MODEL FIT COMPARISON FOR TWO COMPETING MODELS OF BODY DISSATISFACTION

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MODEL FIT COMPARISON FOR TWO COMPETING MODELS OF BODY DISSATISFACTION

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ABSTRACT

Sociocultural pressures, including those from peers, family, and media, are postulated to contribute to the development and maintenance of body dissatisfaction. Several models exist to explain how these pressures lead to body dissatisfaction. The Dual Pathway Model hypothesizes that internalizing the importance of thinness mediates the relationship between these sociocultural pressures and body dissatisfaction, while an alternate model, the Tripartite Influence Model, also includes social comparison processes as a mediator along with internalization. In order to determine which model better explains women’s experiences with Body Dissatisfaction, a large sample of college women completed self-report measures of Sociocultural Pressures, Internalization of the Thin Ideal, Social Comparison, and Body Dissatisfaction. Structural Equation Modeling was used to compare the fit of the two models. In contrast to the primary hypothesis that the Tripartite Influence Model would best fit the data, both of the tested models did not demonstrate adequate fit. It is likely that measurement issues and theoretical misspecification led to the poorly fitting model. The results of this study provide additional evidence that the existing models of Body Dissatisfaction are inadequate, and further research is needed to determine how social pressures to be thin lead to poor body image. Overall, these findings support the role of Sociocultural Pressures, Social Comparison, and Internalization of the Thin Ideal in the development of Body Dissatisfaction.
Dissatisfaction and highlight the need for a more integrated model of Body Dissatisfaction.
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CHAPTER 1

INTRODUCTION

Counseling Psychologists (CP’s) have a unique identity based on a rich historical tradition of focusing upon normal human development, strengths, well-being, and social justice (Committee on Definition, Division of Counseling Psychology, 1956; Baker & Subich, 2008). An important value shared by counseling psychologists is a focus on prevention rather than remediation, as well as an awareness of the person-environment interaction (Packard, 2009). Research on Body Dissatisfaction (BD) is of particular importance for CP’s for two primary reasons. First, BD is a risk factor for the development of eating disturbance, including clinical Eating Disorders (EDs). Thus, a theoretical understanding of BD can help to prevent EDs, which fits well with CP’s emphasis on prevention rather than remediation. Second, research examining the sociocultural environment which contributes to the unfortunately ubiquitous experience of BD for American women (and, to varying extents, women of other cultures; Swami, Frederick, Aavik, Alcalay, Allik, Anderson, et al., 2010) allows CPs to understand how cultural factors contribute to the individual experience of BD. The current study, then, examined two competing models of body dissatisfaction with the goal of setting the stage for future prevention efforts and ultimately social change.
Prevalence of Body Dissatisfaction

Body dissatisfaction among women in the United States is so prevalent as to be described as a “normative discontent” (Rodin, Silberstein, & Striegel-Moore, 1985). Indeed, many studies have demonstrated that the majority of women are dissatisfied with their weight. For example, Vohs, Heatherton, and Herrin (2001) examined the transition from high school to college in a sample of 342 women using a longitudinal design. Participants were asked to complete a detailed survey near the end of their senior year of high school and again in their first year of college. In this sample, about 80% of women at both time points indicated that they wanted to lose weight. This high percentage is noteworthy especially when considering that 96% of the sample at both time points had a Body Mass Index (BMI; based upon self-reported height and weight) that was at or below the categorization for average weight. Of the students at the second time point (the college freshman) 3.8% of the women were classified as overweight or obese based upon their reported weight and height. Nonetheless, a full 33.4% of the college-age sample reported that they believed they were overweight or obese. The results of this study serve to demonstrate the pervasiveness of weight concerns and body dissatisfaction in college women, a finding that has been reliably replicated (Heatherton, Nichols, Mahamedi, & Keel, 1995; Cook-Cottone & Phelps, 2003).

In a large-scale international study (North American \( n = 958 \); South American \( n = 120 \); Western Europe \( n = 630 \); Eastern Europe \( n = 366 \); Scandinavia \( n = 88 \); Oceania \( n = 339 \); Southeast Asia \( n = 386 \); East Asia \( n = 234 \); South and West Asia \( n = 197 \); and Africa \( n = 97 \)) of body dissatisfaction and drive for thinness were found to be most common in...
high-socioeconomic status (SES) countries around the world (Swami et al., 2010). In this study, body dissatisfaction was measured by the discrepancy between the participant’s rating of their current body figure and their rating of the ideal body. Nine figures are arranged from left to right, with leftmost figures representing a very thin body and rightmost figures a heavier body. Across the world regions examined, discrepancies between current and ideal body ranged from 0.5 in South and West Asia to 1.4 in North and South America. These findings indicate that across world regions, but particularly in more Westernized and higher-SES regions, body dissatisfaction is the norm for most women.

In a more contemporary study, Berg, Frazier, & Sherr (2009) examined changes in eating disorder attitudes over time in a sample of 186 college women. The mean body dissatisfaction score for the sample was 4.87 at Time 1 and 4.78 at Time 2 using the Eating Disorder Inventory-2 (EDI-2; Garner, 1991). These scores represent a high degree of overall body dissatisfaction within the sample, as the response scale was a 0-5 Likert-type scale, with 0 indicating “Never” and 5 indicating “Always”. Sadly, these high levels of body dissatisfaction among college-age women appear to be the norm rather than the exception.

These high levels of body dissatisfaction correspond with high population levels of eating disordered symptoms. Berg and colleagues (2009) examined the prevalence of eating disorder attitudes and behaviors in a sample of 186 college women. The authors found that 49% of the sample reported disordered eating at least once per week at Time One, while this figure had decreased to 40% at Time 2 (2 months later; possibly due to
regression to the mean). Although average scores on eating disorder symptoms decreased at Time 2 for the sample, individual change scores indicated stability of the symptoms for most participants. Notably, body dissatisfaction and self-esteem increases were the most stable predictors of decreases in ED symptoms at follow-up. In a similar study examining a large sample (N=1620) of sorority and fraternity members on a college campus, Hoerr, Bokram, Lugo, Bivins, & Keast (2002) reported that based upon scores on the Eating Attitudes Test (EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982), 10.9% of the women in the study were at risk for eating disorders (i.e., an EAT-26 score ≥ 20). Based upon the findings of the studies reported here, it is clear that body dissatisfaction and disordered eating are common among young adult women.

**Statement of the Problem**

The area of BD is a heavily saturated area of the psychological literature. There is no dearth of literature on the correlates and implications of poor body image and several theories exist to predict body image disturbance, especially in relation to the ultimate development of EDs. Research supports a sociocultural view of body image disturbance (Heinberg, 2003) and this view is consistent with the Counseling Psychologist’s focus on person-environment interaction. In this view, the influence of cultural factors, including peers, family, and media, contributes to the cultural milieu that enforces the importance of thinness. These sociocultural pressures are thought to contribute to the development of BD, and this view has been supported in the empirical literature (Heinberg, 2003). Similarly, considerable research has demonstrated the role of social comparison in the
development and maintenance of BD (Myers & Crowther, 2009) and the importance of Internalization of the Thin Ideal has similarly been well supported as a precursor to BD.

Social Comparison describes the tendency to compare one’s own physical and psychological features to those of others. For example, a woman who is high on Social Comparison would be likely to examine the body of another woman in order to determine how she might “measure up” compared to the other woman. Social Comparison has been consistently linked to greater BD in both correlational and experimental research particularly in the case of upward comparisons (i.e., comparisons to others who the perceiver views as having a more ideal body; Tiggeman & Polivy, 2010).

Internalization of the Thin Ideal is a person’s endorsement of and belief in the idea that thinness is preferable and to be aspired toward. This is more than awareness that our culture values thinness; rather, internalization indicates an integration and acceptance of this idea into one’s own belief system. Internalization has been supported as a mediator of the relationship between sociocultural pressures and BD (Stice, Schupak-Neuberg, Shaw, & Stein, 1994). That is, perceived pressure from family, friends, and media leads to greater belief in the importance of thinness, which in turn leads to greater BD.

Although much research supports the importance of both Social Comparison and Internalization in the development and maintenance of BD, relatively few studies have fully examined these variables within the context of the available models of BD. The available literature has lacked direct comparisons of the relative predictive ability of these variables within the context of the commonly cited models of BD. Although the
piecemeal approach to verifying the efficacy of these models is certainly useful, the literature was ripe for a comparison of these models toward the goal of identifying a theory that best predicts BD.

In his seminal work on scientific discovery, Popper (1959) argues that theory is the driving force of inquiry. Swift advances in the statistical methods available to test the efficacy of competing theories have made comparing various models in their entirety a simpler endeavor. Given both the importance of having a unified theory to explain BD coupled with the available means to test the existing models, it was clear that direct comparison of the available models would greatly extend the current literature on BD. Although the commonly cited models have been examined singly, they have rarely been directly compared to one another. At a broad level, having a single theory which best predicts BD would simplify the literature and stimulate further hypothesis testing. More narrowly speaking, direct comparisons of these models were intended to answer two questions that linger in the empirical literature. First, do the various sources of sociocultural pressure—namely peers, media, and family—predict BD uniquely? These pressures have been examined independently in many studies, however the uniqueness of each predictor remained in question, as past research has yielded mixed results. Second, are social comparison and internalization of the thin ideal both unique mediators of the relationship between these pressures and BD? Both mediators have been supported in the literature, yet few studies have examined the mediators jointly within the context of the relevant models of BD. In order to illuminate the importance of these two questions, the models tested in this investigation are described next.
Model Selection

Many models of body image have been proposed. These different models were outlined extensively by Thompson, Heinberg, Altabe, and Tantleff-Dunn (1999). The current study focuses upon two models which have received the most support in the empirical literature: The Dual Pathway Model (DPM) and the Tripartite Influence Model (TIM). These two models represent heavily researched models and each has received considerable support (Thompson, 2009). A third model which has received increasing empirical attention in recent years is Objectification Theory (OT; Fredrickson & Roberts, 1997). Although this model has received empirical support, it was not compared to the DPM and TIM in this study because of the differences in outcome variables between the three models. Whereas both the DPM and TIM utilize BD as the dependent variable in their abbreviated forms, OT proposes Body Shame as an outcome variable. In OT, body shame is conceptualized as an affective response to the self-objectification that occurs when a woman is repeatedly exposed to sexually objectifying experiences (Tiggeman & Williams, 2012). Accordingly, the literature on OT has focused on body shame as an antecedent to disordered eating (Noll & Fredrickson, 1998; Moradi, Dirks, & Matteson, 2005; Tiggeman & Kuring, 2004; Tiggeman & Williams, 2012), much as BD is an antecedent to disordered eating in the TIM and DPM. As is the trend in the eating disorder literature, BD in this study is focused specifically on dissatisfaction with the weight and shape of the body, rather than dissatisfaction with specific features such as facial abnormalities or skin tone. Similarly, the DPM and TIM utilize Internalization of the Thin Ideal as a mediator, while Objectification Theory postulates that self-
objectification leads to body shame. The extent of overlap between these variables is an important avenue for future research, as is comparison of the predictive ability of OT (see Myers & Crowther, 2007 for an example of an integration of DPM and Objectification Theory). Comparison of an additional non-nested model was outside of the scope of this study, especially considering the uncertainty about the overlap in outcome variables. Accordingly, only the DPM and TIM were compared in this study.

The Dual Pathway Model

The Dual Pathway Model (DPM; Stice & Agras, 1998) was developed to explain the mechanisms which lead to bulimic symptomology with a focus upon identifying risk factors for disordered eating. The model brings together three different explanatory mechanisms for bulimic symptoms: sociocultural, dietary, and affect-related explanations. Striegel-Moore, Silberstein, and Rodin (1986) argue cogently that sociocultural factors (including the over-valuation of thinness in women and emphasis on obtaining an ideal shape) lead to bulimic symptoms in some women. Sociocultural explanations of eating disorders have garnered increasing support over the history of research on eating disorders (Heinberg, 2003). The Dual Pathway Model includes sociocultural pressures as the first variable in the model which is most distal from the development of bulimic symptoms. As Striegel-Moore and colleagues (1986) emphasized, however, it is not enough to be exposed to the sociocultural pressures surrounding thinness and ideal body, because many—in fact, most—women who are exposed to this environment do not go on to develop bulimia. Stice (2001) includes Thin Ideal Internalization as a mediator between Sociocultural Pressures and Body
Dissatisfaction. Thus, varying levels of internalization of these ideals may help to explain variations in body dissatisfaction and, more distally, bulimic symptoms.

The model also includes dietary and affective components based upon the research of Polivy and Herman (1985) and McCarthy (1990), respectively. Polivy & Herman (1985) argued that dieting tends to temporally proceed binge eating. The authors suggested that dieting leads to the adoption of an eating strategy which is cognitively defined rather than based upon homeostatic state and leaves dieters susceptible to binge eating psychologically. McCarthy (1990) pointed out that both depression and eating disorders are substantially more common in women than in men. Accordingly, McCarthy argued that the thin ideal leads to depression in women and that disordered eating is a coping strategy to deal with this pressure. The integration of these two bodies of research, along with the sociocultural explanations, allows for a comprehensive model of bulimic pathology. Thus, the model hypothesizes that body dissatisfaction leads to both negative affect and dieting, which in turn converge to lead to bulimic symptoms.

In the current study, only the first half of the model was considered (as shown in Figure 1). Sociocultural pressures which emphasize the importance of having a thin body, including messages from parents, friends, dating partners, and media, are thought to lead to internalization of these ideals, which in turn leads to BD. This mediational path was compared to the predictions of the TIM.

**Tripartite Influence Model**

The Tripartite Influence Model (Thompson et al., 1999; see Figure 2) postulates that three main categories of influence lead to body image concerns: peers, parents, and
media. Some subsequent authors have expanded parental influence to a more general familial influence (c.f., van den Berg, Thompson, Obremski-Brandon, & Coovert, 2002). Two hypothetical models were proposed by Thompson and colleagues. In both models, peer, parental, and media influences lead to both social comparison and internalization. Together, social comparisons and internalization lead to body dissatisfaction which in turn leads to dietary restriction and bulimia. The inclusion of social comparison as a mediator is based upon a rich paradigm within social psychological research. Social comparison theory was developed by Festinger (1954) and proposes that people possess a natural inclination to determine their standing relative to others and thus seek out standards with which to compare themselves. This theory has been considered as one way in which peers and media may influence women’s body image, through a process of comparison of self to important others. Thus, in the Tripartite Influence social comparison is included as a mediator of the relationship between sources of sociocultural pressure and body dissatisfaction.

**Model Comparison**

Comparison of the Tripartite Influence Model and the Dual Pathway Model highlights several similarities between the models (see Figures 1 and 2). First, the variable of sociocultural pressures in the DPM is conceptually the same as Thompson’s peer, parental, and media influences collapsed into a single variable. The 10-item Perceived Sociocultural Pressure Scale (Stice & Agras, 1998) is commonly used as a measure of pressure to be thin in the Dual Pathway Model (c.f., Stice, 2001; Stice & Whitenton, 2001). This measure includes items assessing pressure from friends, family,
romantic partners, and the media. Further, Keery, van den Berg, and Thompson (2004) collapsed the three influences into a singular measure of sociocultural pressure based upon statistical evidence that the three influences relate similarly to body dissatisfaction. Thus, media, peer, and family influences can be conceptualized as types of sociocultural pressure fully encapsulated by the Dual-Pathway Model’s sociocultural pressures variable.

The internalization, body dissatisfaction, restriction/dieting, and bulimic symptomology variables are comparably placed within the models. One major difference between the models is the inclusion of social comparison in the Tripartite Influence Model, which is not a part of the Dual-Pathway Model. The placement and inclusion of Global Psychological functioning varies in the two versions of the Tripartite Model, however this is not a focus of the current study. The focus here is upon body dissatisfaction as an outcome variable. When considering only the variables which precede body dissatisfaction, the differences between the models are (1) the grouping of sociocultural pressures into a single variable or as three separate influences as postulated by TIM; (2) the inclusion of social comparison as a mediator in the TIM and (3) the inclusion of a direct path from sociocultural pressures to BD in the DPM. These differences between the models have implications for the area of BD. Although the original model proposed by Thompson et al. (1999) suggests that the three influences act equally through the mediators of social comparison and internalization, some subsequent research has suggested that these influences may differentially be mediated (Myers & Crowther, 2007). The relative importance of these influences has implications for
treatment and policy recommendations, underscoring the importance of comparing these models.

