_____ 2. My friends and I talk about how our bodies look in our clothes.

_____ 3. My friends and I talk about what we would like our bodies to look like.

Appendix D Continued

_____ 4. My friends and I talk about how to look attractive.

_____ 5. My friends and I talk about our “looks.”

Friends as a Source of Influence

Mark how important your friends are in influencing each of the following for you (put a check mark for the words that come closest to how you feel).

	Not at all Important		Moderately Important		Very Important
a) Your idea of the perfect body	()	()	()	()	()
b) The diet products you use	()	()	()	()	()
c) Exercises to ‘tone up’	()	()	()	()	()
d) Your ideas on how to get a good body	()	()	()	()	()
e) Diets to lose weight	()	()	()	()	()

Perception of Teasing for Friends

For each question rate how often you think you have been teased. Note that this scale uses different words and ranges from 1 to 5.

1. Your friends made comments or teased you about your appearance.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

2. Your friends made comments or teased you about being heavy.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

Appendix D Continued

Friend Anti-Dieting advice Scale

1. How often do your friends discourage you from going on a diet?

1	2	3	4	5
Never	Not much	Sometimes	Often	Very Often

2. How often do your friends talk about reasons why dieting can be dangerous?

1	2	3	4	5
Never	Not much	Sometimes	Often	Very Often

3. How often do your friends encourage you to put on weight?

1	2	3	4	5
Never	Not much	Sometimes	Often	Very Often

4. How often do your friends tell you not to diet because it's unhealthy?

1	2	3	4	5
Never	Not much	Sometimes	Often	Very Often

5. How often do your friends give you ideas on how to lose weight by eating certain foods or cutting down what you eat?

1	2	3	4	5
Never	Not much	Sometimes	Often	Very Often

Appendix D Continued

Peer Attribution Scale

Please circle the number that is true for you. Note that this scale uses different words and goes from 1 to 6.

1. My friends would like me more if I lost weight.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
false	mostly false	more false than true	more true than false	mostly true	true

2. I would be more popular if I lost weight.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
false	mostly false	more false than true	more true than false	mostly true	true

3. My friends would like me more if I was better looking.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
false	mostly false	more false than true	more true than false	mostly true	true

4. If I was better looking I would be more popular.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
false	mostly false	more false than true	more true than false	mostly true	true

Peer Suppression of Feelings

These sentences ask about how you feel about different things. Please tell us how much you agree or disagree with the following statements. **Circle the answer that best describes the way you feel. The term ‘friends’ here refers to girls you are close to and spend time with.**

1. I don't tell my friends how I feel about some things when I know it will cause a conflict between us.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

Appendix D continued

2. Sometimes I feel like a different person when I am with my friends.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

3. I tend to judge myself by how I think my friends see me.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

4. I feel I have to act in a certain way to please my friends.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

5. I avoid getting into arguments with my friends.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

6. I tell my friends how I feel even though it might lead to a conflict between us.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

7. When my friends' opinions conflict with mine, I think it is better to agree with my friends than to lose the friendship.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

8. My friends don't really know the 'true' me.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

Appendix D continued

9. When my friends think one way about something and I think another way, I can always tell my friends what I am thinking.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

10. My friends appreciate me for who I am.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

11. When I make decisions, my friends' thoughts and opinions influence me more than my own thoughts and opinions.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

12. I feel that my friends don't really know who I am.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

13. When my friends do something that really makes me angry I let them know how angry I am.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

14. I often feel responsible for my friends' feelings.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

15. I find it hard to know what I think and feel because I spend a lot of time thinking about how my friends are feeling.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

Appendix D continued

16. I try to hide my feelings when I think they will cause trouble between me and my friends.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

17. Sometimes I don't really act like my true self when I am with my friends.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

18. I only tell my friends how I am feeling about something if I know they are feeling the same way too.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

Appendix E: Physical Appearance Comparison Scale

Please read each statement and circle the number that is true for you.

1. At parties or other social events, I compare my physical appearance to the physical appearance of others.

1	2	3	4	5
Never	Seldom	Sometimes	Often	Always

2. The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others.

1	2	3	4	5
Never	Seldom	Sometimes	Often	Always

3. At parties or other social events, I compare how I am dressed to how other people are dressed.

1	2	3	4	5
Never	Seldom	Sometimes	Often	Always

4. Comparing your "looks" to the "looks" of others is a bad way to determine if you are attractive or unattractive.

1	2	3	4	5
Never	Seldom	Sometimes	Often	Always

5. In social situations, I sometimes compare my figure to the figures of other people.

1	2	3	4	5
Never	Seldom	Sometimes	Often	Always

Appendix E: Media Internalization Scale

Please circle the number that is true for you for each of the sentences below. For example, if looking at magazines ‘definitely’ makes you want to lose or gain weight, you would circle the number ‘5’ for that sentence.

