

2017

The Role of Body Image, Dieting, Self-Esteem and Binge Eating in Health Behaviors

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The role of Body Image, Dieting, Self-esteem and Binge Eating
in Health Behaviors

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BY

Neha M Tamhane

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

MA Clinical Psychology

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

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The Role of Body Image, Dieting, Self-esteem and Binge Eating in Health Behaviors

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Abstract

Society's obsession with an idealized thin body type has led to many individuals to seek several different, often harmful, methods to reach their body goals. Current research shows links between body image and self-esteem as well as that between dieting and binge eating-with many researchers finding that extreme dieting can lead to binge eating. The aim of this research was to assess the relationships between body image, dieting, binge eating and self-esteem to understand the ways these factors interact with each other. For this purpose, 60 female participants aged 18-26 years were recruited from Eastern Illinois University and asked to fill out four surveys measuring body image, dieting, binge eating and self-esteem. Results of the surveys suggest that under the certain circumstances, the relationship between body image and dieting was mediated by self-esteem. Furthermore, the relationship between dieting and self-esteem was mediated by binge eating.

Keywords: Body Image, Self-esteem, Dieting, Binge Eating

Acknowledgements

I would like to thank my thesis chair, Dr. Stowell of the Psychology department at Eastern Illinois University. Dr. Stowell has been very patient in guiding me and always being available to answer questions and clarify doubts. He has consistently allowed this thesis to be my own work but provided me with support and guidance in a manner that suited my needs the best.

I would also like to thank Dr. Allan and Dr. Bernas for being on my thesis committee and giving me helpful and critical feedback that ensured the quality of my research.

I would also like to thank the library staff for always helping me with finding articles and teaching me to optimize my searches.

Finally, I would like to thank my family and friends for their love and support throughout this process.

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1.1 Mean and Standard Deviation of Measures

Appendix 4

The Role of Body Image, Dieting, Self-esteem and Binge Eating in Health Behaviors

Physical appearance plays a major role in an individual's self-perception of their body and in the perceptions formed by others. Society's obsession of a narrow definition of an ideal body type leads to many to be dissatisfied with their appearance and develop low self-esteem. To assuage the feelings that the belief that only one type of body type is 'healthy' creates, people turn to extreme and often harmful measures to fit into the definition of an 'ideal' body type. Dieting in the form of restriction of eating habits has evolved into many types of 'fad' diets with each one attempting to make the follower healthy by eliminating foods that are considered the culprit of an unhealthy lifestyle. This research evaluates the role of body image on self-esteem and dieting and attempts to explain the importance of a positive body image in the quest for a healthy lifestyle. The research also attempts to understand if dieting truly does help an individual to develop a healthy body and mind.

Review of Literature

Body Image

Many researchers have theorized what may or may not be considered a 'positive' body image. The quest for this construct that has led to many different definitions that have evolved over time into a multidimensional construct (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). Much of the research interprets positive body image as the absence of components of a negative body image and centers around assuaging the symptoms of a negative body image (Tylka & Wood-Barcalow, 2015; Wood-Barcalow et al., 2010). When conceptualizing a positive body image, Wood-Barcalow (2010) described it as:

An overarching love and respect for the body that allows individuals to (a) appreciate the unique beauty of their body and the functions that it performs for them; (b) accept and even admire their body, including those aspects that are inconsistent with idealized images; (c) feel beautiful, comfortable, confident, and happy with their body, which is often reflected as an outer radiance, or a “glow;” (d) emphasize their body’s assets rather than dwell on their imperfections; and (f) interpret incoming information in a body-protective manner whereby most positive information is internalized and most negative information is rejected or reframed (p. 112).

Thompson et al. (1999), on the other hand, proposed a definition of a negative body image that entails “a persistent report of dissatisfaction, concern, and distress that is related to an aspect of appearance. ... [and] some degree of impairment in social relations, social activities, or occupational functioning...” (p. 11).

In a study that interviewed students and experts about body image, researchers found several characteristics that make up a positive body image. These included appreciation, unconditional acceptance from others, body acceptance and love, spirituality, finding others who are accepting of themselves, taking care of the body through health behaviors, the filtering of information in a body-protective manner, inner positivity that affects outer demeanor, and a broad conceptualization of beauty (Wood-Barcalow et al., 2010). Conversely, a negative body image can predict and contribute to eating disorders and their maintenance as well as other psychological issues such as depression, social anxiety, sexual difficulties, and low self-esteem (Cash & Lavalley, 1997).

The focus of these beliefs is centered on the desire for a perfect body, which is rooted in many social assumptions; the first being that physical attractiveness has social and psychological benefits. Second, that the physical body can be shaped and molded if enough effort is employed by the individual who desires it, and third, that an excess of weight is a personal failing. People believe that the human body is infinitely malleable and the failure to do so is a failure in life (Brownell & Rodin, 1994; Brownell 1991, 1992; Rodin, 1992).

The western media focuses on thinness as an ideal for female bodies. This ideal may be unachievable for the average woman. Women tend to internalize the messages they receive about the idealized 'thin' body type. ... as cited in Ura & Preston, 2015). To achieve this ideal of thinness, women engage in various strategies including extreme exercising, cosmetic surgeries, use of 'fat reducing' equipment and dieting. This research focuses on thin- ideal internalization as a indication of body-image.

Dieting

The dieting industry generates billions of dollars and a lot of research to evaluate its effectiveness. Dieting may be defined in many different ways and takes many factors into consideration. Brownell and Rodin stated that dieting behaviors are a result of cultural norms and the idealization of the thin body type (1994). In some individuals, dieting is described as efforts toward weight reduction generally considered to be healthy. This could be manifested in ways such as omitting meals, abolishing food groups and starving (Ackard, Croll, & Kearney-Cooke, 2002; Brownell & Rodin, 1994). These actions are usually geared towards the restriction of caloric intake. Brownell & Rodin (1994) recognize the difficulty in defining dieting. According to them, dieting involves

the decrease in intake of calories for the purpose of losing weight. Several studies show dieting behaviors are strongly associated with body mass index (BMI) (Story, French, Resnick, & Blum, 1995).

Binge Eating

The Diagnostic and Statistical Manual (DSM) 5 (American Psychiatric Association, 2013) describes binge eating as consumption of an amount of food that is definitely greater in quantity than what most individuals would eat in the same time frame accompanied by a sense of lack of control during the bingeing episode. However, there is a distinction between the consumption of excessive amounts of food being attributed to overeating and the sense of loss of control being seen as a feature of binge eating (American Psychiatric Association, 2013). Episodes of binge eating can develop into an eating disorder that is persistent and fairly difficult to treat.

Bingeing has been known to lead to weight gain, which then leads to associated psychological problems such as poor body image, lack of self-esteem, anxiety, depression and other eating disorders. Episodes of binge eating are followed by feeling of guilt and shame which lead to attempts at food restriction which in turn trigger more episodes of binge eating. Goldschmidt et al., found that approximately 5-10% of adolescents in the general population report overeating and binge eating, making these as the most prevalent disordered eating behaviors within this age group (as cited in Goldschmidt, Wall, Zhang, Loth, & Neumark-sztainer, 2016). In a study of 231 girls from two private Northern California High Schools, researchers found that increased dieting, body mass, body dissatisfaction, appearance overevaluation, perceived pressure to be thin, modeling of eating disturbances, and depressive symptoms predicted increased risk for bingeing. This

indicates that bingeing may be rooted in the need to conform to the thin ideal (Stice, Presnell, & Spangler, 2002). Appearance overevaluation, non-thin body type and dieting carried the highest risk of onset of binge eating. Similarly, depression and low self-esteem also were found to lead to higher risk of binge eating (Stice et al., 2002).