**Summary**

Several theories of Body Dissatisfaction have been proposed in the literature and considerable research has been based upon these models, frequently deriving narrow hypotheses from the overall models. Less prevalent in the literature has been comparisons of these models including all their variables. The current comparison of the DPM and the TIM helped to elucidate the correlates of BD and aided in our understanding of the prediction of BD. Further, my efforts to identify a superior model allowed for the generation of new hypotheses. Consistent with the values of Counseling Psychology, this study examined a phenomenon that is prevalent in nonclinical populations and has implications for both research and practice. Thus, the purpose of the present investigation was to compare these two competing models using Structural Equation Modeling.
CHAPTER II

REVIEW OF THE LITERATURE

This chapter provides an overview of the literature pertaining to the hypothesis under investigation. Primarily, I review both the Dual Pathway Model and the Tripartite Influence Model along with their support in the empirical literature. The review is divided into sections based upon the variables of interest in both models. First I provide evidence for the importance of peers, family, and media in BD, emphasizing the importance of internalization of the thin ideal throughout. Next, I discuss the research demonstrating the role of social comparison in BD. A critique of the existing literature is provided throughout and the chapter concludes with a summary of the ways that the current study corrected some of the methodological problems of past research.

Introduction

In recent years, research surrounding eating disorders has moved toward a sociocultural understanding of the etiology of body dissatisfaction and disordered eating (Heinberg, 2003). The Dual Pathway Model (DPM; Stice, 2001) and the Tripartite Influence Model (TIM; Thompson et al., 1999) have garnered particular research attention as models explaining the confluence of factors which lead to the development of bulimic symptoms. Although the models were initially conceptualized to explain bulimic
symptoms, the models have been extended to explain body image disturbance and disordered eating in non-clinical populations as well. This move toward a continuous understanding of nonclinical and clinical eating disordered behavior was bolstered by research indicating that there is continuity between individuals with ‘full-blown’ eating disorders and those with sub-threshold symptomology (Franko & Omori, 1999; Stice, Ziemba, Margolis, & Flick, 1996). Accordingly, researchers have used the DPM and the TIM to explore body dissatisfaction in nonclinical populations and considerable support exists to demonstrate that the model explains the development of body dissatisfaction in both adolescent and adult women without diagnosable eating disorders (e.g., Fingeret and Gleaves, 2004; Myers and Crowther, 2007; Stice, et al., 1994; Stice, 2001).

Both the TIM and the DPM suggest that sociocultural pressures to be thin influence one’s internalization of the thin ideal (Internalization of the Thin Ideal is a robustly supported mediator of the relationship between sociocultural pressure and body dissatisfaction; Fingeret & Gleaves, 2004; Myers & Crowther, 2007; Stice et al., 1994). The TIM suggests that these sociocultural pressures derive from three primary sources: media, peers, and family. Experimental evidence supports the idea that exposure to media images of thin women in laboratory settings has an immediate measureable impact upon body dissatisfaction (Groesz, Levine, & Murnen, 2002) and at least one ecological longitudinal study demonstrated long-term negative effects on body dissatisfaction of media images upon some more vulnerable adolescent girls (Stice, Spangler, & Agras, 2001). Similarly, peers and family have been shown to exert an impact upon young women’s body image (e.g., Field, Camargo, Taylor, Berkey, Roberts, & Colditz, 2001;
Krones, Stice, Batres, & Orjada, 2005; Stice, 1998; Stice, Maxfield, & Wells, 2003; Wertheim, Paxton, Schutz, & Muir, 1997). Taken together, the research suggests that media, family, and peer attitudes toward thinness influence the internalization of the thin ideal, which in turn impacts body dissatisfaction. Very little prior research has examined these factors all together within the context of either the DPM or the TIM. Thus the primary purpose of the current study was to provide a direct comparison of the fit of these two models in a college sample.

In order to demonstrate the need for this study that explored the sociocultural pressures which influence young women's body dissatisfaction, I offer the following argument. First, I provide an overview of the Dual Pathway Model and the Tripartite Influence Model along with their support in the empirical literature. This review will include the literature which demonstrates that this model can be appropriately applied to nonclinical populations. Subsequently, I narrow in upon the construct of sociocultural pressures and describe the extant literature demonstrating the effect of media, peers, and family upon thin ideal internalization and body dissatisfaction. I go on to point out the limitations of past research. I also briefly review the literature demonstrating the impact of social comparison on body dissatisfaction as predicted by the TIM. Finally, based upon these limitations, I show that the current study corrected for some of the methodological problems of past research and provide an overview of the aims of the current study.
The Dual Pathway Model

The Dual Pathway Model (Figure 1) has been well supported in the empirical literature. The first half of the model, wherein Thin Ideal Internalization mediates the relationship between Sociocultural Pressure and Body Dissatisfaction, has been robustly supported (Fingeret and Gleaves, 2004; Myers and Crowther, 2007; Stice et al., 1994). Research indicates that exposure to media is related to body dissatisfaction and that typically this relationship is mediated by thin ideal internalization (for an exception, see Homan, McHugh, Wells, Watson, & King, 2012, which examined internalization as a moderator of the relationship between exposure to thin idealization and BD).

Stice et al. (1994) used a sample of 238 college women to test an early version of the Dual Pathway Model. The authors used EQS to examine the model, which hypothesized a complex mediational chain beginning with media exposure and culminating in eating disorder symptoms. The authors tested a model where media exposure leads to gender role endorsement, which in turn influences Internalization of the Thin Ideal. Internalization then contributes to BD, and, ultimately, eating disorder symptoms. The data fit this model ($\chi^2 (3,238) =2.33, p=.51$; Tucker-Lewis Index=1.0, Comparative Fit Index=1.0). Although media exposure was expected to have a direct impact upon Internalization, this path did not reach significance. The authors hypothesized that this finding may be due to the use of a nonspecific measure of media exposure, namely asking participants to self-report the amount of time spent on consuming media products (i.e., reading magazines, television, etc.). Overall, the findings of this study support the notion that greater Internalization of the Thin Ideal predicts
greater BD, a primary contention of the DPM. The fact that subsequent studies have
supported the link between media exposure and BD suggests that measurement error may
account for the nonsignificant findings here.

In a seminal study, Stice (2001) used a sample of 231 female high school
students to examine the mediating role of dieting and negative affect in the relationship
between body dissatisfaction and bulimic symptoms. The purpose of the study was, in
part, to test the DPM in its entirety. Here, only those finding relevant to BD as an
outcome variable are summarized. Stice collected data at baseline, 10 months later, and
20 months later. Using a survey methodology and random regression growth curve
analysis, Stice found that initial pressure to be thin and Thin Ideal Internalization
predicted subsequent increases in body dissatisfaction over the two years (β=.17 and
β=.25, respectively). The authors compared the fit of the DPM to a version of the TIM
and found the DPM to show a superior fit. However, the authors do not describe how
they measured the peers, media, and family influences, nor did they gather data on Social
Comparison. It seems unclear, then, how the authors might have tested the model in its
entirety.

The findings of Stice (2001) support the DPM, particularly the notion that Thin
Ideal Internalization and sociocultural pressures contribute to BD. However, it is
important to note that in this study, Stice tested an earlier version of the DPM which did
not hypothesize Thin Ideal Internalization as a mediator of the relationship between
sociocultural pressures and BD. Instead, Thin Ideal Internalization and sociocultural

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pressures were both hypothesized to lead to BD and the mediational pathway was not examined.

Model testing suggested some reciprocal relations among variables (Stice, 2001), a finding which has been replicated in other studies. For example, Bradford & Petrie (2008) conducted a longitudinal study of female undergraduates using self-reports and SEM. Their research suggested a possible bi-directional relationship between Thin Ideal Internalization and BD, suggesting that the fact of being dissatisfied with one’s body leads to greater endorsement of the thin ideal. The authors postulated that perhaps a cycle develops wherein women internalize more as they become increasingly dissatisfied, which in turn leads to greater endorsement of the thin ideal.

Duemm, Adams, and Keating (2003) used a sample of 184 female undergraduate students to test a modified version of the DPM. The authors tested the DPM as hypothesized with the addition of sociotropy (a construct defined by the fear of social rejection). The authors found that the Thin Ideal Internalization mediated the relationship between sociocultural pressures and BD, as predicted by the DPM. Sociotropy was also found to relate significantly to Thin Ideal Internalization, negative affect, and bulimic behavior. These findings serve to further support the validity of the DPM, particularly the mediating role of internalization of the thin ideal.

Further research using the DPM indicated that the model can be successfully applied to both individuals with subclinical and clinical levels of bulimic symptoms (Stice, Ziemba, Margolis, & Flick, 1996). Stice and colleagues (1996) found the model can differentiate these groups, yet the three groups lay upon a single continuum. This
finding is consistent with the continuity hypothesis within eating disorder literature which suggests that bulimia lies at the far end of a single continuum composed of eating disordered behaviors. Research on the continuity hypothesis indicates that subclinical and clinical levels of eating disorders lay upon a single continuum, rather than being categorically different constructs (Franko & Omori, 1999). Because degrees of these symptoms appear to be continuous, it was appropriate to use the Dual Pathway Model as a model of symptomology in a non-treatment seeking population to explain degree of eating disorder pathology and body dissatisfaction.
From the broad view, the DPM has been generally supported in the empirical literature. However, careful examination of the various studies which have tested the model reveals a few common themes. First, the model has frequently been tested with the addition of other variables not originally hypothesized in the model. Although there is nothing inherently wrong with the addition of new variables to a model, the DPM does not seem to have been tested extensively in its original form. Second, the model has been tested with paths varying in significant ways from one study to another. For example, including Thin Ideal Internalization and sociocultural pressures as two exogenous variables, rather than including Internalization as a mediator of the relationship between pressures and BD, is a significant departure from the model as originally hypothesized. These a-priori modifications to the model with no theoretical explanation create confusion in the literature and cast doubt upon the efficacy of the model as it was originally hypothesized. One goal of the present investigation was to address these concerns by testing the model as it is hypothesized without adding any additional variables.
Tripartite Influence Model

A few studies have used structural equation modeling to evaluate the Tripartite Influence Model (Figure 2). Van den Berg et al. (2002) used a sample of 196 undergraduate women to examine the model in its entirety. The authors used multiple self-report indicators for each measured variable and used structural equation modeling to examine the relationships amongst the variables. The model tested was the full model with bulimic symptoms as an outcome variable, however only those findings relevant to BD are reviewed here (See Figure 2). The mediating variable of Thin Ideal Internalization was not included in the model, which represents a departure from the model as it was originally hypothesized, and perfectionism was added to the model. The authors found that the hypothesized models did not provide a good fit to the data, leading to the addition of new theoretically plausible paths and the elimination of non-significant paths. Even with these changes, the final model provided only an adequate fit to the data and should be interpreted cautiously (RMSEA=.076, CFI=.90, AGFI=.74). The best-fitting model demonstrated that perfectionism, family influences, and media influences lead to social comparison, which then leads to body dissatisfaction. Peers were found to have a direct link to restrictive eating, however the indirect relationship through social comparison as hypothesized in the TIM was not supported. This finding is not consistent with the predictions of the TIM.

Although this early study provided some support for the TIM, several limitations suggested that a caution interpretation of the data was warranted. Considerable post-hoc changes to the model were necessary in order to cause the model to converge, and the ultimate model displayed a mediocre fit to the data. Low reliabilities and a small sample
size may explain the poor fit of the model, however the possibility remains that the model did not properly describe the data.

Keery et al. (2004) used a sample of 325 sixth through eighth grade girls to retest the model. The authors included the full hypothesized model including both mediators (social comparison and internalization; see Figure 2). The authors used self-report measures, including perceived parental and peer attitudes about weight, to measure the variables to be tested in the structural model. The body dissatisfaction subscale of the EDI (Garner, 1991) and the Self-Image Questionnaire for Young Adolescents-Body Image Subscale (SIQYA; Peterson, Schulenburg, Abramowitz, Offer, & Jarcho, 1984) were used as measures of body dissatisfaction. Initial mediation analyses indicated that the strength and pattern of relationships between the two mediators—internalization and comparison—were similar across all three of the sources of sociocultural pressure. Accordingly, the peer, family, and media influences were combined into a single measure of sociocultural influence. The final structural model displayed an acceptable fit to the data (RMSEA=0.096 and CFI=0.94).

Although not a part of the originally hypothesized model, the final model included a direct path from sociocultural influence to dietary restriction. This finding is consistent with the finding of van den Berg et al. (2002) that demonstrated a direct path from peer influence to dietary restriction. Thus, the findings supported the original model proposed by Thompson et al. (1999) with some modifications. Most notably, the role of peers upon BD was not consistent with the predictions of the TIM and suggested the need for further exploration into this relationship.
In this study, Keery and colleagues (2004) also compared the TIM to the Dual Pathway Model using the same data. The authors used their sociocultural influence variable as a measure of sociocultural pressure as described in the DPM. The model displayed a poor fit to the data (RMSEA=0.23 and CFI=0.86). It is important to note, however, that the fit indices reported for the Dual Pathway Model are comparable to the initial fit indices reported for the TIM (i.e., initial fit indices for the best-fitting hypothesized model was RMSEA=.2237 and CFI=0.82). The authors underwent modifications for the TIM to increase the fit of the data to the model yet similar adjustments were not made to the DPM. Thus it is unclear if the DPM would fit better to the data if modifications were made to the initial model.

Coomber and King (2008) used a sample of 128 pairs of sisters between the ages of 18-25 who had regular contact with one another to test the family influence relationship in the TIM. The authors used self-report measures distributed to each of the sisters. Results indicated that the women were more likely to make social comparisons with their sisters than with either their mothers or fathers. Mediation analyses supported both social comparison and internalization as mediators of the relationship between sociocultural pressures and BD. These mediation analyses were each conducted separately rather than including both mediators in a structural model. This design forestalls the possibility of interpreting the relative impact of each of the mediators. Thus, a limitation of this study is its use of repeated analyses rather than simultaneous analyses. Despite this limitation, the results of this study suggested that female siblings are an
important source of pressure to be thin which leads to both social comparison and internalization.

**Sociocultural Pressures**

Evidently, examination of the full models has been relatively uncommon in the literature, with even fewer studies comparing the efficacy of the models. Having reviewed the extant literature which examines both models in their entirety, I turn to the support for the relationships proposed in the models which have been examined in a ‘piecemeal’ fashion. First, I address the support for the influence that the media, peers, and family have on young women, with an emphasis on the studies demonstrating the mediating role of Internalization of the Thin Ideal. Secondly, I address the role of social comparison in body dissatisfaction. The purpose of the following section is to highlight the literature which has demonstrated the importance that the media, peers, and family have upon body dissatisfaction through both internalization of the thin ideal and social comparison. It is important to note that the majority of the literature reviewed in this section focuses upon the experiences of girls, adolescents, and young women. This focus is consistent with the emphasis in this study on the experiences of young adult women. Arguably, experiences with media, peers, and family are of greater importance during these formative stages of women’s development. Social Cognitive theory of gender development (Bussey & Bandura, 1999) posits that children use modeling and a complex variety of social sanctions to develop a sense of gendered behavior; subsequently, children begin to self-censor as they integrate the views of the dominant society into their own belief systems. Accordingly, the socialization experiences of adolescents and young
women is of particular interest both in the past literature examined here and in the current investigation.

**Media**

The media—including magazines, television, movies, and music videos—is a source of sociocultural pressure which has garnered considerable empirical and theoretical attention. Because body dissatisfaction and belief in the thin ideal are so prevalent in our society, various researchers have proposed the media as primary outlet which idealizes thinness and physical attractiveness of women. There is evidence that preschool age girls have already internalized the thin ideal (e.g., displaying bias in assigning adjective to drawings of heavier children; preferring to play with a game-piece depicting a thin child over one depicting a heavier child; Harriger, Calogero, Witherington, & Smith, 2010). One possible source of this internalization of the preference for thin women may be the media. This argument becomes increasingly salient as one considers the large discrepancy between the average American woman and the average woman depicted in the media. In one study examining Playboy centerfolds between 1977 and 1996, nearly one third of the models met World Health Organization criteria for Anorexia Nervosa based upon weight (i.e., a BMI lower than 17.5). Mean BMIs for the Playboy centerfolds across the twenty year span ranged from 17.91 to 18.03; this is contrast to the average American woman’s BMI (based upon national governmental data for similar-aged women) of 22-25. The discrepancy between women and Playboy models was statistically significant, and represented a difference of four to seven BMI points. Messages regarding the importance of beauty are ubiquitous, with one
study showing that 78% of popular women’s magazine covers include headlines concerning physical appearance (Malkin, Wornian, & Chrisler, 1999).

The argument, then, is that exposure to very thin models as the female ideal leads women to become dissatisfied with their bodies. Women depicted in the media are considerably thinner than most women are or could reasonably expect to be (Brownell, Kersh, Ludwig, Post, Puhl, Schwartz, & Willet, 2010). Researchers have examined this issue empirically in a variety of ways, both experimentally in laboratories and naturalistically. I will examine each body of literature in turn.