1. I would like my body to look like the bodies of people in the movies.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

2. Looking at magazines makes me want to change the way I look.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

3. Reading magazines makes me want to lose or gain weight.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

4. Reading magazines makes me want to change my appearance.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

5. I would like my appearance to be like the appearance of people in movies.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree

Appendix G: Eating Disorder Inventory Scales

Eating Disorder Inventory – Body Dissatisfaction Scale

Please read each statement and circle the number that is true for you. Note that this scale uses different words and goes from 1 to 6.

1. I think that my stomach is too big.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

2. I think that my thighs are too large.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

3. I think that my stomach is just the right size.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

4. I feel satisfied with the shape of my body.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

5. I like the shape of my buttocks.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

6. I think my hips are too big.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

7. I think that my thighs are just the right size.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

Appendix G Continued

8. I think my buttocks are too large.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

9. I think that my hips are just the right size.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

Eating Disorder Inventory – Drive for Thinness

1. I eat sweets and carbohydrates without feeling nervous.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

2. I think about dieting.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

3. I feel extremely guilty after overeating.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

4. I am terrified of gaining weight.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

5. I exaggerate or magnify the importance of weight.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

Appendix G Continued

6. I am preoccupied with the desire to be thin.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

7. If I gain a pound, I worry that I will keep gaining.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

Eating Disorder Inventory – Bulimia

1. I eat when I am upset.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

2. I stuff myself with food.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

3. I have gone on eating binges where I have felt that I could not stop.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

4. I think about bingeing (overeating).

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

5. I eat moderately in front of others and stuff myself when they're gone.

1	2	3	4	5	6
always	usually	often	sometimes	rarely	never

Appendix G Continued

6. I have thought of trying to vomit in order to lose weight.

_____ 1 2 3 4 5 6
 always usually often sometimes rarely never

7. I eat or drink in secrecy.

_____ 1 2 3 4 5 6
 always usually often sometimes rarely never

Appendix H: Rosenberg Self-Esteem Scale

Please read these statements and circle the number that comes closest to how you feel.

Note that this uses a different scale from the one above.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I feel that I'm a person of worth, at least on an equal basis with others.	1	2	3	4
2. I feel that I have a number of good qualities.	1	2	3	4
3. All in all, I am inclined to feel that I am a failure.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I take a positive attitude toward myself.	1	2	3	4
7. On the whole, I am satisfied with myself.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. I certainly feel useless at times.	1	2	3	4
10. At times I think I am no good at all.	1	2	3	4

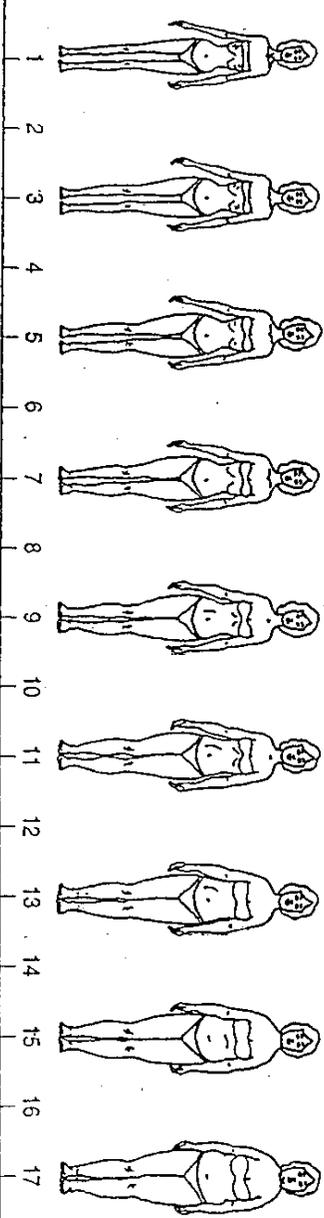
Appendix I: Example of roster for nomination of friends (fictional names)

Code No.	Last name, First name
1001	Austin, Patricia
1002	Ball, Mary
1003	Brown, Amanda
1004	Davis, Lynn
1005	Friedman, Vanessa
1006	Gonzalez, Nicole
1007	Hughes, Stephanie
1008	Jones, Megan
1009	Martin, Amy
1010	Ray, Samantha
1011	Smith, Jane
1012	Thomas, Jennifer
1013	Wall, Angela
1014	Williams, Patricia