Self-esteem

Lack of self-esteem is an issue that many individuals face in different points in their life. Adolescents particularly struggle with low self-esteem; especially as they adjust to the changes they experience with their lifestyles, careers, academics and bodies. Internalization of the media's thin-idealization can add to self-esteem woes that one faces (Ura & Preston, 2015). Low self-esteem is a factor seen in many individuals who suffer from anxiety, depression, and body image issues. High self-esteem is said to lead to happiness and mitigate the effects of stress (Rosenberg, 1965).

In summary, there are many factors that are related to body image. However, the goal of this research is to understand the relationship between the concepts discussed above and how they affect each other. Previous research has shown some significant results which are discussed in the sections below.

Body Image and Self-esteem

Research has shown that thin-ideal internalization and poor body image are risk factors for eating disorders (Ura & Preston, 2015). Body dissatisfaction can lead to a decrease in self-esteem which in turn can cause people to develop unhealthy coping skills such as unhealthy weight loss strategies and eating disorders (Ackard et al., 2002; Cameron, 1999; Stice et al., 2002; Ura & Preston, 2015). From a sample of 595 female introductory psychology students in a university in Southern California, researchers found that the link between thin-ideal internalization and self-esteem is partially mediated

by body image. The authors also acknowledged that although self-assessment can depend on various factors including things like academic achievement, social influence, and physical appearances; women tend to base their self-worth on how they evaluate their bodies. In short, the authors concluded that women's self-appraisal depends on how much of cultural expectations of beauty they internalize from media messages (Ura & Preston, 2015).

Higher levels of body dissatisfaction was found to be associated with low levels of self-esteem (Johnson & Wardle, 2005). Results of a study of 51 participants in a body image therapy program which used Cognitive-Behavior Therapy to challenge the individuals' negative beliefs about their body image, overvaluation of appearance, and modification of intrusive thoughts of body dissatisfaction showed a significant increase in levels of self-esteem in post-treatment follow up (Rosen, Orosan, & Reiter, 1995).

Thin idealization-internalization, as previously described, is an acceptance of cultural values of thinness to the extent that they become a part of one's own set of principles. According to Ura & Preston (2015), thin-idealization leads to body dissatisfaction, low self-esteem, and eating disorders. In a study aimed to determine the relationship between thin-ideal internalization, body image, psychological functioning and appearance avoidance, researchers found that body image mediates the relationship between thin-ideal internalization and self-esteem. The authors theorized that given society's need to stress on the shape of women's bodies, self-worth can come to depend on how one feels about their body (Ura & Preston, 2015).

In a study about the role of self-esteem and negative affect as moderators of socio-cultural influences on body dissatisfaction and weight loss behaviors, researchers

found that low self-esteem predicted the effect that higher levels of sociocultural pressures would have on adolescent boys. The authors also found that girls with lower levels of self-esteem experienced higher levels of body dissatisfaction and would be more likely to engage in weight loss behaviors, consistent with previous studies (Ricciardelli & McCabe, 2001).

In another study, researchers found that body dissatisfaction is a risk factor for depression and low self-esteem; an effect that is sustained over a period of 5 years. Here, the authors hypothesized that perceived failure to live up to societal standards of an ideal body lead to lowering of self-esteem. The ideal body characteristics such as body weight, muscularity, and leanness are perceived to be under the individual's control. As such, these beliefs tend to have a long-term effect on depressive symptoms and self-esteem (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006).

Body image, depression and self-esteem have a spiral relationship with self-esteem being a risk factor for body dissatisfaction in girls in adolescence and depressive mood being a risk factor for dissatisfaction in boys in mid-to-late-adolescence (Paxton, Eisenberg, & Neumark-Sztainer, in press-as cited in Paxton et al., 2006). Girls tend to develop dissatisfaction towards their bodies at the start of adolescence when their bodies move away from what is considered ideal. As they grow older, body-dissatisfaction becomes a lesser predictor of self-esteem while factors like failed attempts at dieting increase the chances of low self-esteem (Paxton et al., 2006). Although BMI has not shown to be a factor in body dissatisfaction and self-esteem in many studies, this study found significant relations between BMI, depressive moods and self-esteem. However, the authors theorized that this effect was mediated by factors such as failed attempts at

dieting, negative self-evaluations, weight teasing, and social discrimination often faced by larger girls (Paxton et al., 2006).

Self-esteem and Dieting

Although some believe that low self-esteem arising from poor body image can cause people to start dieting, others show that failed diets can instigate individuals to have low self-esteem, which then leads to bingeing making self-esteem the link between dieting and bingeing. Low self-esteem, in the presence of weight-related stressors, is posited to increase instances of binge eating and disordered eating behaviors (Kathleen, Zachary, Jeremy, & Anna, 2001). Dieting is known to cause increase in body dissatisfaction and lower body image and plays a role in the effect of media perception and body image.

Body Image and Dieting

Body dissatisfaction has been linked to many psychological consequences. It is known to contribute to low self-esteem, depression, and anxiety. Of particular interest is its role in the development of eating disorders. Disorders like anorexia, bulimia, and binge eating are linked to body dissatisfaction. Dieting is sometimes looked upon to play a mediating role between body dissatisfaction and self-esteem, where body dissatisfaction leads to dieting, which then leads to low self-esteem (Paxton et al., 2006). Preoccupation with body and weight has been known to lead to disturbed attitudes and disordered eating (Moses, N., Banivily M., 1989).

Weight control is now in the forefront of the public eye due to the increase in levels of body dissatisfaction and extreme dieting in women. The multifaceted depiction of dieting in the media has caused much confusion about its harmfulness and helpfulness

(Johnson & Wardle, 2005). In a one-year prospective study of 1,177 girls between the ages of 13 and 15, researchers found that higher levels of body dissatisfaction and restraint both were associated with higher prevalence of emotional eating, abnormal attitudes to eating and weight, depression, symptoms of bulimia, lowered self-esteem and stress, both cross-sectionally and longitudinally (Johnson & Wardle, 2005). Multiple regressions showed that both dieting and body dissatisfaction have significant effects on eating pathology outcomes. Dietary restraint and body dissatisfaction were highly correlated indicating that either could be responsible for the links (Johnson & Wardle, 2005). An interesting finding in this study, however, was the mediating effect body weight dissatisfaction had on dietary restraint, depression and low self-esteem (Johnson & Wardle, 2005). Self-esteem may also function as a moderator. For example, a study of 1185 adolescents (587 boys and 598 girls) aged between 12 and 15 showed that that self-esteem was found to moderate the relationship between body dissatisfaction and weight loss strategies, where girls with lower self-esteem would be more inclined to having higher levels of body dissatisfaction and engaging in weight loss behaviors (Ricciardelli & McCabe, 2001).

Dieting and Bingeing

The issue of dieting to lose weight does bring up some concerns. Particularly, many of the individuals that diet are in the normal weight range for their height (Ackard et al, 2015), suggesting that it's not simply their body weight that triggers dieting. Moses, Mansour-Max Banilivy and Lifshitz (1989) found that the fear of obesity and thin idealization were the factors that were present regardless of body weight. They also found

that bingeing and purging are becoming inappropriate methods of losing weight among adolescent populations.