**Laboratory Research**

Laboratory research upon the impact of the media on body dissatisfaction has typically used time-limited, controlled experimental approaches. Often, young women are given a pre-test of body dissatisfaction, exposed to the intervention (e.g., magazine images, film clips, etc.), and then given a posttest for body dissatisfaction to determine the impact of the intervention. These studies allow for a high level of internal validity, since the researchers have the ability to control for and constrain the effects of any non-target variables. Further, this design controls for pre-existing levels of body dissatisfaction through the use of a pre-test.

Groesz et al. (2002) conducted a meta-analysis to determine the effect of experimental presentation of media images depicting the thin ideal. The authors used five inclusion criteria (1) the study used a female sample; (2) the study used actual media stimuli of a thin model; (3) the study used a control comparison of either an average weight model, an attractive non-model, overweight models, or inanimate objects; (4) the
study measured body dissatisfaction or physical attractiveness as a dependent variable; and (5) there was sufficient statistical information provided to calculate an effect size. The authors calculated 43 effect sizes based upon an aggregate sample of 2,292 women and concluded that the presentation of media images in these formats induces a decrease in body dissatisfaction. The overall effect size of \( d = -0.30 \) for the impact of the interventions was statistically significant and small based upon Cohen’s metric (Cohen, 1977). Exposure to thin media images led to greater body dissatisfaction than did exposure to average size models, plus size models, or inanimate objects. This effect was greater in studies using between-subjects designs, those with participants less than 19 years old, and for those participants who were vulnerable prior to the intervention (i.e., those who were higher on initial body dissatisfaction or Thin Ideal Internalization).

Much of the prior research has focused upon static images from the media of thin models. In a novel study, Tiggeman & Slater (2003) examined the impact of music videos on 84 female college students. The authors point out the music videos are an increasingly popular type of media and often depict women as sexualized objects, while also promoting the thin ideal. The authors randomly assigned participants to watch either music videos depicting thin women or videos clips of ordinary people and scenic shots. The results of the study indicated that women who were exposed to the music videos evidenced increased body dissatisfaction as compared with the active control group.

Bell, Lawton, & Dittmar (2007) used a similar design that extended this initial study by controlling for the effect of the lyrics upon the participants’ body dissatisfaction. To test the hypothesis that exposure to these videos increases body dissatisfaction, the
authors used a predominantly Caucasian sample (n=87) of high school girls. The students were assigned to either (1) watch three music videos, (2) listen to those same three songs without the visual input, or (3) to a control memorization task. Participants were told the study was a memory experiment in order to keep the participants blind to the study’s true purpose. No students had guessed the true purpose of the study in the debriefing.

Consistent with the literature base on the impact of static images on young women’s body dissatisfaction, the authors found that girls who viewed the music videos showed a significantly greater change from pre- to post-intervention in body dissatisfaction than girls in either of the other conditions. Because the authors included a music-only condition, effects of the lyrics of the music can be ruled out. This well-designed study fits into the general trend in the literature supporting the notion that exposure to media images decreases body satisfaction in young women.

In a recent study, Homan et al. (2012) questioned whether exposure to ultra-fit models leads to body dissatisfaction in the absence of thinness. Within the Dual Pathway Model, it is proposed that sociocultural pressure leads to Thin Ideal Internalization, which in turn leads to body dissatisfaction. If it is true that exposure to the thin ideal leads to body dissatisfaction, then it would follow that exposure to ultra-fit models should only induce body dissatisfaction if the model is very thin. To test this hypothesis experimentally, the authors exposed 138 college age women to either thin and athletic models, normal weight athletic models, or a control condition using neutral objects. The authors found that exposure to the thin, athletic models led to an increase in body dissatisfaction, while exposure to normal-weight athletic model produced no such effect.
Thus, this study supported the viewpoint that it is the ideal of thinness which drives the changes in body dissatisfaction observed in the experimental research. This finding is particularly interesting when considered in the context of the TIM. The cognitive process of social comparison and Thin Ideal Internalization lead to body dissatisfaction in the TIM. In this study, viewing an athletic model who was of normal weight did not negatively impact body satisfaction. In light of TIM, one might expect the participants to compare themselves to the athletic model and experience body dissatisfaction as they found themselves to be dissimilar to the model. The absence of body dissatisfaction in this experimental condition suggests that either participants are not comparing themselves to the athletic target or that they are not negatively impacted by this comparison. The fact that body dissatisfaction did not arise as a result of seeing the normal weight athletic model suggests that participants have internalized the importance of thinness above the importance of athleticism. It is important to note that social comparison was not measured in this study. Future research should continue to expose the thought processes of participants in studies of this type.

*Moderators of the Media’s Impact*

The general trend within the literature is that exposure to the thin ideal through media images increases body dissatisfaction, at least in the short term. It is important to note, however, that some studies have found moderators of this relationship, indicating that the detrimental impact of media effects may not be universal. In this current investigation, moderators of the impact of the media were not empirically addressed. Nonetheless, a review of the literature pertaining to the moderation of the media’s impact
is warranted as it provides a more nuanced understanding of this area of the literature. Accordingly, research on moderators of the media’s impact is reviewed here in the interest of an exhaustive review.

Joshi, Herman, & Polivy (2004) found that for women who are restrained eaters, experimental exposure to thin models resulted in an increase in social self-esteem and self-image. The manipulation did not impact the appearance self-esteem of the restrained eaters while the unrestrained eaters showed a decrease in appearance self-esteem after exposure to the thin models. The authors contended that restrained eating status moderates the impact of the thin ideal. Notably, this study used different dependent variables than are typically used in this area of the literature, namely mood, state self-esteem, appearance self-esteem, and social self-esteem. Because much of the other literature utilized body dissatisfaction as an outcome variable, it is possible that the discrepant findings may be due to the difference in outcome variables.

In addition to restrained eaters, some preliminary evidence suggests that women with eating disorders respond to media images differently than non-eating disordered women. Halliwell, Dittmar, and Howe (2005) used a small sample (N=76) of women who self-identified as person in recovery from an eating disorder. Participants viewed advertisements featuring either ultra-thin, average size, or control images within the between-subjects design. In contrast to previous literature, the women did not report decreased body-focused anxiety after exposure to the very thin models. Interestingly, the women did report a decrease in body-focused anxiety after viewing the average size models, which the authors described as a relief effect. The women in this study may not
have experienced a decrease in body anxiety after viewing the thin models because of a ceiling effect. That is, the women in the study were already very high on body-related anxiety. Thus, the women’s anxiety had little room to increase, yet could decrease as a result of a more size-accepting image. Because this study had a very small sample (each cell contained only about 25 participants) which was self-selected, these results should be interpreted cautiously. Nonetheless, these results provide early evidence that the media impact may differ based upon eating disorder status.

Naturalistic Research

Experimental manipulation allows researchers to determine causality; thus, we can conclude based upon the extant literature that exposure to media images in the laboratory causes body dissatisfaction at least in the short term. A limitation of this body of work is that due to the natural tradeoff between internal and external validity, these experimental studies have lower external validity. It is unclear, for example, if exposure to media images has any long term implications for body dissatisfaction, or if fact the effects are transient. It is necessary, then, to demonstrate through non-laboratory studies the impact that media may have upon body image. These studies naturally involve less rigorous control of independent variables, yet they offer greater generalizability to real world contexts. Researchers have taken a variety of different approaches, including qualitative and pseudo-experimental designs. Each methodology offers its own strengths and limitations which will be reviewed along with the relevant studies.

Stice and colleagues (2001) used an ecologically valid longitudinal design with a sample of 219 adolescent girls. The authors used a novel deceit design in order to avoid
the participants realizing the intent of the study. As a part of another study, the authors offered a raffle wherein participants could either receive a gift certificate for a book store or a “popular adolescent magazine” subscription. The magazine utilized in the study was Seventeen. The participants were randomly assigned to one of the two conditions, with the gift certificate condition serving as a control. Data were collected via surveys administered in large groups at baseline, 10 months after baseline, and 20 months following baseline. The authors collected self-report data on BMI, pressure to be thin, social support, thin ideal internalization, body dissatisfaction, dieting, negative affect, and bulimic symptoms. A manipulation check at each time point verified that participants in the magazine condition reported greater exposure to Seventeen magazine during the course of the study. Interestingly, there was no main effect for experimental condition (i.e., magazine subscription versus control) on any of the five outcomes of the Dual Pathway Model. Because there was no main effect, mediators could not be examined since mediation requires a relationship between the independent and dependent variables (Baron & Kenny, 1986). Moderation analyses indicated that girls who were initially high on pressure to be thin were more likely to be adversely affected by the experimental manipulation than were girls who were initially lower on this variable. That is, girls who were vulnerable to the effects of the magazine due to initial high levels of pressure to be thin showed significantly higher increases in negative affect.

Stice and colleagues (2001) offer several explanations for the null findings. The authors suggested that perhaps the participants were too old to be negatively impacted by the magazines, although they also point out that past laboratory research using even older
participants still demonstrates an impact of media images on body dissatisfaction. Another possibility is lack of statistical power. Still, power analyses indicated that the authors had a .98 chance of detecting true effects, making this possibility unlikely. The authors suggested that this study did not find main effects, whereas many other studies have found effects within highly controlled laboratory situations, because the effects of media images on body dissatisfaction are short-lived, except for those girls and women who are initially more vulnerable to media effects (for example, through initial high pressure to be thin).

Despite these null findings, the methods implemented by Stice et al. (2001) offer potential for greater generalizability due to the naturalistic setting of the research. Thus a clear strength of this approach is that it allows researcher to better understand the true impact of media exposure on young women within their real lives. A limitation to this study, along with quantitative research in general, is that quantitative research takes an etic perspective, which can overlook both the nuance of participants’ lived experiences as well as salient factors not examined in the study. Qualitative research is discovery oriented and explores participants’ experiences in depth in their own environment (Morrow, 2007). Methodological diversity is a hallmark trait of counseling psychology (Packard, 2009) and offers researchers a more balanced perspective of a phenomenon. A review of the qualitative research on the media’s impact provides a rich perspective on women’s experiences with body dissatisfaction.

Wertheim et al. (1997) used a qualitative design to explore the sociocultural pressures to be thin. The sample was a complete class of 15 year old girls living in
Australia (N=30). The authors used semi-structured interviews to gather information about the girls’ experiences with dieting and weight loss. Themes which emerged in the study included the influence of media portrayals of women and the more proximal influences of family and peers. Of particular concern for the girls was the impact of social comparison on their body concerns (see Stice et al., 2003, reviewed later, for an experimental examination of ‘fat talk’). The participants felt that the media was a strong pressure, while social pressures were also large contributors to poor body image and starting diets. These findings are in keeping with the predictions of the TIM.

This study provides some greater depth of the experiences of girls than past studies have offered; indeed, the richness of data, including quotes from the participants, is a particular strength of qualitative research. Nonetheless, this study is not without limitations. Morrow (2007) emphasized the importance of researchers making clear their own assumptions and biases in undertaking qualitative research, in order to be able to understand, and perhaps control, some of the influences of these biases upon the interpretation of research findings. In this study, the authors did not make explicit their biases in the write-up. Further, the authors did not indicate the methods that they utilized to guide the questions used in the interviews and the interpretation of results. Future qualitative research of this sort would benefit from a more thorough delineation of the methods used to collect and interpret the data. Nonetheless, this study provides meaningful information about these girls’ lived experiences.

As pointed out previously, examining a phenomenon using diverse methodologies allows for a greater understanding of the variables involved. Several conclusions are
apparent when taking together the results of laboratory and naturalistic research. First, the
data are clear that there is at least a short term impact of media image presentation upon
body dissatisfaction. Second, preliminary evidence suggests that the media may have a
measureable impact upon more vulnerable women in the long term. These conclusions
are further supported by meta-analytic findings.

Holmstrom (2004) analyzed the results of 34 studies, both experimental and
correlational, and reported a small effect of $r=-.08$. This small effect stands in contrast to
the meta-analytic findings of Groesz et al. (2002, described previously), who reported an
effect size of $d=-.31$. In a more recent meta-analysis, Grabe, Ward, & Hyde (2008) again
examined the influence of both the experimental and correlational research on the role of
the media in body image concerns for women. The authors indicated that their meta-
analysis corrects for several issues not addressed in the previous two meta-analyses,
including the exclusion of unpublished data, lack of comprehensive review of the
literature, and collapsing of effect sizes across different dependent measures. Grabe et al.
(2008) included 77 studies for which effect sizes were calculated based upon four
outcome variables: body dissatisfaction, body self-consciousness/objectification,
internalization of the thin ideal and drive for thinness, and eating behaviors and beliefs.
The authors only included studies which measure media use or exposure, and excluded
articles which only included self-report of the perceived pressures put forth by the media.
Experimental studies were included only if the control condition included some form of
media exposure, such as non-appearance related advertisements. The authors reported an
effect size of $d=-.28$ for body dissatisfaction, $d=-.39$ for internalization of the thin ideal,
and $d=-.30$ for eating behaviors and beliefs. The authors concluded that the findings are robust in that the results converge across methodologies, samples, media type, and assessment techniques. Thus, the available evidence indicates that the media has a measurable impact upon body dissatisfaction.

**Limitations of Past Media Research**

Although the weight of the evidence supports the notion that the media impacts women’s body image, it is important to note that these effects are not universal. Polivy & Herman (2004) argued that (a) the problem of body dissatisfaction probably does not start with the media, though the media likely worsen the problem; (b) the emotional effect of media exposure is not always averse, and women seek out these images through, for example, purchasing magazines and watching television and movies; and (c) the emotional effects of the media, when they are negative, do not inevitably lead to disordered eating. In regard to the existing sociocultural models, including the DPM and TIM, the authors argued that researchers need a “more useful and mature theory of how the media and body dissatisfaction contribute to (and reflect) the eating disorders that we currently understand so dimly” (Polivy & Herman, 2004, p. 5). The authors warned against stating the model’s relationships as facts, rather than hypotheses. This warning reminds researchers to consider the weight of the evidence when interpreting the results of many studies together.

Despite these admonishments, the findings presented here do support the contention that the media have a negative impact upon body dissatisfaction. Having explored both the laboratory and naturalistic research which demonstrates the impact that
the media has upon body dissatisfaction, I now turn to another source of sociocultural pressure upon girls and young women: their peers.

**Peers**

Relatively few studies have examined the impact that peers have upon the body dissatisfaction of young women. Here, I consider only those articles which primarily examine the impact of peers as a source of sociocultural pressure and will later consider those studies which include measurement of multiple sources of this pressure.

An early study of the impact of peers was conducted by Stice et al. (2003). The authors randomly assigned 120 undergraduate women to either the experimental condition wherein a very thin female confederate complained about feeling fat and her intention to lose weight or to a control condition where the same confederate discussed a neutral topic. Because the confederate was female, similar age to the participants, and presumably (from the participants’ perspective) taking part in a study for undergraduate students, the woman would have been likely to have been perceived a peer. This study examined one way in which a peer might influence a woman, through social pressure to be thin. Results of the study indicated that participants showed a greater increase in body dissatisfaction when exposed to the social pressure condition than the control condition. The manipulation had no impact upon negative affect and the effect was not moderated by initial Thin Ideal Internalization, BD, or social support. The findings lend support to the idea that exposure to a peer who is espousing the thin ideal increases women’s body dissatisfaction. This finding is especially noteworthy given that the confederate was the same across both conditions, meaning that the thinness of the confederate was the same
in both conditions. Because thinness of the confederate was controlled, the results can be attributed to peer pressure rather than to mere exposure to a thin peer.

As proposed in the TIM, social comparison is a cognitive process which mediates the relationship between sociocultural pressure and body dissatisfaction. Social comparison with peers seems particularly likely due to the similarity between the self and peers, as well as the developmental importance of peers during adolescence and young adulthood (Steinberg & Silverberg, 1986). I next review the literature which examines social comparison with peers as a way in which peer pressure might lead to body dissatisfaction.

Krones et al. (2005) used a creative experimental design to manipulate social comparison to a thin peer. The sample for the study included 119 female undergraduates who were told that they would be participating in a study on dating and self-perception. When participants arrived to the laboratory, a confederate participant was already present. The participants were either exposed to the confederate who conformed to the ultra-thin ideal or to a confederate who was of a similar weight to the average college-age women. All participants were photographed, measured for height, weight, and body dimensions, and told that two men in another room would be rating the two participants (i.e., the confederate and the actual participant) on their eligibility as a dating partner. This manipulation is intended to induce social comparison between the participant and the confederate. To further strengthen the manipulation, the confederate provided her weight out loud (122 pounds in the experimental condition and 137 in the control condition). Based upon photographs of the participants and the confederates, a group of
40 undergraduates rated the attractiveness of each woman on a 1-10 scale. The confederates were both rated as more attractive than the average participant score. An ANOVA revealed that the thin confederate was rated as significantly more attractive than the normal weight confederate. All participants provided pre-intervention data on body dissatisfaction and negative affect, and post-intervention survey data on their body dissatisfaction, negative affect, thin ideal internalization, sociocultural pressure and self-esteem.