Appendix J: Contour Drawing Rating Scale

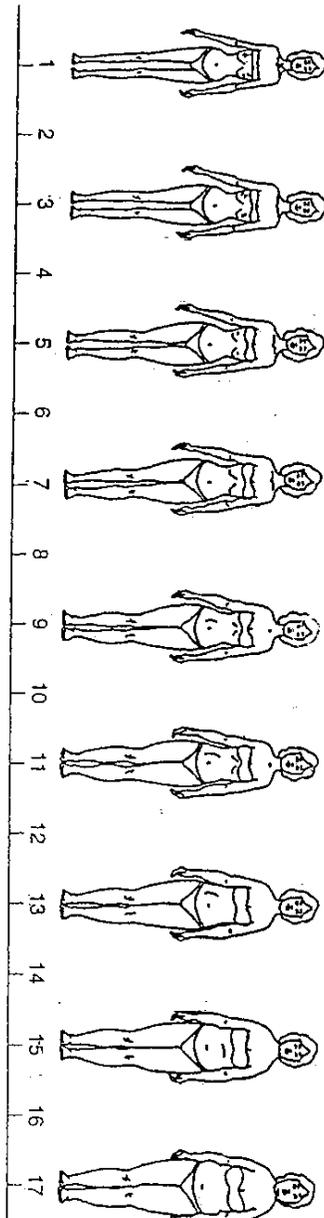
Please circle the number on the line closest to your present size. That is, the size you are at the moment.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17



Please circle the number on the line closest to the size you would like to be

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17



PLEASE NOTE:
The numbers on the line DO NOT refer to dress sizes. They are just numbers we have assigned to each figure.
The numbers which DO NOT have a drawing on top represent "in between" sized figures.

Appendix K: Identification of friendship groups

For the next three items please look at the figure drawings attached on the next page. Thank you.

- 1) Please circle the number under the figure that comes closest to how YOU think you look currently. The numbers on the line do not refer to dress sizes. The numbers that do not have a drawing on top represent “in-between” sized figures.
- 2) At the end of this packet is a list of names of the girls in your class. In the following lines, please identify the numbers for your good friends, that is, the girls you hang out with the most and are closest to (e.g. if Marianne is a good friend of yours and the number next to her name is 1035, you would put 1035 under ‘Numbers for Friends’). You can choose from 1 to 5 names, but only list friends you are close to. If you *do not spend a lot of time with girls in your class*, please circle the N/A above the lines.

N/A

Numbers for Friends	Number for figure
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

- 3) Next to the numbers for your friends, put a number from the figures (the same one that you used for yourself) that comes closest to how each of them looks (e.g. if you have put the number 035 for Marianna and you think she looks like the number 9 figure, you would put ‘9’ next to her number in the ‘Number for figure’ column).
- 4) Do you have three or more close friends who are not in your class (e.g. friends from your neighborhood, athletic teams or other social groups)? (Circle Yes or No)

Yes

No

Appendix L: Debriefing Summary

The purpose of the packet you just completed is to help understand how the people around you, your friends in your class and other people your age affect the way you feel about your body. Research with adults has found that how their friends and families felt about their bodies when they were younger affected the way they felt about themselves. Also, the movies and television shows that adults watch and the magazines they read affects how they feel about themselves. Many adults believe that their bodies should look like those of the actors and models that they see on TV and in movies and magazines and sometimes, friends can make these beliefs more strong. This is a problem because most people will never be able to achieve the “ideal body” that the media presents. Only about 5% of men and women can be as thin as most of the people we see in the media. In addition, many of the images we see in the media are not true pictures of what these people look like in real life. Photographers often “touch up” pictures to make women look thinner or men more muscular or cover up any marks or scars on models’ skin.

So the majority of images that we see in the media represent an ideal body image that cannot be achieved by most people. Research with adults tells us that many people are unhappy because they do not look like the people they see in the media. This unhappiness with their appearance and body is made worse by comments they hear from friends and other people around them. The purpose of this study is to find out if the same thing happens with adolescents. Researchers can use this information to help teenagers feel better about their bodies and themselves.

About the Author

Hemal M. Shroff began her doctoral work at the University of South Florida in 1999. Prior to that, she had completed her Bachelor's degree in Psychology at St. Xavier's College, Bombay, India and her Master's degree in clinical psychology at the University of Bombay, India. Hemal completed her one-year predoctoral internship as a child clinical intern at Long Island Jewish Medical Center in New York. During her years as a graduate student, Hemal has served in various leadership roles, including being a class representative, a clinic assistant director and the child clinical track representative. Hemal was the recipient of the Stephanie Gilbert Endowed Scholarship in Psychology award in 2003 for her research on women's issues. She has co-authored two publications and has presented at several national conferences in psychology.