Results of a study conducted on a subsample of 560 university students indicated that in college-aged students, regardless of BMI, greater frequency of dieting behaviors lead to greater severity of eating disorder behaviors and higher levels of emotional distress. They also found that frequency of dieting was positively related to quantity and acuteness of eating disorder symptoms (Ackard et al., 2002).

Herman and Polivy cited their own study from 1980 in which they found that individuals who have bulimic anorexia tend to score higher on the Restrained Eating scale than do individuals who have non-bulimic anorexia. Beumont, George and Smart in 1976 found that individuals have been found to have episodes of bingeing and restricted food intake between bingeing episodes (as cited in Polivy & Herman, 1985). Normal weight individuals who engage in bingeing tend to also diet frequently (Boskind-Lodahl, 1976; Boskind-Lodahl & Sirlin, 1977; Pyle, Mitchell, & Eckert, 1981 as cited in Polivy & Herman, 1985). Polivy and Herman (1985), stated that there is sufficient evidence indicating that dieting and bingeing tend to co-occur. They concluded that “bingers... tend to be dieters” (Polivy & Herman, 1995, p. 194). Beumont et al. found that individuals with anorexia tend to practice severe restrictive practices when they are not actively bingeing (1976).

In a 2-year prospective investigation, Stice, Presnell, and Spangler (2002) had 231 adolescent girls between the ages of 13-17 years fill out a seven-page survey at baseline, 10 months from baseline and 20 months from baseline. The survey consisted of questions about thoughts and behaviors over the past 6 months, except the depressive symptoms,

anxiety, anger, and eating pathology measures, which inquired about the past month. Results from the study indicated a relationship between binge eating and the risk of obesity onset. Other influences that may be risk factors for bingeing include body dissatisfaction, body mass, overvaluing of appearance, thin ideal internalization and the exhibiting of eating disturbances as they can increase the prospects of dieting.

Ironically, dieting can lead to increased eating. In a study of 231 girls from a North California high school, dieting had the effect of increasing the probability of an individual overeating to offset the effects of caloric deprivation. According to the authors, dieters may also show a lack of control over their eating when their cognitive controls have been disturbed (Stice et al., 2002).

In an article on dieting, weight, and body image in young women, the author noted that overeating can occur during dieting as individuals respond to their bodies' signals for food. She also theorized that greater food restriction may increase the drive to eat more. These episodes then lead to a positive energy balance, giving the body extra energy to store for future episodes of deprivation (Abraham, 2003). In a meta-analysis, Freidman and Brownell (1995) found that obesity led to a myriad of psychological consequences including binge eating.

Binge Eating and Self esteem

Binge eating is known to lead to a myriad of psychological disturbances and also be caused by them. Binge eating and self-esteem have many common relationships among them including body dissatisfaction, depression, and anxiety. However, not many studies have looked at the direct relation between the two.

A study comparing currently overweight women, formerly overweight women and women who have never been overweight, found that women who were currently overweight had significantly lower self-esteem when compared to women who were formerly overweight and those who were never overweight. They also found more instances of binge eating among women who were currently overweight as compared to non-obese women (Annis, Cash, & Hrabosky, 2004).

Dieting and Self esteem

The outcomes of research that sought to understand the relationship between dieting and self-esteem are mixed, with many indicating that the relationship between the two is more complicated than a direct relationship. Here, again, body dissatisfaction is seen to be a common factor, yet direct research aimed at finding the direct relationship between the two is inconclusive.

In a study involving 345 female participants, researchers found that dieting and its frequency were inversely related to self-esteem among other psychological factors (Ackard et al., 2002). Barker and Bronstein (2010), found that low self-esteem was related to lower levels of body dissatisfaction, yet there was no relation to be found between dieting and self-esteem.

Not many researches have evaluated the direct relationship between dieting and self-esteem, requiring more research to be conducted in the field.

As noted above, body image, dieting, binge eating and self-esteem are related to each other in many ways. However, exploration into this field is still in the early stages; and concepts, their meanings and ways of measuring them are ever-changing. As research continues, one hopes that this picture becomes clearer and gives rise to a new

generation of health interventions that take on a more holistic approach towards mind and body well-being.

Hypotheses

As seen in the research by Ricciardelli & McCabe (2001) self-esteem moderates the relationship between body dissatisfaction and weight loss behaviors. This finding, along with other studies, has shown dieting to have negative consequences such as eating disorders, low self-esteem and depression. The current research proposes a model that has not yet been tested. In this model, body dissatisfaction leads to low self-esteem, which then leads to dieting behaviors. The hypotheses are:

1. The relationship between body image and dieting is mediated by self-esteem.

This hypothesis proposes that low body image leads to higher levels of dieting.

This relationship is mediated by low self-esteem.

2. Bingeing mediates the relationship between dieting and self-esteem.

This hypothesis proposes that higher rates of dieting lead to low self-esteem. This relationship is mediated by high levels of binge eating.

Method

Participants

Participants were 60 female students from the Introduction to Psychology research participation pool at Eastern Illinois University. The age of the participants ranged mainly from 18-23 years of age with only one participant being 26 years old. The ethnicities represented were students who identified as white/Caucasian (50%), African

American/ Black (36.67%), Latino/ Hispanic (8.33%), Biracial (3.33%) and Asian (1.67%).

Materials

Body Image. The Sociocultural Attitudes Towards Appearance Questionnaire 3 Revised edition (SATAQ-3R) (Thompson, Van Den Berg, Roehrig, Guarda, & Heinberg, 2004) is a 38 item questionnaire with scales measuring social pressure, importance, social comparison and internalization (TV/Magazine, athletics, and comparison). The internal consistency shows a Cronbach's alpha of 0.95 for the overall scale (Thompson, J.K., Van den Berg, P.A., Keery, H., Williams, R., Shroff, H.M., Haselhuhn, G.I., Boroughs, 2000). The items are on a Likert scale from 1 (*definitely disagree*) to 5 (*definitely agree*). The items in the scale include statements such as "TV programs are an important source of information about fashion and 'being attractive'" and "Attractive people are happier." This scale has 6 subscales named: Importance (perception that media is an important source of information), Pressures (Pressure from media to look a certain way), Internalization-TV/Magazines (Internalization regarding ideal appearance as portrayed by TV/Magazines), Internalization-Athlete (Internalization regarding ideal appearance as portrayed by Athletes), Internalization-Comparison (Internalization regarding ideal appearance when comparing oneself to those portrayed in media), and Awareness (internalizing attitudes about appearance as dictated by society). These subscales are measured separately and scores are obtained on each scale. There is no global score for this scale. Higher scores indicate greater thin-ideal internalization. Subscales scores were calculated by averaging the item scores.

Examples:

1. Music videos on TV are an important source of information about fashion and “being attractive”.
2. I’ve felt pressure from TV or magazines to be thin.
3. Attractive people are happier.

Self-Esteem. Rosenberg’s Self-esteem Scale (Rosenberg, 1965) is a 10-item scale that measures global self-worth and measures both positive and negative feelings about the self. The items in the scale are answered using a 4-point Likert scale ranging from strongly agree to strongly disagree. Items include statements such as “On the whole, I am satisfied with myself” and “I certainly feel useless at times.” Overall scores are calculated by averaging the scores for all the items. Higher scores indicate higher self-esteem. The cut off scores (when averaged) are 0-1.5 Low Self Esteem, 1.5-2.5 Normal Self-Esteem, and 2.5-3.0 High Self-Esteem. Internal consistency was found to be 0.85- 0.88 (Rosenberg, 1965).