Results of this study revealed that exposure to the thin-ideal confederate led to a significant increase in body dissatisfaction compared with participants exposed to the normal-weight confederate. There were no significant effects for negative affect or heart rate and no significant moderators of the main effect for body dissatisfaction were observed. The results of this study bolster the view that social comparison with a thin peer leads to body dissatisfaction and supports the importance of peers within the TIM as a source of sociocultural pressure to be thin.

In a finding contrary to the general trend of the literature, Fitzsimmons-Craft, Harney, Koehler, Danzi, Riddell, and Bardone-Cone (2012) reported that in a sample of 265 college women social comparison did not mediate the relationship between Thin Ideal Internalization and BD, whereas body surveillance did mediate this relationship. Social comparison was measured using a general social comparison measure as well as a measure specific to physical appearance. This finding is in contrast to past research. The authors postulated that the findings may have been discrepant from past research due to measurement issues with the social comparison surveys, or a wash-out effect due to the
conflation upward and downward comparisons. Although research indicates that most social comparisons made by women are made in the upward direction (Leahey, Crowther, & Mickelson, 2007), there is evidence that downward comparisons have positive effects while upward comparisons have a deleterious impact upon body satisfaction. This study did not address the directionality of the comparisons which may account for the null findings. The authors suggested that future researchers should address the directionality of the social comparison in order to tease out these effects. The study further tested a mediational analysis which is not based within either the Dual Pathway Model or the TIM. The authors examined social comparison as a mediator of the relationship between internalization and body dissatisfaction. The TIM proposes social comparison as a simultaneous mediator along with Internalization of the relationship between sociocultural pressures and body dissatisfaction. Thus the relationship may have failed to reach significance because it is not a proposed relationship within either model and does not accurately capture the role of social comparison. Future theoretically grounded research is warranted to continue to determine how Internalization leads to body dissatisfaction.

Limitations of the Peer Research

Because of the methodological diversity within the peer research, there are relatively few global limitations. In the experimental research, the use of peers who are strangers is a limitation, as one’s actual friends might arguably have a different impact than would less familiar similar-aged people. Another limitation of much of this research
is the lack of specificity as to how peers influence body dissatisfaction. The mediating roles Internalization and social comparison are largely unexamined in these studies, with much of the research only demonstrating a relationship between peer influence and body dissatisfaction without examining mediators. Future research with peers would be strengthened by the inclusion of these mediating factors.

**Family**

Family environment and parental influences constitute a third major source of sociocultural pressure upon women. The most common methodology within this subfield is survey methods which ask participants to report upon the perceived attitudes and behaviors of their parents. On the whole, the literature supports the view that parents have a significant impact upon body dissatisfaction; the effect of parental comments upon body dissatisfaction appears to be stronger than the effect of parental modeling (Rodgers & Chabrol, 2009). Several studies are reviewed here to provide a sense of the commonly used methodologies within this area of the research. After providing a detailed summary and critique of several studies, general conclusions are offered based upon the extant literature.

Twamley and Davis (1999) used a sample of 249 women aged 18-30 years who were undergraduates in psychology courses. The participants completed surveys measuring nonconformity, gender roles, feminism, family and peer influences, perceived shape, perceived control over weight and shape, self-esteem, awareness of sociocultural thinness norms, Thin Ideal Internalization, BD, and eating pathology. BMI was calculated based upon measured height and weight. The main purpose of the study was to
extend the Dual Pathway Model and examine various possible moderating variables within the model. The findings generally supported the Dual Pathway Model’s hypotheses. Most relevant to the role of the family, the authors found that past family influences moderated the relationship between awareness of cultural attitudes toward thinness and internalization of these beliefs. Women who were less aware of cultural values about thinness were more likely to internalize these beliefs when family influence to be thin was high. Thus the influence of the family appears to be dependent upon women’s awareness of social values related to thinness. These results should be interpreted with caution due to reliance upon self-report measures of student’s retrospective memory of their parent’s attitudes and behaviors. Despite this limitation, this study provides preliminary support for the importance of parents in influencing internalization of thin ideals.

Rodgers, Paxton, and Chabrol (2009) used a sample of 338 Australian undergraduate men and women to explore the impact of parental comments on social comparison, body dissatisfaction, thin ideal internalization, and bulimic symptoms. Because the focus of the current study is on women, only the results using the female sample will be discussed. The initial model, which was extrapolated from the TIM, did not provide best fit to the data due to the inclusion of several non-significant paths. The final model, which provided a moderate fit to the data, included significant paths between both positive and negative parental comments and body dissatisfaction. The relationship between negative comments and body dissatisfaction was partially mediated by Thin Ideal Internalization. Parental comments about the importance of physical appearance
were also related to body dissatisfaction through the mediator of internalization. These findings suggest that positive and negative parental comments have both a direct and an indirect relationship with body dissatisfaction. Although the authors collected data on both maternal and paternal comments, the data was aggregated, forestalling the possibility of comparing the relative impact of maternal and paternal influences. One strength of this design was the use of Structural Equation Modeling, a statistical technique which allows for a more direct test of the hypothesized model rather than the more commonly used tests of the null hypothesis. Limitations of this study include the sole use of self-report measures and the only moderate fit indices within the model.

Bardone-Cone, Harney, and Sayen (2011) used a similar design to compare perceptions of parental attitudes in both Black and White college women. The authors used a sample of 97 African American women and 179 Caucasian American women. The participants completed self-report measures of their perceptions of their parent’s attitudes about body image and eating while the participant was growing up. The authors found similar patterns of findings across both the Black and White subsamples, namely that greater levels of parental comments about body image and greater parental modeling of weight-concerned behaviors (for example, parent being on a diet) were related to greater weight/shape concern on the part of the participant. A strength of this study is its focused inclusion of a more diverse sample than much of the past literature, which has historically heavily drawn upon White samples. A major limitation specific to this study is the use of a scale of parental comments and behaviors that was created for use within this study and thus the validity and reliability of the scale are unknown.
In a recent examination of adolescent boys’ and girls’ body image, Katz-Wise, Budge, Lindberg, and Hyde (2012) proposed that maternal modeling may account for part of their children’s experiences with their bodies. Interestingly, the authors did not find a relationship between maternal body shame and adolescent body shame, though the mother’s body shame did predict her child’s body surveillance. The findings suggest that the process of individuating is a more salient process in the formation of body image for these adolescents than was modeling. Additionally, the authors found that higher overall quality of the mother-child relationship was related to higher body esteem and lower body shame in her children. These findings suggest some transmission of maternal attitudes to adolescents and that a more positive relationship between the mother and child likely serves as a protective factor against body image concerns in the adolescent.

Conclusions on Parental Role

The overall trend within the literature would suggest that perceived parental comments and behaviors are associated with body dissatisfaction in their children. Notably, these findings are largely cross-sectional which precludes inferences of causality. Rodgers and Chabrol (2009) conducted a review included 56 empirical investigations, of which three were longitudinal designs. Based upon this review, the authors concluded that direct parental comments about appearance have a particularly large impact upon their offspring’s body dissatisfaction, while parental attitudes on the whole also appear to have an effect, albeit a weaker one.
Social Comparison

In the Tripartite Influence Model, social comparison is conceptualized as a mediator between sociocultural pressures and body dissatisfaction. Theoretically, then, women are exposed to the cultural norm valuing thinness, which leads them to compare themselves to this standard. Dependent upon the woman’s perceived discrepancy between herself and the comparison target, the woman experiences an increase or decrease in body dissatisfaction. Because most women do not approximate the thin ideal as closely as most models, this social comparison with media figures typically leads to decreased body satisfaction. An alternative understanding of the relationship among the variables places social comparison as a mediating factor between Internalization and body dissatisfaction. Although social comparison is not an original component of the Dual Pathway Model, Krones et al. (2005) have suggested that social comparison may be a cognitive factor which explains the relationship between internalization and body dissatisfaction. That is, as women accept the cultural ideal of thinness (internalization), they begin to make comparisons of themselves with other women which lead to body dissatisfaction. Few studies have directly compared the predictions of the two models (and these studies have been reviewed previously in this chapter). Accordingly, I present here an argument for the importance of social comparison in causing body dissatisfaction.

Meta-analyses clearly indicate that exposure to thin-ideal images leads to decreases in state BD (Grabe et al., 2008). To determine how Social Comparison might explain the method by which exposure leads to BD, Tiggeman, Polivy, and Hargreaves (2009) used a novel experimental design with 144 college women. The women were asked to examine advertisements under the guise of a study about their perceptions of
these advertisements. The images portrayed were either of only a product or a thin woman. Women were assigned to one of three instructional sets. All conditions asked the women to rate several aspects of the advertisements (e.g., regarding its layout and effectiveness). In the control conditions, the other questions were regarding how funny, interesting, and creative the advertisements were. In the Social Comparison condition, participants were asked to respond to items asking about their tendency to compare themselves to the woman in the picture (“This woman is thinner than me”) with a goal of implicitly causing Social Comparison with the model. In the Fantasy condition, the participants were asked to respond to items about their tendency to fantasize about being the woman in the advertisement (“It would be great fun to be this woman”). Results of this study indicated that women reported greater state Body Dissatisfaction and negative mood after the Social Comparison condition, whereas they reported improved mood after the Fantasy condition. Additionally, regression analyses revealed that self-reported comparison processing and fantasy processing were predictive of the women’s appearance self-esteem and positive mood. Overall, the results of this study support the role of Social Comparison in women’s reactions to thin-ideal images.

In a follow-up study, Tiggeman and Polivy (2010) used a similar design to examine the impact of upward and downward Social Comparisons on women’s BD and mood. The participants were asked to look at advertisements portraying the thin ideal. Social Comparison was manipulated implicitly through items that either asked about the participant’s perception of the woman’s attractiveness (an upward comparison) or her intelligence/superficiality (presumably a downward comparison). In contrast to
hypotheses, the authors found that neither condition had an impact upon BD. Nonetheless, regression analyses revealed that self-reported appearance comparisons were related to increased BD. The authors indicated that the experimental manipulation may have not have had the intended effect because the women compared themselves to the figures regardless of the instruction set. Thus, although the women had positive feelings from the downward comparisons, they also had negative reactions to the upward comparisons that they made regardless of instructions.

In a particularly compelling comparison of men’s and women’s experiences with Social Comparison, Franzoi, Vasquez, Sparapani, Frost, Martin, and Aebly (2012) used a cross-sectional self-report methodology to examine gender differences in this variable. The authors found that women were more likely to make upward comparisons which resulted in an overall loss of body esteem, while men’s use of social comparison tended to result in overall increases in body esteem. Thus women’s use of social comparison tended to be self-critical and confirming of their negative beliefs about their bodies. This study highlights an important difference in the way that men and women are socialized to use comparisons in self-appraisal and further supports that social comparisons have a negative impact upon women’s body image.

Myers and Crowther (2009) conducted a meta-analysis of 156 studies to determine the effect of social comparison as a predictor of body dissatisfaction. The authors included those studies which used well-known, validated measures of body dissatisfaction, and a variety of measures of social comparison, including questionnaires and inferred social comparison based upon the experimental manipulation. Based upon
the 189 effect sizes included in the meta-analysis, the authors reported a large effect size of \( d=0.77 \). This effect was moderated by gender and age such that women and younger participants were more negatively impacted by social comparisons. These findings underscore the negative impact that social comparisons have upon women’s body dissatisfaction. Although this study sheds light upon the effect of social comparison, there are certain limitations. The studies included in the meta-analysis were almost exclusively quantitative, cross-sectional studies. Although the meta-analysis included both cross-sectional and experimental studies, it is nonetheless difficult to determine (a) the duration of the effects and (b) the potentially reciprocal nature of the effects.

**Methodological Concerns in Past Research**

As outlined previously, the majority of the past research has examined only small portions of individual models, thus limiting inferences about the additive or negating effects of the various components when examined together (i.e., the relative impact of peers, family, and media; the role of internalization and social comparison when considered jointly). A considerable amount of past research is not based specifically on any theoretical model, which makes fitting the findings into an overall structure more difficult. Further, the use of multiple comparisons (e.g., regression analyses) rather than the more sophisticated modeling methods (e.g., Structural Equation Modeling) has limited the conclusions that can be drawn from past research. Among the existing SEM studies, small sample sizes and considerable post-hoc modifications to the models casts doubt upon the generalizability of findings to other samples.
Further, when the full models are tested, they are frequently examined with the addition of new variables (e.g., perfectionism, sociotropy, gender role conformity) rather than with only the variables originally included in the model. At times, paths in the models are removed or modified with no explanation (e.g., removing mediating variables, changing mediators to exogenous variables). Thus, relatively few studies have examined the models in their entirety with only the originally proposed variables. This study improved upon several of these past methodological flaws. Specifically, I tested the models as they were hypothesized; included only the variables originally hypothesized in the models; used SEM rather than multiple comparisons; and avoided unwarranted post-hoc modifications to models (see Results).

The Present Study

The primary aim of this study was to compare the utility of two models of body dissatisfaction: The Dual Pathway Model (Stice, 2001) and the Tripartite Influence Model (Thompson et al., 1999). Each of these models has received some support in the empirical literature, but direct comparison of the models has been limited and yields mixed results. Accordingly, the purpose of this study was to determine which model demonstrated a better fit in a large sample of college women. It was hypothesized that the Tripartite Influence Model (Figure 2) would provide an overall better fit to the data than the Dual Pathway Model (Figure 1). This hypothesis is based upon the literature reviewed in this chapter which highlights the relationship between Social Comparison and BD and the literature which supports the separate influences of each of the three sources of Sociocultural Influence (Peers, Family, and Media). Because the TIM includes
these two important elements, it was hypothesized that this model would provide an overall better fit to the data.
CHAPTER III

METHODS

This chapter reviews the participants, measures, procedures, and analyses for the research study. Details regarding the participants and procedures of this investigation are discussed first. The measures utilized in the study as well as pertinent validity information then are reviewed. Finally, the statistical analyses used in the study are outlined along with the hypotheses that correspond to the analyses.

Participants

Participants in this study consisted of 455 undergraduate students at the University of Akron. Considerable past research suggests that college age women are an at risk group for body image concerns (Vohs et al., 2001) and the majority of the past research has focused on how these models fit for girls and young women. For this reason, the present study included only female participants. Participants were recruited through introductory and upper-level psychology courses. Students were offered optional course credit to compensate for their participation in the study. Kline (2011) recommended an absolute number of cases greater than 200, with consideration also being given to the number of parameters to be tested. Jackson (2003) suggested the \( N: q \) rule, where \( N \) is the number of cases and \( q \) the number of parameters in the model. Jackson recommended an
ideal ratio of 20:1, with a 10:1 ratio representing the lowest acceptable ratio. With the disturbance terms set to equal a constant of 1.0, the TIM contains 41 parameters, suggesting the need for a sample of 410 participants. Given these recommendations and taking into incomplete data, data were collected for 455 participants.

Participants who did not meet the inclusion criteria were removed from the dataset. One participant who indicated that he was male was removed, as were 16 participants under age 18. Sixteen participants were removed from the dataset because due to random responding (e.g., marking “disagree” to an item asking the participant to select “agree”). Seven participants did not respond to any items after the demographic page and listwise deletion was used to remove these participants from the data set. After the removal of these participants, the final sample included 415 women. On the remaining analyses, the dataset contained these 415 women; however, the sample size varied between 410 and 415 due to missing data on individual subscales of interest.

The majority of the sample was Caucasian ($n=314, 75.7\%$). The remainder of the sample was African American ($n = 61, 14.7\%$), Asian ($n = 13, 3.1\%$), Native Hawaiian or Pacific Islander ($n = 2, <1\%$), or some other race ($n = 24, 5.8\%$). The women’s ages ranged from 18 to 52, with a mean age of 20.77 ($SD=4.28$). One participant did not specify her race. Nine women (2.2\%) identified themselves as Hispanic or Latino. Five women (1.2\%) identified as gay or lesbian, 389 as heterosexual (93.7\%), 16 as bisexual (3.9\%), and five as other (1.2\%). Approximately 17\% of the women indicated that they were on a diet ($n = 69$) and four participants (1\%) reported that they were currently being treated for an Eating Disorder. The women in this sample ranged in weight from 90 to
300 pounds, with a mean weight of 146.7 pounds and a mean Body Mass Index (BMI) of 24.52 ($SD=5.43$). BMI scores ranged from 16.66 to 47.82, with the majority of women having a BMI in the normal weight range ($n =252, 61\%$). Based upon BMI, 14 women were underweight (3\%), 90 were overweight (22\%), 48 were obese (12\%), and 11 did not report either their height or weight (3\%). The mean BMI in this sample was generally consistent with other college age samples, although it trended slightly higher. Cash, Morrow, Hrabosky, and Perry (2004) reported BMI statistics for a sample of over two thousand college women. In their sample, the mean BMI for African American women was 24.2 and the mean BMI for non-African American women was 22.1. Leahey and colleagues (2007) reported mean BMI across several experimental groups ranging from 21.21 to 25.62, with a mean across all groups of 23.35. Thus the mean in this sample was slightly higher than similar samples of college women. The largest group of women in this sample ($n =158, 38\%$) reported that they exercise 2-3 days per week, whereas 21.2\% reported exercising zero days per week, 21.9\% one day per week, 12.8\% 4-5 days per week, and 6\% six or more times per week. Demographic information is summarized in Table 2.

**Procedures**

After obtaining Institutional Review Board approval, participants were recruited from both visiting classrooms and email announcements. Interested women were directed to a secure internet site where the survey was completed. The survey began with an informed consent describing the risks, possible benefits, and voluntary nature of the study. After electronically agreeing to the terms of the informed consent, participants
were guided through a series of screens presenting the surveys. Because the data was cross-sectional, the participants were not identified in the dataset. Rather, individuals were assigned a unique identification number which allowed the survey results to be both anonymous and confidential. The order of presentation of the surveys was counterbalanced to avoid order effects. To ensure the integrity of the data, quality check items were included periodically in the measures.

**Measures**

For each construct to be estimated, two or three measures were used. This is following the recommendation of Weston & Gore (2006) who suggested that multiple indicators better identify the underlying construct. Measures were selected based upon past research on the TIM and the DPM. Because the TIM includes family, peers, and the media as separate sources of sociocultural pressures whereas the DPM groups these three influences, measures were chosen which assess each of the three influences separately. For the purpose of measuring more general Sociocultural Pressures variable as described in the DPM, a composite variable tapping several sources of pressure (peers, media, family, and dating partners) was used (see Figure 3), with the goal of using the same set of indicators for the measurement models of both the TIM and DPM.

**Family influence.** In order to assess the construct of family influence proposed by the Tripartite Influence Model, I used two measures. Abraczinskas, Fisak, and Barnes (2012) identified 22 measures of parental influence related to body image and eating disturbance based upon a thorough review of the literature and used all the relevant items across these 22 measures to develop a new measure of parental influence which captures
the multidimensionality of the construct. This new measure is the Parental Influence Questionnaire (PIQ). Although the PIQ is a new measure and therefore has not been validated across a variety of samples, I chose to use this measure for several reasons. First, the measure was developed using a rational-theoretical approach and encompasses items from all of the commonly used measures of parental influence. Thus the measure overlaps considerably with frequently used measures while also improving upon past measurement through a broader item pool. Second, the measure has shown good preliminary reliability and validity (described in greater detail below). Nonetheless, the PIQ is a new and relatively untested measure; in addition, the measure is aimed at assessing only parental influence rather than the more general family influence. Accordingly, I also used the Perceived Sociocultural Pressures—Family Subscale (PSP-F) as a measure of family influence. The development and validation of each scale is described in turn.

**Parental Influence Questionnaire (PIQ).** The PIQ (Abraczinskas et al., 2012) is a recently developed measure that assesses the perceived attitudes of parents about weight and the thin ideal. To develop the measure, the authors first examined the literature to obtain a broad pool of possible items. Through a review of the literature published after July 2010, the authors identified 22 measures of parental influence from which 118 relevant items were selected for the initial item pool. This initial item pool was administered to a sample of 367 mostly Caucasian female undergraduate students. Items were deleted from the initial item pool based upon both empirical and rational evidence. The authors removed items with inter-item correlations greater than .80 to avoid
redundancy and also removed those items which were not of “relevance to the construct of parental influence” (Abraczinskas et al., 2012, pp. 96).

The remaining 33 items were submitted to a principle components analysis. Examination of the scree plot and item analysis suggested either a two or three factor solution. The authors chose to retain the two factor solution based upon both the parsimony of this model and that high number of cross loadings in the three factor solution.

After rotating the two retained factors using a Varimax rotation, the authors removed those items from the measure with factor loadings less than .40, leading to a new trimmed item pool of 28 items. Item analysis suggested that the first factor, labeled Direct Influence, is a measure of direct parental comments about weight and physical appearance. Items from this measure included “I perceived a strong message from my parents to have a slender figure” and “I received negative feedback about the size or shape of my body”. This factor accounted for 30.55% of the item variance and included 18 items.

The second factor, Modeling, accounted for 13.51% of the variance in this sample and included 10 items. This scale assesses the extent to which parents modeled the importance of the thin ideal through behaviors such as dieting or communications between the parents. Sample items from this subscale include “My parents complained about their weight” and “My parents encouraged each other to lose weight”.

The scale was further trimmed to include only the eight most robust items (based upon item loadings) for each of the subscales. Subsequent analyses to validate the scale
used only these 16 items. The scale showed convergent validity through hierarchical regression analyses demonstrating that the PIQ has predictive validity above and beyond the influence of peers and the media in the prediction of body dissatisfaction. Notably, the Modeling subscale was a unique predictor while Direct Influence was not a significant predictor. Both subscales were significant predictors of Drive for Thinness and Bulimia symptoms above the influence of peers and media. Thus the measure shows good initial construct validity. The authors do not report Cronbach’s Alphas for the trimmed 18 item measure, however the authors report $\alpha=.91$ for Direct Influence and .84 for Modeling for the 28-item measure. Further data on the reliability and validity of the scale are not available.

**Perceived Sociocultural Pressures—Family Subscale (PSP-F).** The Perceived Sociocultural Pressures Scale—Family subscale (Stice, Nemeroff, & Shaw, 1996) is a three-item measure of familial attitudes about weight and body type. The measure uses a 5-point Likert type scale with responses ranging from “none” to “a lot”. The “None” response is scored as a 1. The averaged response across the three items is used as a scale score. The measure shows acceptable 2-week test-retest reliability ($r=.93$) and internal consistency ($\alpha=.88$; Stice et al., 1996).

The full measure has shown good predictive validity. Stice and Agras (1998) demonstrated that greater perceived pressure (using the full scale, which measures family pressure, media pressure, and peer pressure) predicted the onset of binge eating behaviors. Women who were free of bingeing symptoms across a span of 9 months reported significantly less perceived pressure to be thin (as measured by the PSP).
compared with women who began binging over the course of the nine months. Further, level of perceived pressure as measured by the PSP predicted depressive symptoms in adolescent girls (Stice & Bearman, 2001). Finally, scores on the PSP are significantly correlated with thin-ideal internalization ($r=.45$), depressive symptoms ($r=.32$), and both current ($r=.53$) and future ($r=.47$) body dissatisfaction in a sample of adolescent girls (Stice & Whitenton, 2002). These findings support the predictive validity of the measure.

**Peer influence.** In order to measure the influence of peers, three measures were planned to be used: the PSP-Peers scale; the FOPAS-peers scale; and the POTS-peers scale. Each of these scales was chosen because they are commonly used in the literature and have demonstrated good reliability and validity across independent samples. However, due to an error in data collection, only the PSP-Peers scale was used in the analyses (see Results).

**Perceived Sociocultural Pressure Scale—Peers.** The Peers subscale of the PSP (described above) is a five-item measure of pressure from both friends and dating partners. Three items assess pressure from friends and two items assess pressure from dating partners. The scaling is the same as the full measure and the item wordings parallel the Family subscale. Stice et al. (1996) reported Cronbach’s alphas of $\alpha=.75$ and $\alpha=.88$ for peers and dating partners items, respectively. The authors also reported 2-week test-retest reliabilities of $r=.91$ and $r=.75$ for the peers and dating partners scales. Both the peer and family subscales contributed significantly to an underlying factor of Perceived Pressure in a significant SEM model of the DPM (Stice et al., 1996), further supporting
the validity of the subscales. Further information on the overall scale validity and reliability are described in the previous section on the PSP scale.

**Media influence.** In order to measure the influence of the media, several measures were used. First, the Information and Pressures subscales of the Sociocultural Attitudes towards Appearance Questionnaire will be used. The Information subscales assesses the extent to which participants’ view the media as an important source of information about how women ought to look and the Pressures subscale assesses perceived pressure to be thin from the media. In addition to these two subscales, the PSP Media subscale will also be used. The SATAQ was chosen because it is a widely used measure of sociocultural pressures and it has been well validated. The two subscales assess slightly different aspects of media consumption, which will allow for a more thorough encapsulation of the underlying construct of Media Pressure. The PSP Media subscale was chosen because it is a frequently used measure that succinctly captures participants’ sense of media pressure to be thin.

**Sociocultural Attitudes towards Appearance Questionnaire—3: Information and Pressures Subscales.** The Sociocultural Attitudes towards Appearance Scale-3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) is a 30 item measure with four subscales: Internalization-General, Internalization-Athlete, Pressures, and Information. To assess media influence, the Information and Pressures subscales will be used. The Information subscale contains nine items (sample item: “TV programs are an important source of information about fashion and ‘being attractive’”). The Pressures subscale includes seven items (sample item: “I’ve felt pressure from TV or magazines to
lose weight”). Items are scaled on a 1 (Definitely Disagree) to five (Definitely Agree) scale, with 3 representing a neutral response.

The SATAQ-3 was developed by Thompson et al. (2004) as an update to an earlier version of the measure. Owing to the large differences between early versions of the measure and its current iteration, the earlier versions are not reviewed here. See Heinberg, Thompson, and Stormer (1995) for information on the SATAQ and Cusumano and Thompson (1997) for information on the SATAQ-R.

Based on a review of the literature, Thompson et al. (2004) determined items should span the domains of awareness of sociocultural ideals, internalization of those ideals, perceived pressure, and use of the media as a source of information. The authors also aimed to include items that assess pressures to have an athletic body. Items were developed by a set of researchers who had previously reviewed other measures of media influence. The item developers created forty new items for the measure, which were submitted to a factor analysis.

Participants in this first validation study were 175 female undergraduate students ranging from 17 to 25 years old. One purpose of this first study was to clarify if the Ideal Body Stereotype Internalization Scale Revised (IBIS-R; Stice, 2001) measures the same underlying construct that the SATAQ-3 Internalization scale assesses. Thompson et al. (2004) argued that the IBIS-R is a measure of awareness of sociocultural ideals rather than a measure of internalization of these ideals. Accordingly, an exploratory factor analysis was conducted on the items from the SATAQ-3 and the IBIS-R. The scree plot combined with eigenvalues and a rational approach to factor analysis suggested a five
factor solution. The IBIS-R items loaded primarily with the Awareness subscale of the SATAQ-3, while none of the IBIS-R items loaded with the Internalization subscale. This led the authors to determine that the IBIS-R is in fact not a measure of internalization.

The other items of the SATAQ-3 formed three additional subscales: Information, Pressures, and Athlete Internalization. Items with significant cross loadings and items with factor loadings below .40 were deleted. Removal of items based on these criteria left very few items on the Awareness subscale. Due the low number of items on this subscale, the Awareness subscale was removed. A four-factor solution was then attempted and all items were replicated. The final solution included 30 items across the four subscales (Internalization-Athlete; Internalization-General, Information, and Pressures). Cronbach’s alphas ranged from $\alpha=.92$ to $\alpha=.96$ for the subscales. Convergent validity was demonstrated through high correlations with measures of eating disturbance. Regression analyses demonstrated that the SATAQ-3 Internalization and Pressures subscales were unique predictors of the desire to be thin as measured by the Eating Disorder Inventory, while the Information subscale and the IBIS-R were not unique predictors. The Pressures subscale added 7% unique variance while the Internalization subscale contributed 1% unique variance. The Pressure subscale also uniquely predicted 13% of the variance in BD ($\beta=.54$, $t=5.22$, $p < .0001$).

In a second study, 195 undergraduate women as well as a comparison sample of 15 women in inpatient treatment for eating disorders were administered the SATAQ-3. A second factor analysis replicated the findings in the first study. All four subscales contributed unique variance in the prediction of desire to be thin and in the prediction of
body dissatisfaction. In order to demonstrate the discriminant validity of the measure, 33 nonclinical participants were selected from the undergraduate samples based upon high self-reported rates of eating disturbance. One-way ANOVAs were used to compare this eating disturbed sample, the women in inpatient treatment, and the general control group. The eating disturbed and inpatient women scored higher on Internalization and Pressures than the control group, supporting the discriminant validity of the scale. Unexpectedly, the controls and patients did not differ on the Information scale and the patients were actually lower than the eating disturbed college sample. This finding may be explained by the fact that many eating disorder treatments aim to reduce the salience of the media as an important source of information about the ideal body.

Overall, the findings in these two studies support the reliability and validity of the SATAQ-3. Here, the Information and Pressures subscales will be used to assess the media influence. The Information subscale taps the extent to which participants perceive the media to be an important source of information about attractiveness. The Pressures subscale assesses the pressure that the participant feels to work on achieving attractiveness as defined by the media.

**Perceived Sociocultural Pressure Scale—Media.** The Media subscale of the PSP (described previously) is a two-item measure of participants’ perception of pressure from the media to be thin. A sample item is “I’ve noticed a strong message from the media to have a thin body”. Stice & Whitenton (2002) reported a Cronbach’s alpha of α=.85 for the full scale. Because past research using this measure has used the full measure rather than the subscales (e.g., Stice & Whitenton, 2002; Stice & Bearman,
2001; Stice & Agras, 1998) information on this subscale alone is not available. The subscale will nonetheless be included as the overall scale has demonstrated adequate reliability and validity (see the previous section on the PSP) and because the measure is commonly used in the literature on the DPM.

**Internalization of the thin ideal.** Internalization of the Thin Ideal was measured by the Internalization subscale of the SATAQ-3 and the Ideal body Stereotype Scale Revised. Both measures have been frequently used as measures of internalization in past research on the TIM and DPM and have demonstrated good reliability and validity.

**SATAQ-3: Internalization Subscale.** The SATAQ-3 Internalization-General subscale will be used to assess the extent to which participants have internalized the thin ideal. The subscale includes nine items (sample item: “I do not care if my body looks like the body of people who are on TV” (reverse coded)). The subscale shows good internal consistency (α=.92; Thompson et al., 2004). The convergent validity of the Internalization subscale is supported by significant correlations with theoretically related constructs, including BD (r=.40) and drive for thinness (r=.57; Thompson et al., 2004). Thompson et al. (2004) also reported that individuals with eating disturbances score significantly higher on the measure than do control subjects, further demonstrating the validity of the measure. Additional information on scale development, reliability, and validity can be found in the previous section on the SATAQ-3.

**Ideal Body Stereotype Internalization Scale Revised.** The Ideal Body Stereotype Scale Revised (IBIS-R; Stice et al., 1994) is a six item measure in which participants are asked to rate their agreement with statements about stereotypically
attractive female traits (e.g., “Women with long legs are more attractive”). The scale uses a five point Likert scale ranging from 1 (Disagree) to 5 (Agree). Stice et al. (1994) reported that an earlier version of the measure was created based upon a pilot study in which participants generated lists of stereotypes of female attractiveness. From this pilot study, items were created and administered to a sample of 49 participants. Poorly correlated items were deleted, leading to the current six-item scale. More detailed information on the creation of the scale was not provided by the authors. The scale demonstrated good internal consistency ($\alpha=.86$) and good three week test-retest reliability ($r=.60$). The authors reported that that measure demonstrates convergent validity via high correlations with a measure of conformity ($r=.37$) and a measure of restrained eating ($r=.38$). Additionally, the measure was supported in its validity in that it functioned as a mediator in the relationship between media exposure and body dissatisfaction as predicted in the DPM (Stice et al., 1994).

As indicated previously, Thompson et al. (2004) reported that the IBIS-R does not measure internalization in the sense that the items appear to better tap an awareness of sociocultural ideals. They corroborated this hypothesis through a factor analysis which suggested that the IBIS-R items did not load with the Internalization items of the SATAQ-3. The IBIS-R was nonetheless included in this study as a measure of internalization for several reasons. First, the measure has been used extensively as a measure of internalization in other studies (Stice, 2001; Stice & Agras, 1998; Stice, Mazotti, Weibel, & Agras, 2000; Tylka & Subich, 2004). More importantly, the measure is highly correlated with the SATAQ-3 Internalization subscale ($r=.69$; Stice et al., 2000).
Although the measure does appear to measure a slightly different aspect of internalization, examination of individual items suggests that the IBIS-R does measure endorsement of the thin ideal. In order for a woman to agree, for example, that “Slender women are more attractive”, she would have had to have accepted this cultural ideal as a truth. Accordingly, the IBIS-R was used as a measure of internalization in this study.