Examples:

1. On the whole, I am satisfied with myself.
2. I feel I do not have much to be proud of.
3. I wish I could have more respect for myself.

Binge Eating. The Binge Eating Scale (Gormally, 1982) is a 16-item questionnaire assessing the presence of certain bingeing behaviors which may be indicative of an eating disorder. The items are presented in groups of 3 or 4 statements and participants are expected to select the one they identify most within each group. In this scale, participants are presented with groups of statements and are required to select a statement from each group which best describes their feelings regarding their eating behaviors. Overall scores

are calculated by averaging the scores for all the items. Higher scores indicate presence of binge eating behavior. The cut-off for this scale, when averaged, are: Non-binging = less than 1.06, Moderate binging = 1.13-1.63; Severe binging = 1.68 and greater. The internal consistency of the scale was found to be 0.85 (Grupski, Hood, Hall, Azarbad, Corsica, 2016).

Examples:

- a. I don't feel any guilt or self-hate after I overeat.
- b. After I overeat, occasionally I feel guilt or self-hate.
- c. Almost all the time I experience strong guilt or self-hate after I overeat.

Dieting. The Eating Attitude Test (Garner, 2004) is a 26-item test with a Likert-scale (with five possible responses ranging from Always to Never) that measures eating attitudes on three subscales. These subscales are Dieting, Bulimia and Food Preoccupation, and Oral Control. In addition to the Likert-scale items, 4 behavior questions are included to detect extreme weight-control measures. This scale includes some items such as "Cut my food into small pieces" and "Am terrified of being overweight." For this study, the participants were presented with the 26 Likert-scale items but only the dieting scale was scored. The score was obtained by averaging the scores of the items in the scale. One item was reversed scored. Higher scores indicate higher occurrence of dieting. The internal consistency for total score was 0.86 and for the subscales was found to be 0.56 to 0.80 (Gleaves, Pearson, Ambwani, Morey (2014).

Examples:

1. Am terrified about being overweight.
2. Am preoccupied with the thought of having fat on my body.

3. Engage in dieting behavior.

Procedure

Participants were recruited on a voluntary basis. They were required to fill out the measures online. The participants were presented with the consent form after which they were required to fill out the demographic information. They were then presented with the scales at random. Finally, participants were taken to a different survey which requested identifying information for the purpose of giving the participants the incentive course credit. It was ensured that this information could not be connected to the responses of the participants in any way.

Results

Hypothesis 1: Mediation of body image and dieting by self-esteem

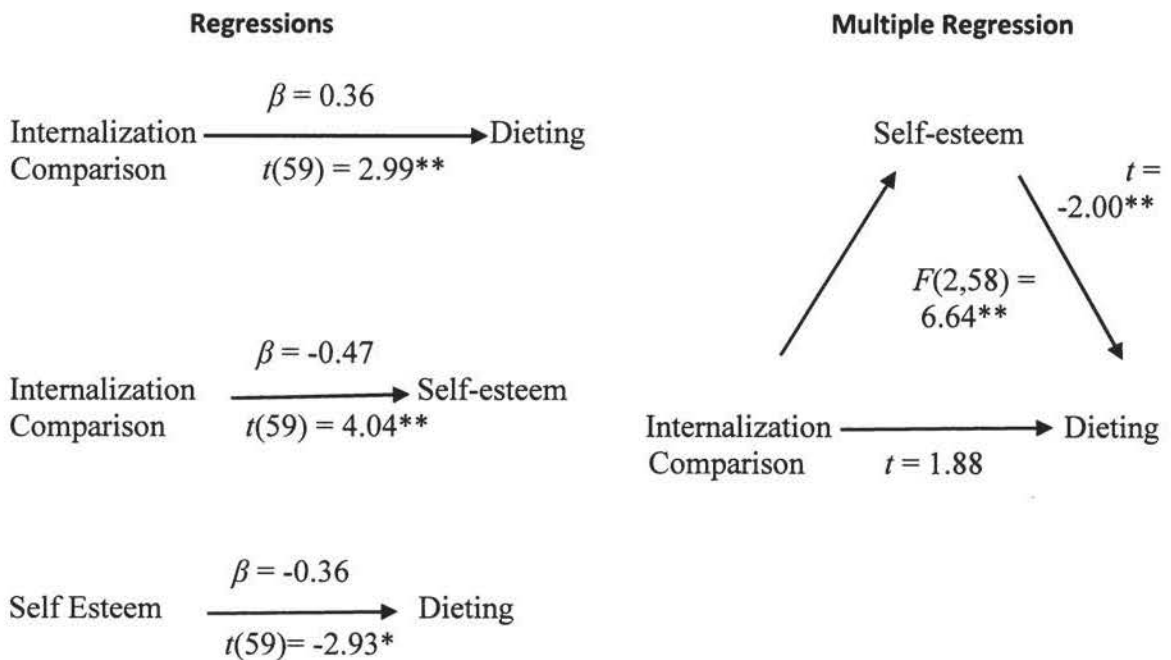
A simple regression analysis was conducted with body image predicting dieting to test the direct effect of body image on dieting. Then, a simple regression analysis was conducted with body image predicting self-esteem to test the direct effect of body image on self-esteem. A simple regression analysis was conducted with self-esteem predicting dieting to test the direct effect of self-esteem on dieting. Finally, a multiple regression analysis was conducted with body image and self-esteem predicting dieting. If any or all the regressions were not significant, a mediation could not be supported. Some form of mediation was supported if the effect of self-esteem was significant after controlling for body image. If body image is no longer significant after controlling for self-esteem, the finding supported a full mediation. A partial mediation was supported if the effect of body image was still significant (i.e. both body image and self-esteem predict dieting) after controlling for self-esteem (Baron & Kenny, 1986).

The SATAQ is a measure of body image and contains six subscales with no global scale. The six subscales were: Importance, Pressures, Internalization-TV, Internalization-Athlete, Internalization-Comparison, and Comparison. Thus, the analysis had to be run six times, using each body image scale as a standalone measure. For the purpose of clarity, the analyses will refer to the subscales as individual variables in each relationship.

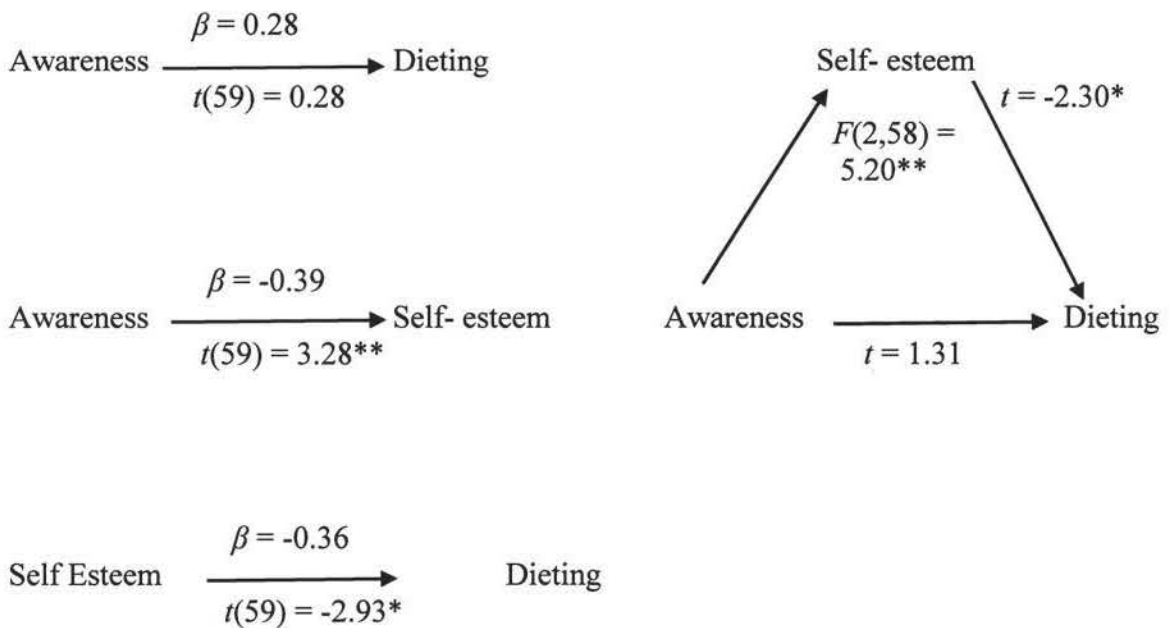
The analyses for the subscales which showed a mediation effect are shown below.

* = $p < 0.05$

** = $p < 0.01$



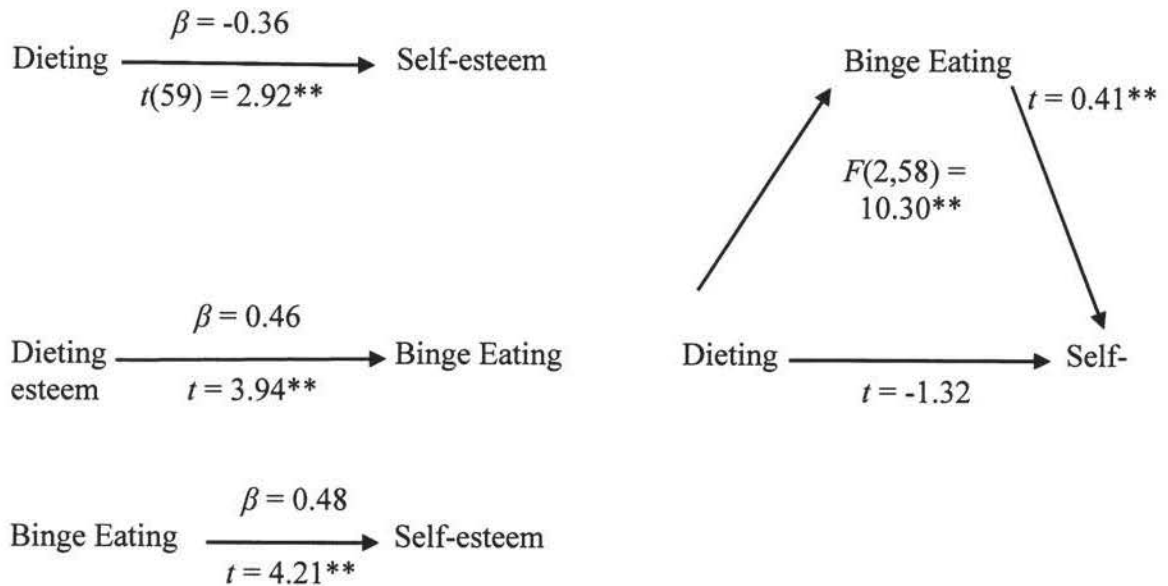
The above results indicate that a full mediation was found showing that the relationship between body image as depicted by the Comparison scale and dieting was mediated by self-esteem.



The above results indicate that a full mediation was found to be present with self- esteem mediating the relationship between body image (Awareness) and dieting.

The above figures show that the relationship between body image (as measured by the subscales of Internalization-Comparison and Awareness) and dieting is fully mediated by self-esteem. In the domain of Importance, a mediation was not present as the results of a regression between the subscale and self-esteem were not significant. Similarly, the results of the regression between the subscale Athlete and dieting were not significant, hence a mediation cannot be said to exist in this model. In the subscales of Pressure and Internalization-TV, mediations could not be detected as, in each individual case, there was no significant effect of self-esteem in the multiple regressions. For results of the analyses that did not yield a mediation, the reader is directed to Appendix 2.

Hypothesis 2: Mediation of dieting and self-esteem by binge eating



The above results indicate that a full mediation was present with binge eating mediating the relationship between dieting and self-esteem.

Appendix 3 provides information regarding the Sobel’s test for the mediation models that were significant. The means and standard deviations for each scale are presented in table 1.1 in Appendix 4.

Discussion

The first hypothesis was that the relationship between body image and dieting would be mediated by self-esteem. Results from the analyses of body image, as measured by six different domains from the Sociocultural Attitudes Towards Appearance Questionnaire, were mixed. In the domains of Internalization-Comparison, and Awareness, full mediations were observed. The other four domains did not offer any evidence of a presence of mediation.

The internalization-Comparison domain assesses the individuals' tendencies to compare themselves with the 'ideal' images that the media portrays. Results indicate that the more one compares themselves with the ideal images portrayed by the media, the more one is likely to engage in dieting. This relationship is mediated by low self-esteem. This finding is in line with Ura and Preston's (2015) findings which show that internalization of the media's appearance ideals leads to low self-esteem. This finding indicates that the more one compares themselves to the images of an ideal body portrayed by media, the lower their self-esteem gets which prompts them to engage in often unhealthy weight loss strategies- in this case- dieting.

The awareness domain assesses the recognition and internalization of societally based appearance and norms. Results in this domain indicate that higher the acknowledgement of socially dictated appearance norms, higher the chances of engaging in dieting. This relationship is also mediated by low self-esteem. This means that the more people internalize the values that society places on different body types, the lower their self-esteem will be. This prompts individuals to engage in dieting.

The outcomes of the analyses conducted on body image, self-esteem and dieting indicate that in some situations, self-esteem does play a mediating role in dieting behaviors. Ricciardelli and McCabe (2001) who found that low self-esteem prompted higher levels of sociocultural pressure and higher likelihood of engaging in weight loss behaviors in girls. This shows that the sociocultural attitudes do play a role in how one views themselves and leads to negative consequences.

In the second hypothesis, higher levels of dieting were shown to lead to lower levels of self-esteem. This relationship is fully mediated by increased occurrences of binge eating.

A peculiar finding is that higher levels of binge eating lead to higher self-esteem. One reason for this finding could be that individuals who successfully restrict their diet and achieve temporary gains may have a sense of self-efficacy that may increase self-esteem. Binge eating episodes may not concern these individuals as they continue to restrict after an episode-which may be helped by the self-esteem. This is somewhat supported by research which states that disordered eating is a side-effect of binge episodes as found by Stice et al. (2002). In any case, this finding is interesting and warrants further research.

The information gained above is useful in the future for use in health management programs. If internalization of societal ideals about body image and comparison with individuals portrayed in the media decrease self-esteem and increase dieting, then it would be imperative to reassess societal ideals about an ideal body. Similarly, it was found that dieting leads to bingeing, this indicates that programs that promote health should also incorporate more body positive attitudes and focus on questioning the views about body image that one has been raised with. On that note, the results of this research open the avenue to conduct similar research on the effects of thin ideal-internalization and dieting on exercising patterns. It would also be interesting to conduct long-term research on the variables of this study to observe if any of the relationships within the variables change.