**Social comparison.** Social comparison was assessed through two measures: The Physical Appearance Comparison Scale and the Body Comparison Scale. Both measures have been used in past SEM research and demonstrate adequate reliability and validity.

**Physical Appearance Comparison Scale.** The Physical Appearance Comparison Scale (PACS; Thompson, Heinberg, & Tantleff, 1991) is a five item measure of the participant’s tendency to compare her body and appearance to that of others. The measure is scaled 1 (Never) to 5 (Always). A sample item is “At parties or other social events, I compare how I am dressed to how other people are dressed”. One item is reverse scored. Possible scores on the measure range from 5 to 25, with higher scores indicating a greater tendency to compare one’s self to others.

The measure was initially validated using a sample of 80 women (Thompson et al. 1991). An internal consistency of $\alpha=.78$ was obtained for this sample. Acceptable test-retest reliability was demonstrated with this initial sample ($r=.72$). Convergent validity was shown through high correlations with body dissatisfaction, eating disturbance, and self-esteem. In a large sample of adolescents, those who had been teased by a sibling evidenced significantly higher scores on the PACS than those who reported no teasing (Keery, Boutelle, van den Berg, & Thompson, 2005) supporting the validity of the scale.
in an independent sample. Van den Berg et al. (2002) used the measure in a large SEM study as an indicator for the underlying construct of Social Comparison and found that the Social Comparison construct was a significant mediator of the relationship between sociocultural pressures and BD, thus supporting the construct validity of the measure.

**Body Comparison Scale.** The Body Comparison Scale (BCS; Thompson et al., 1999; Fisher, Dunn, & Thompson, 2002) is a 25-item measure of the tendency to compare various aspects of one’s body to the bodies of others. Participants are asked to rate how often they compare aspects of their body to their same-sex peers. The first twenty items are specific parts of the body (e.g., “Ears”, “Forehead”) while the last five items are larger features (e.g., “Muscle tone of upper body”, “Overall shape of lower body”). Items are rated on a 1-5 scale, with 1 representing “Never” and 5 indicating “Always”. Higher scores are indicative of a greater tendency to compare one’s body to same sex peers. The measure includes three subscales: Weight, Muscularity, and General Appearance. For the purpose of the current study, only the Weight and General Appearance subscales were used.

The scale was initially validated with a sample of 1,760 participants who were in 7th grade through college seniors (Fisher et al., 2002). No further demographics for the sample were provided. In this sample, the measure was scaled on a 1-6 scale, however the scale was designed on a 1-5 scale, which will be retained for this study. Thompson et al (1999) reported an internal consistency of $\alpha=.95$ for the scale. Using multidimensional scaling, Fisher et al. (2002) identified two dimensions of the scale: Muscle-related and Weight-related. The authors found that males and females differed in their comparison
processes in that women tended to emphasize the weight dimension while men tended to emphasize the muscle dimension; age was not found to significantly impact body comparison. Validity of the measure was supported by significant relationships with theoretically relevant measures. For example, McCreary and Saucier (2009) reported that the BCS General subscale was significantly correlated with body anxiety \((r=0.27)\), as was the Weight subscale \((r=0.54)\). In this same study, body comparison as measured by the BCS was a significant mediator of the relationship between drive for muscularity and body anxiety (McCreary & Saucier, 2009), further supporting the predictive validity of the measure. The authors reported Cronbach’s alphas for this sample ranging from \(\alpha=0.80\) to \(\alpha=0.92\). Further validity of the measure is provided by findings indicating that scores on the BCS mediate the relationship between state anxiety and BD for women exposed to idealized body images (Cahill & Mussap, 2007). Overall, these findings support the reliability and validity of the BCS.

**Body dissatisfaction.** To assess Body Dissatisfaction, the Body Shape Questionnaire and the General and Weight subscales of the Body Esteem Scale were used. The Body Shape Questionnaire was chosen because it has been extensively studied, with many independent samples verifying the reliability and validity of the measure. The Body Esteem Scale was chosen because it assesses a different aspect of BD than does the Body Shape Questionnaire, which captured the multiple dimensions of BD. Further, the measure has evidenced good reliability and validity in past research, verifying its appropriateness for this study.
**Body Shape Questionnaire.** The Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) is a 16 item measure of concern over body shape (sample item: “Has feeling full (e.g., after eating a large meal) made you feel fat?”). Participants are asked rate how they have been feeling about various aspects of their appearance on a Likert type scale with responses ranging from Never (1) to Always (6). The instructions for the measure direct participants to focus on their attitudes over the previous four weeks. Because the minimum response (i.e., Never) is scored as a 1, the measure has a possible score range from 16 to 96, with lower scores indicating less concern over body shape and size.

The items for the BSQ were derived through interviews with 28 young women: six women diagnosed with bulimia nervosa, four diagnosed with anorexia nervosa, seven on weight-reducing diets, three attending an exercise class, and eight college students. The authors stopped interviewing after reaching saturation of the data (i.e., when no new information was emerging). In the interviews, the women were asked to describe the experience of “feeling fat” (Cooper et al., 1987, p. 487). Based upon the interviews, the authors categorized the information into conceptually distinct groupings and developed 51 initial items based upon these categories.

In order to reduce the item pool, the authors administered the initial items to four samples of women. The samples were a group of 19 women diagnosed with Bulimia Nervosa in outpatient treatment, 331 women visiting a family planning clinic, 119 female students of occupational therapy, and 85 female undergraduate students. Intercorrelations between scores for the patients and the other women were examined to determine if the
items discriminated between the groups. This resulted in the elimination of one item.

Next, t-tests comparing the patients’ scores on the items to the non-patients’ resulted in the elimination of six items which did not distinguish between the groups at the .001 level of significance. Finally, five items were eliminated due low endorsement of the items across both samples. After these eliminations, the final version of the measure included 34 items.

In order to demonstrate validity of the measure, scores from the Bulimia sample were correlated with the Body Dissatisfaction subscale of the Eating Disorder Inventory and scores from the occupational therapy sample were correlated with overall scores from the Eating Attitudes Test. These correlations were high, ranging from $r=.35$ to $r=.66$. As a second indicator of validity, the non-patient group was divided into groups based upon their fear of fatness, the importance that they attached to thinness, and their self-report of current dieting. Only those participants who were very low ($n=79$) or very high ($n=95$) on these indicators were included in this analysis. The scores on the BSQ for both groups differed significantly, suggesting that the measure differentiates between those who are dieting and concerned about their weight from those who are not. Reliability analyses were not undertaken in this initial validation study.

Subsequent analyses further support the validity of this measure and provide evidence of its reliability. Rosen, Jones, Ramirez, and Waxman (1996) provided an overview of the reliability and validity data for the measure from four samples: a sample of 155 body image therapy patients, 59 obese women, 24 obese men, 163 undergraduate students, and 89 university staff members. The average ages for these female samples
ranged from 18.5-41.7 and average Body Mass Index (BMI) for the samples ranged from 21.7 to 33.5. The average age for the obese men was 46.7 with an average BMI of 35.2. All participants were given a demographic questionnaire, the BSQ, and two other measures of body image disturbance. Validity of the measure was supported in that the obese dieters and the body image patients reported greater body image concern than did the students, who in turn had greater body image concern than the University staff. The measure also differentiated between obese and non-obese individuals. The measure demonstrated good concurrent validity through correlations with other measures of body dissatisfaction. Across the samples, correlations ranged from $r=0.58$ to $r=0.81$ with the Body Dysmorphic Disorder Examination and from $r=-0.47$ to $r=-0.67$ with the Multidimensional Body-Self Relations Questionnaire. These high correlations suggest that this measure is a valid indicator of body image.

Test-retest reliability was assessed using a sample of 33 of the undergraduate women who retook the measure three weeks after the initial assessment (Rosen et al., 1996). The correlation between Time 1 and Time 2 data was $r=0.88$. The authors reported that reliability coefficients for each item were significant at the $p<0.01$ level. Thus the measure demonstrates both acceptable reliability and validity.

**Body Esteem Scale for Adolescents and Adults.** The Body Esteem Scale for Adolescents and Adults (BESAA; Mendelson, Mendelson & White, 2001) is a 23 item measure of body esteem. The measure has three subscales tapping various components of body esteem (BE): BE-appearance, which taps general attitudes toward one's appearance, BE-weight, which taps satisfaction with one's weight, and BE-attribution, which taps
perception of the attitudes of others toward one's body. Respondents are asked to indicate their agreement with statements about their appearance on a scale of zero (Never) to 4 (Always). Some items are reverse scored to control for response bias. Scores are computed as the mean of all of the items for that subscale. Higher scores indicate higher body esteem (i.e., greater body satisfaction).

Mendelson et al. (2001) modified an earlier version of the BESAA originally used with children to make it more appropriate for an adult sample. Because the original version of the measure differs substantially from the current version, a detailed description of the psychometrics of the original scale is not provided here. Briefly, the original measure included 24 yes/no questions. This early version of the measure demonstrated good reliability and validity (Mendelson & White, 1993-1994). In a subsequent 20 item version of the measure, a factor analysis revealed the three subscales found in the current measure. However, the BE-Weight and BE-Attributions scales included only 3 items each.

Several additional modifications led to the current iteration of the scale. Mendelson et al. (2001) describe three changes which led to a 30 item pool. First, the authors changed the dichotomous scaling to a 5-point Likert scale to increase the robustness of findings and to more fully meet the assumptions of factor analysis. Next, the authors created new items for the BE-Weight and BE-Attribution scales in order to increase the validity of these subscales. Finally, items were modified to make them more appropriate for adults where necessary.
In order to demonstrate the reliability, validity, and factor structure of the measure, Mendelson et al. (2001) used a conglomerated dataset that included three datasets from studies addressing other issues. The total sample included 1334 men and women aged 12-25 years old of which 97 participants were retested 3 months after the initial testing. After removing five items due to ambiguous wording, the remaining 25 items were submitted to a factor analysis using an oblique rotation. The factor analysis suggested a four factor solution, however the fourth factor contained only two items. After removing those two items, a clear three factor solution was replicated with factor loadings on all items greater than .40. All scales demonstrated good internal consistency ($\alpha=.81-.94$).

Validity of the measure was demonstrated through expected relationships with other criteria (Mendelson et al., 2001). Overall, women had lower BESAA scores than did men, which is in keeping with past literature. Further, overweight individuals also demonstrated lower scores on both the BE-Weight and BE-Appearance subscales. The BE-Appearance subscale was positively related to global self-esteem for women (partial correlations ranging from $r=.17$ to $.76$, with most correlations significant at $p<.01$). Finally, reliability was demonstrated through both high internal consistencies and good test-retest reliability ($r=.83-.92$).
CHAPTER IV

RESULTS

This chapter reviews the data analyses used to examine the hypotheses of this study. First, the data were cleaned and missing data points were identified. The variables of interest were examined for deviations from univariate and multivariate normality as required for structural equation modeling (Kline, 2011). After preparing the data, the planned analyses were conducted, starting with the measurement model. This analysis was conducted in order to ensure that the measured variables appropriately approximated the latent constructs are described. Once an adequate measurement model was developed, the two structural models were specified. For the purposes of these analyses, the following fit indices were considered: model chi-square, Comparative Fit Index (CFI), Standard Root Mean Square residual (SRMR), and the root mean square error of approximation (RMSEA). A chi-square test that is not significant signified a model that is consistent with the data. In order to aid in the interpretation of results, multiple fit indicators in addition to the chi square test were examined. A CFI of greater than .95 and SRMR of less than .08 are recommended by Hu and Bentler (1999) as cutoff values of good model fit. MacCallum, Browne, and Sugawara (1996) suggest .01, .05, and .08 as values denoting excellent, good, and acceptable fit, respectively for RMSEA. Based upon
these criteria, fit indices were examined to determine which model better fit the data. Finally, exploratory analyses were conducted to elucidate non-significant findings.

**Data Screening and Missing Data**

Missing data were handled based upon the recommendations of Schlomer, Bauman, and Card (2010) who suggested three steps in managing missing data. The authors indicated that researchers should report the amount of missing data, describe the pattern of missingness, and determine the most appropriate method of handling missing data. Accordingly, the amount of missing data is considered first. Schlomer et al (2010) recommended that missing data on individual items which compose a subscale be imputated prior to totaling subscale scores, while missing data information should be reported for subscales. Subscale and scale means were calculated when 90% or greater of the item level data was non-missing for that participant; if a participant completed less than 90% of a given measure, the scale or subscale mean was marked as missing. This method is mathematically equivalent to mean imputation. Downey and King (1998) examined the impact of mean imputation on scale reliability and determined that reliabilities were unbiased assuming no more than 20% missing data. The cut-off of 90% was chosen to ensure a more stringent implementation of this recommendation.

Because MPLUS uses full information maximum likelihood (FIML) to utilize the greatest amount of the available data, participants with missing data on individual subscales were included in the dataset. Missing data patterns were analyzed within MPLUS to determine what percentage of the subscale and scale level data was missing. Of the 415 participants included in the dataset, complete data (i.e., scores for all subscales
and scales of interest) were available for 397 women (95.7%). The two most common missing data patterns, which were identified for four and three participants, respectively, included one missing data point each. Four participants had complete data for all of the 17 indicators except the PACS, while three participants had complete data for all indicators except the Pressures subscale of the SATAQ. The remaining eleven missing data patterns accounted for one participant for each pattern, indicating that data was not systematically missing for particular subscales. Further, the first three missing data patterns all included missing data on a single indicator, while the remaining patterns (n=11) included missing data on multiple indicators.

Schlomer et al. (2010) recommended that researchers determine the pattern of missingness in the data. For data missing at random (MAR), the missing data is related to some variable in the data set but not related to the score on the missing variable itself (Rubin, 1976). Data are described as not missing at random (NMAR) when the missing data points are systematically related to the participant’s response on that item had the participant responded (Rubin, 1976). Data missing completely at random (MCAR) is a special case of MAR and describes missing data that are unrelated to all other variables in the study (Schlomer et al., 2010). A graphical representation of the missing data patterns in this dataset did not suggest an identifiable pattern in the missing data. Additionally, given that the missing values were not found primarily on a particular indicator, the missing data were very unlikely to be NMAR. Schlomer et al. (2010) argue that it is difficult in practice to determine if missing data are MAR or MCAR; to differentiate the two, the authors suggest using a dummy-coded variable to relate the missing data to other
variables of interest in the study. Given the very small number of individuals with
missing scale-level data on any given measure, it was not possible to statistically compare
participants with missing data to those without it. Thus, it could not be determined if the
missing data would be best described as MAR or MCAR. Nonetheless, FIML is an
appropriate technique to account for both MAR and MCAR data (Enders & Bandalos,
2001), and offers the particular advantage of using the entire sample size, thus
maintaining accurate standard errors (Schlomer et al., 2010). Accordingly, FIML was
used in all subsequent analyses to account for missing data.

**Data Normality**

In keeping with the underlying assumptions of SEM, the data were examined for
departures from univariate and multivariate outliers. The normality of the data was
assessed following the recommendations of Tabachnik and Fidell (2001). First, it was
determined that all means, minimums, and maximums for the scales and subscales were
within the expected range. Next, the data were screened for univariate outliers by
converting all scale and subscale scores to z-scores. Tabachnik and Fidell suggested that
cases with a z-score of 3.29 or larger are potential univariate outliers. Based upon this
cut-off, two possible univariate outliers were identified for Case 393 on the BCS General
Appearance and Case 409 for the IBIS. However, the authors cautioned against removing
univariate outliers prior to examining the dataset for multivariate outliers, particularly as
some univariate outliers are expected in large datasets. Thus, the data were next
examined for multivariate outliers.
First, Mahalanobis distance was calculated for the combination of indicators to be used in the primary analyses. Mahalanobis distance scores are compared to the $\chi^2$ distribution with degrees of freedom equal to the number of variables in the primary analysis (Tabachnick and Fidell, 2001). Here, this is a critical value of 42.313. None of the cases included a Mahalanobis distance of this magnitude, although Case 415 approached this value at 42.05. Cook’s distance was also assessed for all scales and subscales, with a suggested critical value of 1.00 indicating influential cases. The mean Cook’s distance in this sample was 0.003, with a standard deviation of 0.0156, a minimum of 0.00 and a maximum of 0.191. No cases were identified as influential based upon this metric. Lastly, leverage scores were calculated for all cases in the dataset. Tabachnick and Fidell (2001) suggest that cases may be multivariate outliers when the influence value exceeds $2(k/N)$ where $k$ is the number of indicators and $N$ is the sample size. Comparing to a critical value of 0.173 for this dataset, no cases were identified which exceeded this value. The mean leverage score for this dataset was 0.035 with a standard deviation of 0.016, a minimum of .008 and a maximum of .106. Because no cases were consistently identified as outliers when considering leverage, discrepancy, and influence, all cases remained in the dataset. To ensure that the inclusion of the three possible outliers did not influence the final results, the ultimate measurement and structural models were ran separately both with and without these outliers. The inclusion of these cases did not impact the direction, strength, or substantive interpretation of the results. Results are reported for the full dataset.
The skewness and kurtosis of each indicator are provided in Table 3. Tabachnick and Fidell (2001) recommended examining the shape of the distributions to determine if the data depart significantly from the distribution of a normal curve. Examination of skewness and kurtosis values in addition to visually examining the shape of the distributions of the scales suggested that several of the measures were not normally distributed. To account for this deviation from normality, the MLR estimator was used for the primary analyses. The MLR estimator in MPLUS is a maximum likelihood parameter estimate that is robust to non-normality and non-independence of data and can be used in data sets that include missing data (Muthen & Muthen, 2010).