Limitations and scope for future research

The first limitation, according to Baron and Kenny (1986), is that in a mediation model of this kind it is impossible for the mediator to be measured without error. A remedy for this would be to have multiple measures that assess the mediator variable. Another limitation is, that body image is a vast topic and can be measured in multiple ways. This issue can also be remedied by using different measures for the same variable.

Finally, this research was a cross-sectional research conducted on the undergraduate, female population of a university. Conducting a longitudinal research with a wider range of population may offer different results. This study demonstrated important relationships between body image, self-esteem and dieting, and dieting, binge eating and self-esteem. This research has also given more new topics to study in the future.

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Appendix 1

Body Image

Sociocultural Attitudes Towards Appearance Questionnaire - 3 Revised Edition

This scale is scored from 1 to 5: definitely disagree, somewhat disagree, neither disagree nor agree, somewhat agree, and definitely agree.

Importance

1. TV programs are an important source of information about fashion and “being attractive”.
2. TV commercials are an important source of information about fashion and “being attractive”.
3. Music videos on TV are an important source of information about fashion and “being attractive”.
4. Magazine articles are an important source of information about fashion and “being attractive”.
5. Magazine advertisements are an important source of information about fashion and “being attractive”.
6. Pictures in magazines are an important source of information about fashion and “being attractive”.
7. Movies are an important source of information about fashion and “being attractive”.
8. Movie stars are an important source of information about fashion and “being attractive”.
9. Famous people are an important source of information about fashion and “being attractive”.

Pressures

1. I've felt pressure from TV or magazines to lose weight.
2. I've felt pressure from TV or magazines to look pretty.
3. I've felt pressure from TV or magazines to be thin.
4. I've felt pressure from TV or magazines to have a perfect body
5. I've felt pressure from TV or magazines to diet.
6. I've felt pressure from TV or magazines to exercise.
7. I've felt pressure from TV or magazines to change my appearance.

Internalization-TV/Mag

1. I would like my body to look like the people who are on TV.
2. I would like my body to look like the models who appear in magazines.
3. I would like my body to look like the people who are in movies.
4. I wish I looked like the models in music videos.
5. I try to look like the people on TV.
6. I try to look like the people in music videos.

Internalization-Athlete

1. I wish I looked as athletic as the people in magazines.
2. I wish I looked as athletic as sports stars.
3. I try to look like sports athletes.

Internalization-Comparison

1. I compare my body to the bodies of TV and movie stars.
2. I compare my appearance to the appearance of TV and movie stars.
3. I compare my body to the bodies of people who appear in magazines.

4. I compare my appearance to the appearance of people in magazines.

Awareness

1. Clothes look better on people who are attractive.

2. Clothes look better on people who are thin.

3. Clothes look better on people who have an athletic body.

4. Attractive people are better liked than unattractive people.

5. People who are thin are better looking than people who are overweight.

6. People who have an athletic body are better looking.

7. Physically fit people are more attractive.

8. Good looking people are more successful.

9. Attractive people are happier.

Self-Esteem

Rosenberg Self-esteem Scale

Instructions Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

1. On the whole, I am satisfied with myself.

Strongly Agree Agree Disagree Strongly
Disagree

2. At times I think I am no good at all.

Strongly Agree Agree Disagree Strongly
Disagree

3. I feel that I have a number of good qualities.

Strongly Agree Agree Disagree Strongly
Disagree

4. I am able to do things as well as most other people.

Strongly Agree Agree Disagree Strongly
Disagree

5. I feel I do not have much to be proud of.

Strongly Agree Agree Disagree Strongly
Disagree

6. I certainly feel useless at times.

Strongly Agree Agree Disagree Strongly
Disagree

7. I feel that I'm a person of worth, at least on an equal plane with others.

Strongly Agree Agree Disagree Strongly
Disagree

8. I wish I could have more respect for myself.

Strongly Agree Agree Disagree Strongly
Disagree

9. All in all, I am inclined to feel that I am a failure.

Strongly Agree Agree Disagree Strongly
Disagree

10. I take a positive attitude toward myself.

Strongly Agree Agree Disagree Strongly
Disagree

Scoring:

Items 2, 5, 6, 8, 9 are reverse scored. Give “Strongly Disagree” 1 point, “Disagree” 2 points, “Agree” 3 points, and “Strongly Agree” 4 points. Sum scores for all ten items.

Keep scores on a continuous scale. Higher scores indicate higher self-esteem.

Binge Eating**Binge Eating Scale**

Instructions. Below are groups of numbered statements. Read all of the statements in each group and mark on this sheet the one that best describes the way you feel about the problems you have controlling your eating behavior.

#1

(0) a. I don't feel self-conscious about my weight or body size when I'm with others.

(0) b. I feel concerned about how I look to others, but it normally does not make me feel disappointed with myself.

(1) c. I do get self-conscious about my appearance and weight which makes me feel disappointed in myself.

(3) d. I feel very self-conscious about my weight and frequently, I feel intense shame and disgust for myself. I try to avoid social contacts because of my self-consciousness.

#2

(0) a. I don't have any difficulty eating slowly in the proper manner.

(1) b. Although I seem to "gobble down" foods, I don't end up feeling stuffed because of eating too much.

(2) c. At times, I tend to eat quickly and then, I feel uncomfortably full afterwards.

(3) d. I have the habit of bolting down my food, without really chewing it. When this happens I usually feel uncomfortably stuffed because I've eaten too much.

#3

(0) a. I feel capable to control my eating urges when I want to.

(1) b. I feel like I have failed to control my eating more than the average person.

(3) c. I feel utterly helpless when it comes to feeling in control of my eating urges.

(3) d. Because I feel so helpless about controlling my eating I have become very desperate about trying to get in control.

#4

(0) a. I don't have the habit of eating when I'm bored.

(0) b. I sometimes eat when I'm bored, but often I'm able to "get busy" and get my mind off food.

(0) c. I have a regular habit of eating when I'm bored, but occasionally, I can use some other activity to get my mind off eating.

(2) d. I have a strong habit of eating when I'm bored. Nothing seems to help me break the habit.

#5

(0) a. I'm usually physically hungry when I eat something.

(1) b. Occasionally, I eat something on impulse even though I really am not hungry.

(2) c. I have the regular habit of eating foods, that I might not really enjoy, to satisfy a hungry feeling even though physically, I don't need the food.

(3) d. Even though I'm not physically hungry, I get a hungry feeling in my mouth that only seems to be satisfied when I eat a food, like a sandwich, that fills my mouth.

Sometimes, when I eat the food to satisfy my mouth hunger, I then spit the food out so I won't gain weight.

#6

(0) a. I don't feel any guilt or self-hate after I overeat.

(1) b. After I overeat, occasionally I feel guilt or self-hate.

(3) c. Almost all the time I experience strong guilt or self-hate after I overeat.

#7

(0) a. I don't lose total control of my eating when dieting even after periods when I overeat.

(2) b. Sometimes when I eat a "forbidden food" on a diet, I feel like I "blew it" and eat even more.

(3) c. Frequently, I have the habit of saying to myself, "I've blown it now, why not go all the way" when I overeat on a diet. When that happens I eat even more.