Prior to analyses, the internal consistency of each indicator was assessed using Cronbach’s Alpha. All of the scales demonstrated adequate reliability (Cortina, 1993). Table 4 summarizes the reliability for all of the measures in the study; because Cronbach’s alpha can be superficially inflated by high numbers of items, the number of items for each subscale is listed along with the alpha level.

**Measurement Model**

The measurement models were examined next. In order to ensure that differences in the structural models could not be attributed to variability in the way that the measurement models were constructed, every effort was made to ensure the equivalency of the measurement models for the TIM and the DPM. Both models include the latent constructs of Thin Ideal Internalization and Body Dissatisfaction, so the indicators for these two latent constructs are the same for both models. The three sociocultural
pressures hypothesized for the TIM are proposed to collapse into a single latent construct within the DPM. To model these two theoretically different approaches while maintaining the equivalency of the measurement models, a hierarchical CFA was used. In a hierarchical or 2nd Order CFA, a group of latent variables are subsumed within a higher level latent construct. In order to ensure that any differences between the DPM and TIM structural models could not be attributed to differences in the measurement models, the same indicators of Sociocultural Pressures were used for both models. The portions of the measurement model pertaining to Sociocultural Pressures were therefore identical for both models, with the addition of the 2nd order latent construct of Sociocultural Pressures which was added to the DPM. These differences in the measurement models are apparent in Figures 3 and 4 which depict both models with their indicators.

As proposed in the analytic plan, the entire measurement model for the TIM was first examined. The purpose of the measurement model is to ensure that the observed variables measure the proposed latent constructs (Kline, 2001). Without this step, the researcher cannot determine if a poorly fitting structural model is due to poorly measured constructs or to a mis-specified model. Thus, the full measurement model for the TIM was first examined to determine the overall fit of the observed variables to the latent constructs. Unfortunately, due to an error during data collection, data were not collected for two of the proposed indicators (the FOPAS and the POTS). Although some data were collected for these two variables, the stems for the items indicated “Someone” rather than a specific other (Family or Peer) as was proposed in the analytic plan. Due to this error, several modifications were made to the indicators for the Family Influence and Peer...
Influence latent constructs. Family Influence was measured by the PIQ Direct subscale, the PIQ indirect subscale, and one parcel created from the family items of the PSP. Peer influence was measured by two parcels from the PSP with items pertaining to experiences with peers. Media influence was measured as it was proposed, with the Information and Pressures subscales of the SATAQ and one parcel from the PSP with items pertaining to media influence. All parcels from the PSP contained either two or three items. Because Thin Ideal Internalization (referred to only as Internalization hereafter) included two subscales, the IBIS was separated into two parcels each containing three items based upon even/odd groupings. The full measurement model is shown in Figure 4.

The initial measurement model demonstrated less than adequate fit, $\chi^2=581.1$ (120), $p<.001$, CFI=.89, RMSEA=.096 (CI .09, .10), SRMR=.06. All the standardized factor loadings were significant at the .01 level on their intended factors and are presented in Table 5. Although the standardized loadings were all significant, the overall model did not demonstrate good fit; further, the program suggested many modifications to the model to achieve good fit. Given the initially inadequate fit of the measurement model, the measurement model was assessed by parts to determine which components of the model were negatively affecting the fit. This approach is consistent with past research assessing the TIM (van den Berg et al., 2002).

First, the Sociocultural Pressures variables (Family, Peers, and Media) were examined as a measurement model for only these variables. This model demonstrated good fit, $\chi^2=73.337$ (17), $p<.001$, CFI=.95, RMSEA=.090 (CI .07, .11), SRMR=.04,
indicating that this portion of the measurement model required no modifications. Because
the DPM postulates that these three variables can be collapsed into a single construct, a
hierarchical (i.e., 2\textsuperscript{nd} order) CFA was used to model the three variables within the context
of a single higher-order latent factor. This CFA, depicted in Figure 5 with standardized
factor loadings, demonstrated good fit to the data, $\chi^2 = 73.337$ (17), $p < .001$, CFI=.95,
RMSEA=.090 (CI .07, .11), SRMR=.04. Thus the hierarchical CFA was used for the
DPM and the three factor CFA was used for the DPM.

Next, the Internalization and BD factors were considered as a separate
measurement model. These two factors were first examined without the addition of
Social Comparison because they are common to both models. The initial measurement
model with these factors demonstrated poor fit to the data, $\chi^2 = 153.547$ (8), $p < .001$,
CFI=.95, RMSEA=.210 (CI .18, .24), SRMR=.07. The standardized factor loading
between BD and Internalization was 0.64, suggesting a high degree of overlap between
the constructs. The modification indices suggested allowing multiple indicators to cross-
load onto the wrong factor. In order to better understand the relationships between these
constructs, an Exploratory Factor Analysis (EFA) with Geomin (oblique) Rotation was
used for the indicators of BD and Internalization. Kaiser’s Criterion in combination with
a scree plot suggested two factors. The rotated factor loadings provided insight into the
poor fit within the CFA. Although the subscales formed two distinct factors, the General
Internalization subscale of the SATAQ cross-loaded strongly with the BD factor; in fact,
the measure’s factor loading was considerably higher for BD than for Internalization. The
rotated factor structure is provided in Table 6. Overall, results of this EFA indicated that the Internalization construct was not well measured by the available measures.

An additional EFA was conducted for the individual items which comprise the General Internalization subscale of the SATAQ along with the IBIS items. The Kaiser Criterion and scree plot suggested two factors: one which contained all of the General Internalization items of the SATAQ and one which contained the IBIS items. No cross-loadings exceeded .20. Based upon this EFA, it was evident that the IBIS and SATAQ General Internalization subscales tapped notably differing elements of Internalization. This finding that the two subscales were not tapping the same underlying construct is consistent with Thompson et al. (2004) who reported that the two subscales factor analyzed onto separate factors in their sample of college women. Thompson et al. (2004) indicated that the IBIS does not assess Internalization, but rather awareness of appearance norms. The rotated factor structure is presented in Table 7.

Examination of individual items of both subscales supported this notion, as the IBIS includes items such as “Tall women are more attractive” while the Internalization subscale of the SATAQ includes items such as “I wish I looked like models in music videos”. The IBIS items appear to tap a more general and impersonal awareness of traits that are considered attractive, while the SATAQ General Internalization items assess a more intimate desire to be similar to the ideal body. Based upon both the empirical and theoretical evidence, it was determined that the IBIS did not adequately assess the underlying construct of Internalization. Accordingly, the IBIS was removed from further analyses. Instead, Internalization was measured by three parcels from the General
Internalization subscale of the SATAQ created through even/odd groupings. This approach ensured the theoretical integrity and validity of the Internalization construct. Nonetheless, it is important to note that high cross loadings were apparent between the Internalization and BD constructs for both indicators of Internalization.

The Internalization and BD CFA was repeated with the parcels of the SATAQ General Internalization subscale as indicators of Internalization. This model fit the data adequately $\chi^2 = 58.89$ (8), $p<.05$, CFI=.97, RMSEA=.124 (CI .096, .15), SRMR=.037, with the exception of the RMSEA which was outside of the recommended range. No further modifications were made to this measurement model.

As a third step, a CFA was conducted for the Social Comparison construct using the PACS plus the three subscales of the BCS as indicators. This model demonstrated good fit to the data, $\chi^2 = 6.78$ (2), $p<.05$, CFI=.99, RMSEA=.076 (CI .02, .14), SRMR=.01, with all standardized factor loadings significantly loading on the Social Comparison factor. The Social Comparison factor required no modifications.

Finally, the initial measurement model was again examined as an entire model. Based upon the findings of the follow up analyses described above, one modification to the model was made. The Internalization construct was measured only by the General Internalization subscale of the SATAQ. This model demonstrated slightly less than adequate fit with the data, $\chi^2 = 476.61$ (120), $p<.001$, CFI=.93, RMSEA=.085 (CI .07, .09), SRMR=.06. All standardized factor loadings were significant. Although the CFI falls below the level specified in the analytic plan, it is above the .90 cut-off for adequate
fit suggested by Kline (2005). The RMSEA is also slightly above the recommended cut-off of .08 for adequate fit. Because the model demonstrated marginally adequate fit, no further modifications to the measurement model were made. Figure 6 depicts the model with standardized factor loadings.

Because the DPM does not include the Social Comparison, the measurement model was repeated with this construct removed. Additionally, the 2nd order factor encapsulating the three sociocultural factors was included in the model. This factor was included because the DPM hypothesizes that the three sources of Sociocultural Pressures can be collapsed into a single latent construct. Using the same indicators and underlying structure as was used in the TIM measurement model ensured the equivalency of the two models. This model demonstrated mediocre overall fit, $\chi^2 = 459.196 \ (71), p<.001$, CFI=.897, RMSEA=.115 (CI .11, .13), SRMR=.09. Although this measurement model did not demonstrate adequate fit on all indices (namely the RMSEA), no further modifications were initiated in order to ensure the equivalency of the two measurement models. The DPM measurement model is depicted in Figure 7 along with its standardized factor loadings.

**Structural Models**

Correlations among latent variables are presented in Table 8. The DPM structural model was fully saturated (just-identified), which indicates that the fit indices of the structural model cannot be interpreted. This is evident in the degrees of freedom and fit indices of the structural model, which are identical to those of the measurement model.
χ² = 404.41 (70), \( p < .001 \), CFI = .91, RMSEA = .107 (CI .10, .12), SRMR = .08. Therefore fit indices cannot be interpreted. All paths were significant at the .01 level except the direct path from Internalization to BD (see Figure 8). Additionally, the indirect path from the Sociocultural Pressures variable to BD via Internalization was not significant. Thus, the proposed mediation in the DPM was not supported. The standardized results for the dependent variable of BD indicated \( r^2 = 0.887 \) (SE = 0.041), \( p < .001 \). Examination of modification indices revealed nine recommended modifications involving the Family and Media latent constructs. The DPM hypothesizes that the three sources of Sociocultural Pressures can be collapsed into a single latent construct. The presence of the modification indices suggesting the addition of direct paths from the individual sources of Sociocultural Pressure indicated that a single latent construct does not best explain the data. The non-significant relationship between Internalization and BD is contrary to hypotheses. Further, the relationship between Internalization and BD was negative despite a positive zero-order correlation between these variables, suggesting the possibility of a negative suppressor. Tabachnick and Fidell (2001) described a negative suppressor as a situation wherein the regression weight (here, factor loading) of a predictor is the opposite of its sign in a simple correlation with the outcome variable. The authors suggested that suppressor variables can be identified by removing congruent paths from the model to assess the change in the relationship between the suppressed variable and the outcome variable. In order to determine which of the sociocultural pressures might be affecting the relationship between Internalization and BD, the Family, Peers, and Media paths were included as separate influences in a series of repeated
structural models. Through the systematic removal of each of the influences, it became
apparent that all signs are in the expected directions with all combinations of the sources
of pressure except when Family and Media were both included. When these variables
were both included as sources of Sociocultural Pressure, the relationship between
Internalization and BD became negative, as did the indirect path from Family to BD
through Internalization. These exploratory analyses indicated that the Media influence
negatively suppressed the Family influence in its relationships with Internalization and
BD. Because the only program suggested modification indices were inconsistent with the
DPM, no modifications were made to the original model.

The TIM structural model demonstrated less than acceptable fit to the data $\chi^2=579.93$ (120), $p<.001$, CFI=.91, RMSEA=.094 (CI .086, .102), SRMR=.06. Examination
of the standardized results indicated $r^2=0.782$ (SE=0.054), $p<.001$, for the outcome
variable of BD. As shown in Figure 9, all paths were significant except the paths from
Internalization to BD, Peers to Internalization, and Peers to SC. A summary of the
indirect effects is presenting in Table 11. Notably, none of the indirect effects involving
Internalization as a mediator were significant. The indirect paths originating from Peers
were also non-significant.

In the analytic plan, three a-priori modifications to the TIM were identified based
upon past literature. In the measurement model, the Family and Peer influences were
allowed to covary, thus this modification was already made. The other two modifications
were concerning the Peers influence. First, it was expected that Peers may have a direct
effect, rather than an indirect effect, upon Body Dissatisfaction. Secondly, it was
anticipated that if Peers did influence BD indirectly, it would influence BD only through
the mediator of Social Comparison and not through Internalization. After reviewing the
initial model and the Mplus suggested modification indices, the TIM was modified to
include a direct path from Peers to BD. In addition, because it was anticipated that Peers
may not have an indirect effect on BD, both the SC and Internalization indirect paths
were dropped. The modified model with standardized loadings is depicted in Figure 10.
The overall fit of this final model was less than acceptable, $\chi^2 = 557.354$ (125), $p<.001$,
CFI=.91, RMSEA=.091 (CI .084, .09), SRMR=.06. All of the indirect effects in this
model were significant and are presented in Table 12. Once again, the negative
suppression of the Family influence by Media influence is apparent in the negative
standardized loading for Family on Internalization.

Table 13 lists the Goodness-of-Fit indices for the unmodified DPM, the
unmodified TIM, and the modified TIM. Because the models are non-nested, they cannot
be compared using the chi-square difference test. Further, the Akaike Information
Criterion cannot be used to compare the models because they contain different indicator
variables. Therefore, the only available method to compare the models is through fit
indices. However, further comparison of the models was not initiated because none of the
models demonstrated minimally adequate fit to the data. In contrast to the hypothesis that
the TIM would provide a better fit to the data than the DPM, none of the models
demonstrated good fit to the data. Furthermore, the structural fit of the DPM could not be
assessed due model saturation. Kline (2011) emphasized that a significant chi-square
statistic should not be automatically ignored. Further, none of the models met the a-priori specified cut-off for CFI or RMSEA. For these reasons, all three models were rejected.

**Exploratory Analyses**

Because the proposed models did not demonstrate a good fit to the data, exploratory analyses were initiated for two main reasons. First, follow-up analyses can tentatively examine the hypotheses of interest using a different statistical approach. Second, if follow-up analyses are in keeping with past studies, this would provide for support for the contention that the models were ill-fitting due to misspecification and measurement error rather than sample-specific anomalies. As described by Kline (2011), even a very misspecified model can be made to fit the data through the post-hoc modifications to the model. These empirically derived models are difficult to replicate in other samples due to their capitalization upon sample-specific idiosyncrasies. For these reasons, a new model was not tested. Instead, exploratory analyses were conducted with the goal of examining the primary hypotheses outside of the model. Although the use of regressions rather than SEM has some limitations, including the inability to simultaneously test multiple relationships, it offers a secondary method for testing the two primary hypotheses of this study.

First, a regression analysis was used to test Hypothesis 1a that the addition of Social Comparison would lead to a meaningful increase in the prediction of Body Dissatisfaction above Internalization of the Thin Ideal. Second, a regression analysis was used to test Hypothesis 1b that the family, peers, and media would have independent predictive validity (thus providing indirect support for the TIM). All analyses were
conducted in SPSS using list-wise deletion for missing data. By default, MPLUS uses only participants with full data on independent variables, and for this reason both MPLUS and SPSS provided identical results and sample sizes. Because MPLUS does not report fit indices for regression models based upon a t-test or F-statistic, the significance of the regression models in MPLUS must be demonstrated by comparing the fully saturated model to a baseline model. For ease of interpretability, and because both data analysis packages provide identical regression coefficients, SPSS was used for these analyses.

**Hypothesis 1a.** The first hypothesis that Social Comparison would add meaningfully to the prediction of BD above Internalization was examined through a step-wise regression. Because several outcome variables were available to measure each variable, it was necessary to select among them for a single indicator of each construct. In all cases, the measure with the highest Cronbach’s Alpha was selected to measure each construct. For BD, the BSQ total scale was used as the outcome measure. For Social Comparison, the BCS was used (all three subscales were included in the analyses). For Internalization, only the General Internalization subscale of the SATAQ was used, as the IBIS had previously been determined to measure a different construct.