(3) d. I have a regular habit of starting strict diets for myself, but I break the diets by going on an eating binge. My life seems to be either a "feast" or "famine."

#8

(0) a. I rarely eat so much food that I feel uncomfortably stuffed afterwards.

(1) b. Usually about once a month, I eat such a quantity of food, I end up feeling very stuffed.

(2) c. I have regular periods during the month when I eat large amounts of food, either at mealtime or at snacks.

(3) d. I eat so much food that I regularly feel quite uncomfortable after eating and sometimes a bit nauseous.

#9

a. My level of calorie intake does not go up very high or go down very low on a regular basis.

b. Sometimes after I overeat, I will try to reduce my caloric intake to almost a. nothing to compensate for the excess calories I've eaten.

c. I have a regular habit of overeating during the night. It seems that my routine a. is not to be hungry in the morning but overeat in the evening.

d. In my adult years, I have had week-long periods where I practically starve a. myself. This follows periods when I overeat. It seems I live a life of either b. "feast or famine."

#10

(0) a. I usually am able to stop eating when I want to. I know when "enough is enough."

(1) b. Every so often, I experience a compulsion to eat which I can't seem to control.

(2) c. Frequently, I experience strong urges to eat which I seem unable to control, but at other times I can control my eating urges.

(3) d. I feel incapable of controlling urges to eat. I have a fear of not being able to stop eating voluntarily.

#11

(0) a. I don't have any problem stopping eating when I feel full.

(1) b. I usually can stop eating when I feel full but occasionally overeat leaving me feeling uncomfortably stuffed.

(2) c. I have a problem stopping eating once I start and usually I feel uncomfortable stuffed after I eat a meal.

(3) d. Because I have a problem not being able to stop eating when I want, I sometimes have to induce vomiting to relieve my stuffed feeling.

#I2

(0) a. I seem to eat just as much when I'm with others (family, social gatherings) as when I'm by myself.

(1) b. Sometimes, when I'm with other persons, I don't eat as much as I want to eat because I'm self-conscious about my eating.

(2) c. Frequently, I eat only a small amount of food when others are present, because I'm very embarrassed about my eating.

(3) d. I feel so ashamed about overeating that I pick times to overeat when I know no one will see me. I feel like a "closet eater."

#13

(0) a. I eat three meals a day with only an occasional between meal snack.

(0) b. I eat 3 meals a day, but I also normally snack between meals.

(2) c. When I am snacking heavily, I get in the habit of skipping regular meals.

(3) d. There are regular periods when I seem to be continually eating, with no planned meals.

#14

(0) a. I don't think much about trying to control unwanted eating urges.

(1) b. At least some of the time, I feel my thoughts are pre-occupied with trying to control my eating urges.

(2) c. I feel that frequently I spend much time thinking about how much I ate or about trying not to eat anymore.

(3) d. It seems to me that most of my waking hours are pre-occupied by thoughts about eating or not eating. I feel like I'm constantly struggling not to eat.

#15

- (0) a. I don't think about food a great deal.
- (1) b. I have strong cravings for food but they last only for brief periods of time.
- (2) c. I have days when I can't seem to think about anything else but food.
- (3) d. Most of my days seem to be pre-occupied with thoughts about food. I feel like I live to eat.

#16

- (0) a. I usually know whether or not I'm physically hungry. I take the right portion of food to satisfy me.
- (1) b. Occasionally, I feel uncertain about knowing whether or not I'm physically hungry. At these times, it's hard to know how much food I should take to satisfy me.
- (2) c. Even though I might know how many calories I should eat, I don't have any idea what is a "normal" amount of food for me.

Scores for each group are in the parentheses.

Dieting**Eating Attitudes Test (EAT-26)**

*Items from the dieting scale are marked

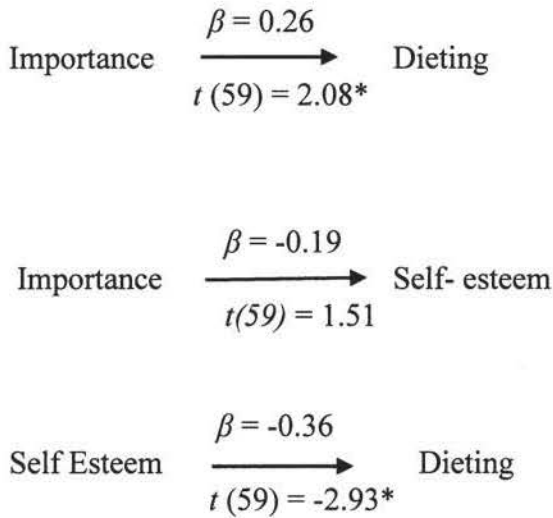
4. Am terrified about being overweight.*
5. Avoid eating when I am hungry.
6. Find myself preoccupied with food.
7. Have gone on eating binges where I feel that I may not be able to stop.
8. Cut my food into small pieces.
9. Aware of the calorie content of the foods that I eat.*
10. Particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes, etc.).*
11. Feeling that others would prefer if I ate more.
12. Vomit after I have eaten.
13. Feel extremely guilty after eating.*
14. Am preoccupied with a desire to be thinner.*
15. Think about burning up calories when I exercise.*
16. Other people think that I am too thin.
17. Am preoccupied with the thought of having fat on my body.*
18. Take longer than others to eat my meals.
19. Avoid foods with sugar in them.*
20. Eat diet foods.*
21. Feel that food controls my life.
22. Display self-control around food.

23. Feel that others pressure me to eat.
24. Give too much time and thought to food.
25. Feel uncomfortable after eating sweets.*
26. Engage in dieting behavior.*
27. Like my stomach to be empty.*
28. Have the impulse to vomit after meals.
29. Enjoy trying new rich foods.*

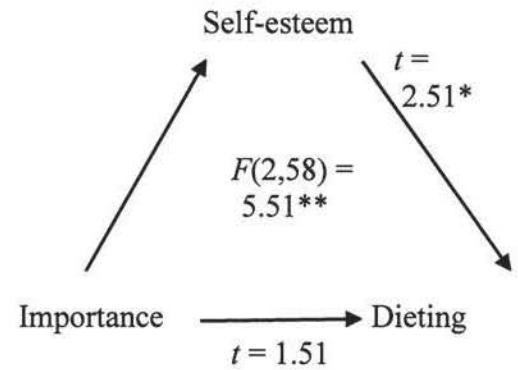
Participants were asked to answer a Likert-type scale with the options Always (3), Usually (2), Often (1), Sometimes (0), Rarely (0), Never (0). Statement 26 was the only statement which was reverse scored.

Appendix 2

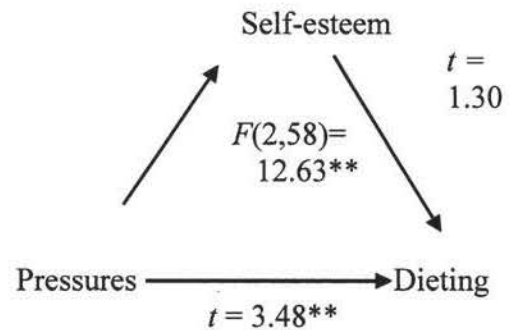
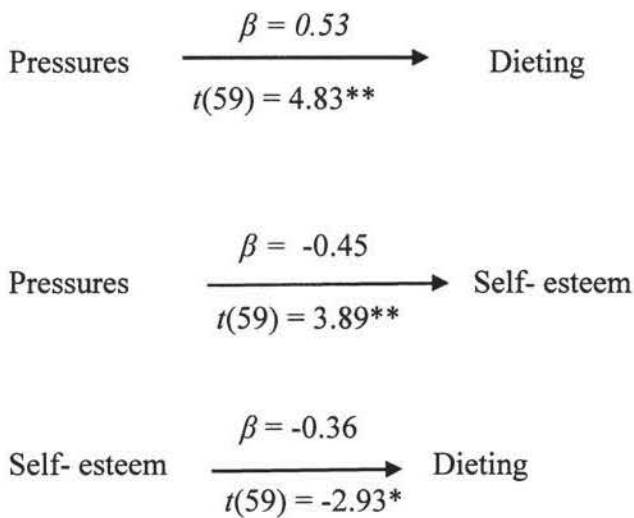
Simple Regressions



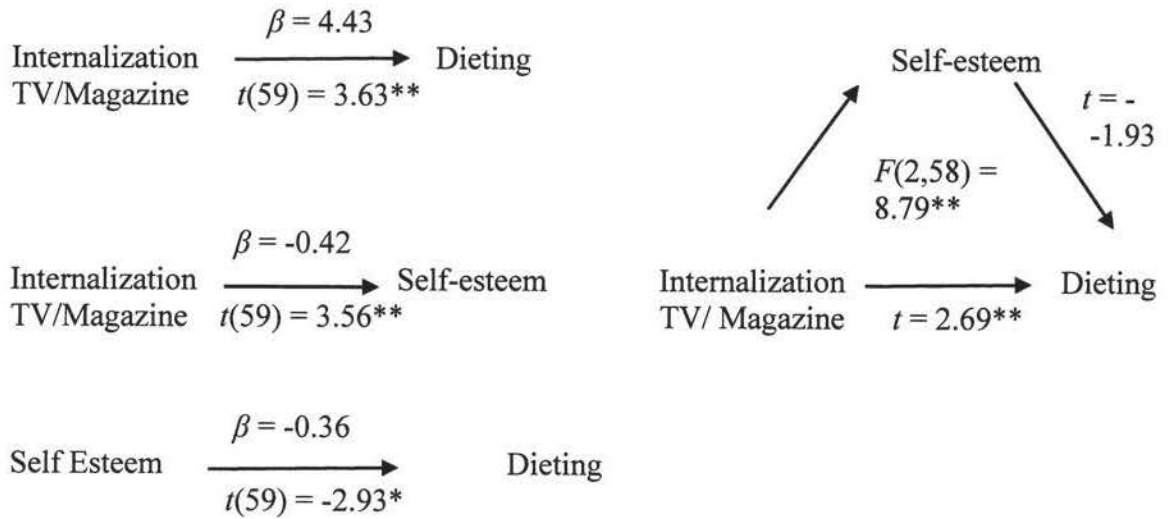
Multiple Regression



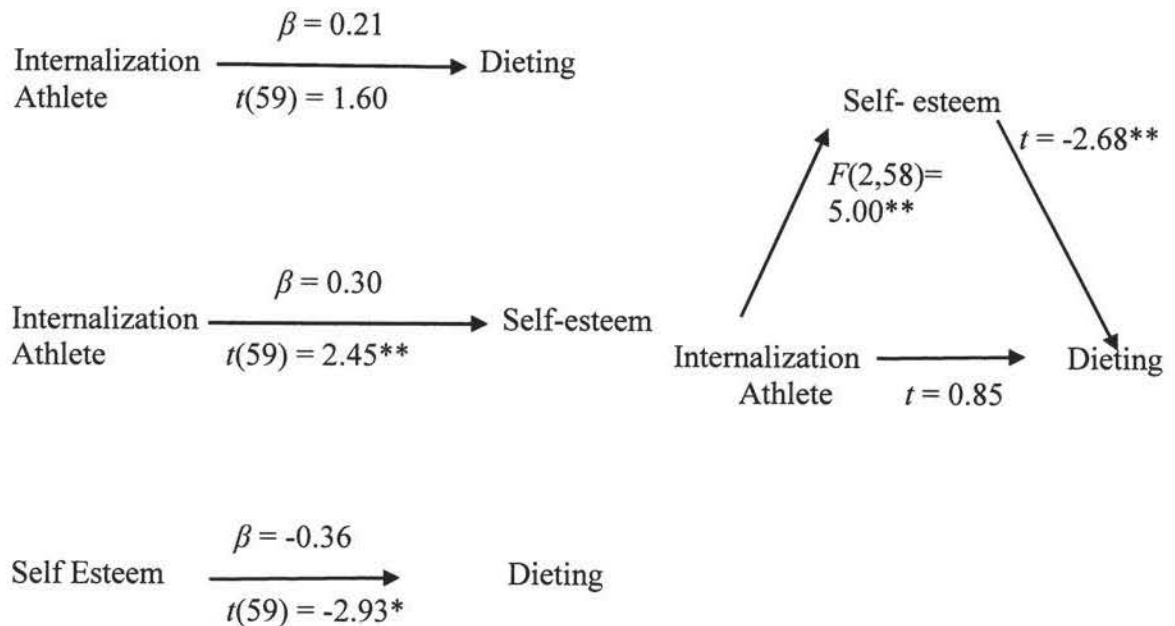
No mediation was detected as the regression with Importance predicting self-esteem was not significant.



No mediation was detected as the effect of self- esteem was not significant after controlling for Pressures in the multiple regression.



No mediation was detected as the effect of self- esteem was not significant after controlling for Internalization TV/Magazine in the multiple regression.



Mediation was not present as the results of regression predicting the effect of Internalization- Athlete on Dieting were not significant.

Appendix 3

Self- esteem mediates body image and dietng (Internalization- comparison)

Input:		Test statistic:	Std. Error:	p-value:
a	-0.126	Sobel test: 1.79451497	0.02794516	0.07273101
b	-0.398	Aroian test: 1.75232547	0.02861797	0.07971786
s _a	0.031	Goodman test: 1.83990627	0.02725574	0.065782
s _b	0.199	Reset all	Calculate	

Self- esteem mediates body image and dietng (Awareness)

Input:		Test statistic:	Std. Error:	p-value:
a	-0.118	Sobel test: 1.89151286	0.02788562	0.05855592
b	-0.447	Aroian test: 1.83539889	0.02873817	0.06644661
s _a	0.036	Goodman test: 1.95310975	0.02700616	0.05080659
s _b	0.193	Reset all	Calculate	

Binge Eating mediates dieting and self-esteem

Input:		Test statistic:	Std. Error:	p-value:
a	0.458	Sobel test: -2.52015713	0.04997704	0.01173025
b	-0.275	Aroian test: -2.47358136	0.05091807	0.01337663
s _a	0.116	Goodman test: -2.56946699	0.04901795	0.01018551
s _b	0.084	Reset all	Calculate	

Appendix 4

Table 1.1

Scale	Mean	Standard Deviation
SATAQ-Importance	3.25	1.27
SATAQ-Pressures	3.06	1.30
SATAQ-Internalization TV/Magazine	2.97	1.25
SATAQ-Internalization- Athlete	3.05	1.24
SATAQ- Internalization- Comparison	3.00	1.28
SATAQ- Awareness	3.06	1.14
Self-esteem	2.61	0.35
Binge Eating	0.69	0.50
Dieting	0.47	0.50