For the first regression, the General Internalization subscale of the SATAQ was entered as the independent variable and the BSQ as the outcome variable. This model was significantly different from zero, $F(1,403) = 217.74, p < .001$. Internalization of the Thin Ideal significantly predicted BD, $b = 0.56, p < .001, R^2 = 0.35$. Next, the three indicators of Body Comparison were added to the regression step-wise. Each of the overall models
was significantly different from zero. Unstandardized regression coefficients (B), standardized regression coefficients (β), \( R^2 \), and \( R^2 \) change for each equation are presented in Table 14 along with the overall significance of the final model. The final regression equation, which included all three subscales of the BCS along with the General Internalization subscale of the SATAQ, was statistically significant, \( F(4,400)=123.89, \ p<.001 \) and Internalization, Social Comparison related to Weight, and Social Comparison related to Muscularity all significantly predicted BD. The General Appearance subscale of the BCS was not a significant predictor of BD and did not result in a significant change to the \( R^2 \) value. Overall, the hypothesis that the addition of Social Comparison would contribute meaningfully to the prediction of BD was supported, as the addition of both Social Comparison related to weight and Social Comparison related to muscularity resulted in a significant increase in the proportion of explained variance in BD. All of the variables together explained 55% of the variance in BD.

A second set of regression analyses was conducted to test Hypothesis 1b that each of the individual sources of Sociocultural Pressure contribute individually to the prediction of BD. Again, a step-wise regression was conducted in SPSS. These analyses should be interpreted with caution because no a-priori hypotheses specified which measures ought to be included as indicators of each of the constructs. In keeping with the previous regression, the indicator with the highest reliability for each construct was used in the regression analyses. For Family influence, the PIQ direct influence was used; for Media Influence, the Pressures subscale of the SATAQ was used. Due the aforementioned data collection error, only the two parcels of the PSP were available as
indicators of the Peer Influence. Theoretically, these two indicators should be redundant because they are simply linear combinations of peer-related items on the PSP. Because there was no logical means for determining which to include, both were included in the regression analysis. Table 15 summarizes the results of these four step-wise regression analyses. Each of the models was significantly different from zero, and the addition of each new variable resulted in a significant change in $R^2$ with the exception of the addition of the second parcel of the Peer Influence items from the PSP, which did not result in a significant increase in $R^2$. The redundancy of the second parcel of the PSP Peer Influence was evident by its non-significant B-weight. The Family, Peer, and Media influences each predicted unique variance in BD, thus providing support for Hypothesis 1b. These variables together explained 54% of the variance in BD.
CHAPTER V

DISCUSSION

This chapter provides an overview of the study objectives, summarizes the results, and relates these results to those of past research. First, the principal aims of this study are summarized. Next, the primary findings from this investigation are extensively reviewed with a special focus upon possible explanations for the poor fit of the proposed models. The measurement issues that became apparent during the analysis stage are emphasized and recommendations for future construct and measurement validations are offered. The results of the exploratory analyses are related to the existing literature on body dissatisfaction and sociocultural pressures. Given the poor fit of the proposed models, suggestions for future research are offered throughout along with the limitations of this study. The chapter concludes with a final summary, implications, and recommendations.

Overview of Study Objectives

The present study was initiated in response to awareness that the BD literature, while dominated by many prolific researchers, suffers from a lack of direct comparison of the available models of BD. The Dual Pathway Model (DPM; Stice, 2001) and the Tripartite Influence Model (TIM; Thompson et al., 1999) have both been proposed as
models to explain the development of Eating Disorders (EDs). Each has been supported through a few studies examining the models in their entirety (Stice et al., 1994; Stice, 2001; Duemm et al., 2003; van den Berg et al., 2002; Keery et al., 2004) and through research that supports the role of the variables of interest (e.g., Sociocultural Pressures, Social Comparison, and Thin Ideal Internalization) in the development of BD. However, very few studies have directly compared the two models with all their proposed pathways included. Thus, the primary aim of the current study was to compare these two models using Structural Equation Modeling.

Past literature provided a basis for understanding the relationships between the variables of interest in this study. The three sources of Sociocultural Pressure (Family, Peers, and Media) have been repeatedly supported in the development of BD. Essentially, if a woman perceives a greater amount of pressure from her immediate social environment (e.g., peers and family) and from her more distal social environment (e.g., media) than her dissatisfaction with her own body tends to be greater (Groesz et al., 2002; Stice et al., 2003; Twamley & Davis, 1999). Internalization of the Thin Ideal has been supported as a mediator of the relationship between Sociocultural Pressures and BD (Fingeret & Gleaves, 2004; Myers & Crowther, 2007). This part of the model postulates that greater personal investment in and subscription to the thin ideal leads to greater dissatisfaction with one’s own body. Additionally, many studies have supported the role of Social Comparison in the development and maintenance of BD for young women. Social Comparisons related to body image involve comparing one’s own body to the bodies of other women; this process theoretically leads to greater BD, particularly in the
case of comparisons when the perceiver is believed to be less closely aligned with the thin ideal than the other woman. Considerable research supports this hypothesis (Myers & Crowther, 2009; Tiggemann et al., 2009; Tiggeman & Polivy, 2010). Overall, all of the variables of interest within both the TIM and DPM have been supported in their role in BD.

Although both models contain similar variables, several key differences between the models warranted this examination into their comparative fit. First, the DPM groups all sources of Sociocultural Pressure into a single variable while the TIM separately measures each of the three sources of pressure (Family, Peers, and Media). Secondly, the TIM includes Social Comparison as a simultaneous mediator along with Internalization of the Thin Ideal of the relationship between the Sociocultural Pressures and BD. Finally, the DPM includes a direct path between Sociocultural Pressures and BD. Each of these differences has implications for the field of BD and our theoretical understanding of these constructs. Accordingly, it is important to determine which model better explains the development of BD. The present investigation also corrected for several methodological flaws of past research, including the tendency of past research to examine the variables in isolation, the addition of extraneous variables, and data-driven model modifications.

The primary aim of this study, then, was to compare the utility of two models of BD. Although both models have received some support in past research, direct comparisons of the models have been limited. Based upon a thorough review of the literature, the primary hypothesis of this study was that the TIM would provide an overall better fit to the data than the DPM. Specifically, it was hypothesized that
1a. The inclusion of Social Comparison would add meaningfully to the prediction of BD over the single mediator of Thin Ideal Internalization.

1b. The inclusion of Family, Peers, and Media as separate influences, as hypothesized in the TIM, would better fit the data than the grouping of all three variables into a single source of influence.

**Summary of Results**

In order to test these hypotheses, both models were tested using Structural Equation Modeling in the software program MPLUS. The overall hypothesis that the TIM would provide better fit for the data than the DPM was not supported by these analyses. Although the TIM demonstrated very marginally better fit indices than the DPM, formal comparison of the fit of the two models was not possible; further, the tiny difference in fit indices is likely not interpretably different. Neither the DPM nor the TIM, nor a theoretically-justified modified version of the TIM, fit the data. Kline (2011) indicated that situations can arise where no theoretically justifiable re-specifications leads to a reasonably well-fitting model; in such cases, the author argued that no model should be retained. The inability to retain a model is potentially suggestive of a problem in either the theory underlying the model or the operationalization of its proposed constructs (Kline, 2011). It is clear from the difficulty in establishing an appropriate measurement model that the operationalization of at least one of the constructs in the models (e.g., Internalization of the Thin Ideal) was poorly defined. Because an appropriate measurement model is a prerequisite for examining the structural model, it is difficult to determine if the models were poorly-fitting due to the evident measurement issues or due
to theoretical misspecification. The evidence for each of these possibilities is reviewed in turn.

_measurement issues_

The measurement models for both the TIM and the DPM were difficult to establish. Because of the initial struggle in verifying the measurement models, the constructs were examined piece-by-piece to determine the source of the measurement error. Despite the data collection error which limited the number of indicators for two of the three Sociocultural Pressures constructs, this portion of the model demonstrated adequate fit. The Social Comparison latent construct was also adequately measured by the available indicators. The analyses suggested that the primary source of measurement error originated with a part of the measurement model that was common to both the DPM and TIM: the Internalization and BD constructs. Error residuals and factor loadings suggested the Internalization measures were the primary source of mismeasurement between the two constructs. Accordingly, the focus here is upon the measurement issues pertaining to the Internalization construct.

Thin Ideal Internalization is a process by which a woman incorporates the importance of being thin into her own worldview such that it becomes a “guiding principle” in her life (Myers & Crowther, 2007, p. 297). Stice et al. (1994) theorized that this internalization leads to higher BD by causing women to set unrealistic goals about their own bodies. Fitzsimmons-Craft et al. (2012) defined Internalization in the same way, arguing that a woman is relatively unaffected by social ideals if she has not
incorporated them into her own belief system. The literature is clear on the theoretical importance of internalization in explaining the relationship between Sociocultural Pressures and BD. What is less clear, however, is how this construct can be measurably differentiated from the other constructs in the models that are highly associated with Internalization. In order to better understand the measurement of Internalization, I turn to other areas of the psychological literature to determine how other subfields have defined similar constructs. In a parallel process to this literature, the mental health literature has examined the ways in which public attitudes toward mental illness impacts the belief systems of individuals with mental illness (Corrigan & Watson, 2002). Similarly, internalized racism is the incorporation of negative beliefs about one’s own racial group into one’s belief system and acceptance of the supremacy of the majority race (Huber, Johnson, & Kohli, 2006). Both of these areas of literature elucidate the process of measuring a construct which is defined by the acceptance of a societally sanctioned belief system.

Corrigan (2000) provides a social-cognitive framework for understanding self-stigma which could be readily applied to the BD literature. In this framework, which draws heavily from social psychology, societal attitudes are distinguished from personal attitudes, and each of these is divided into three categories. First, stereotypes are negative beliefs about a particular group. Notably, an individual can be aware of a stereotype without personally endorsing it. Prejudice is agreement with a stereotypical belief which is coupled with an affective response. Finally, discrimination is a behavior in response to a prejudice. This framework can be applied to societal views (e.g., public stigma) or to
beliefs about the self (e.g., self-stigma). These components are depicted below along with examples pertinent to the construct of interest here, Internalization of the Thin Ideal.

Table 1. Self-Stigma Model Applied to Sociocultural Pressures

<table>
<thead>
<tr>
<th></th>
<th>Public Stigma</th>
<th>Self-Stigma</th>
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<tbody>
<tr>
<td><strong>Stereotype: Belief about</strong></td>
<td>Thin women are most attractive.</td>
<td>I am not attractive unless I am thin.</td>
</tr>
<tr>
<td>women’s bodies</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prejudice: Agreement with</strong></td>
<td>Disgust/anger toward women who do not meet ideal.</td>
<td>Low self-esteem; self-loathing; sadness.</td>
</tr>
<tr>
<td>this belief/emotional reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>** Discrimination:**</td>
<td>Debasement of women’s bodies.</td>
<td>Avoidance of own body; self-monitoring; Eating Disordered behavior?</td>
</tr>
<tr>
<td>Behavioral response</td>
<td>bodies.</td>
<td></td>
</tr>
</tbody>
</table>

As is evident in this example, knowledge of stereotypes does not necessarily imply that an individual will be negatively impacted by this stereotype. The distinction between a stereotype and prejudice is akin to the distinction in this area of research between Sociocultural Pressures and Internalization. In a slightly different, but not incompatible, definition of stereotypes and prejudice, Correll, Judd, Park, and Wittenbrink (2010) described stereotypes as cognitive groupings that link members through shared attributes. Prejudice is an evaluative response to a particular group. The

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1 Notably, this is an incomplete comparison, as the social psychology literature on prejudice and stereotyping is based on a cognitive system of categorizing out-groups, while the societal goal of thinness for women arguably applies to all women rather than a specific other. Nonetheless, the comparison provides a useful framework for understanding these cognitive processes.
authors emphasized that stereotypes reflect a cognitive schema which does not necessarily include an emotional or evaluative component. Because prejudice is the most conceptually similar to the idea of Internalization, the available measures of prejudice are briefly reviewed to emphasize the range of options for measuring this construct.

Correll et al. (2010) described methods for assessing prejudice in two main categories: explicit measures and implicit measures. Explicit measures can be further divided into global evaluations of a group without significant semantic content and content-focused measures. Global measures include the Feeling Thermometer and Social Distance measures. Both tasks ask participants to rate groups. The Feeling Thermometer uses a 100 point scale ranging from very cold feelings toward the group to very warm and the Social Distance measures ask participants to rate the closest level of social contact with which they would be comfortable for a particular group (e.g., would not allow to enter the country versus would allow as member of immediate family by marriage). By contrast, content measures are those measures that assess an individual’s beliefs about a particular group. These measures vary in the types of items included depending upon the author’s perception of the theoretical underpinnings of prejudice being measured. For example, to create a scale of weight-bias items one would have to determine the underlying negative stereotypes about overweight people in order to create items for the scale. Depending upon one’s theoretical understanding of weight bias, these items could center on femininity, work ethic, or perceptions of unattractiveness. Thus, there is considerable variability in the types of items on content measures (Correll et al., 2010).
Implicit measures are those that assess participant’s beliefs at a more unconscious or automatic level (Correll et al., 2010). These measures typically require a quick response to force participants to make evaluative judgments before conscious processes can filter or otherwise alter their response. A well-known example within this category is the Implicit Attitude Test (IAT) which requires participants to categorize positive and negative words along with members of a group. Participants have longer response times for cognitively inconsistent categorizations (e.g., using the same key to indicate both positive words and a devalued group). Other implicit measures include evaluative priming and physiological measures such as brain activity, galvanic skin response, heart rate, and facial electromyography (Correll et al., 2010).

The commonly used measures in the BD literature are explicit, content-based measures. One difficulty with such measures is the inability to determine if responses reflect awareness of appearance norms or personal endorsement of the belief. Both the Information subscale of the SATAQ and the IBIS are clearly face valid, explicit measure of beliefs about women’s bodies. A strongly affirmative response to an item such as “Tall women are more attractive” could reflect personal endorsement of this belief or a more detached awareness of this societal beauty standard. Given the apparent measurement issues in this study, the utilization of multiple methods for measuring Internalization is necessary for future research. In addition to the possibility that Internalization is being confounded by awareness of social norms, there are several more general limitations of explicit attitudes measures which deserve mention. First, explicit measures assume that participants can accurately report their own biased beliefs, which may be a faulty
assumption. Further, participants may actively choose to misrepresent their beliefs due to conformity, guilt, or social desirability (Correll et al., 2010).

Without a more complete understanding of the construct validity of the available measures of Internalization, results based upon these measures are confusing at best and not interpretable at worst. Accordingly, it is imperative that future research begin to use a broader arsenal of techniques to measure Internalization of the Thin Ideal. Future research would benefit from a closer examination of what exactly is being measured by the current explicit measures. One way to accomplish this would be to use multiple types of measures of Internalization within the sample and determine the extent of their overlap. Additionally, given the focus here on out-group bias, the distinction between Internalization of the Thin Ideal and Weight Bias is brought to the forefront. Does greater Internalization necessarily imply greater weight bias? How are these constructs related? Future research should address these questions to provide conceptually meaningful results.

Fortunately, a recent development in the BD literature has turned to the use of implicit measures of Internalization. Ahern, Bennet, and Hetherington (2008) used the IAT to examine attitudes toward ultra-thin models in a non-clinical population. Young women were asked to categorize underweight and normal weight models along with positive and negative attributes. Faster response times for positive/underweight categorizations when these two categories share a response key would suggest positive feelings toward being underweight. Participants also completed self-report measures including the SATAQ. Because the authors used ultra-thin models (e.g., BMI lower than
17.5), the authors hypothesized that women would have negative associations with the very thin models. This hypothesis was supported, as participants has significantly more negative associations with thin women than with normal weight women. Although IAT scores were correlated with Drive for Thinness (a commonly used subscale of the Eating Disorder Inventory; Garner, 1991), the IAT scores were not correlated with the Internalization subscale of the SATAQ. The IAT scores were also not correlated with BD. Interestingly, IAT scores could discriminate between women who endorse a thinner ideal frame. Based upon this finding, the authors report that the IAT is a more accurate measure of personal endorsement of the thin ideal, rather than awareness of cultural norms. These findings are noteworthy in that 1) the IAT and the SATAQ internalization scale were not correlated and 2) the two measures predicted different outcomes. This finding is consistent with past literature which indicates that explicit and implicit measures may be predictive of different behaviors (Correll et al., 2010) and highlights the importance of multi-modal assessment.

Juariscio, Forman, Timko, Herbert, Butryn, and Lowe (2011) used the IAT along with self-report measures to examine change in body weight, BD, and eating disordered symptoms over time. Implicit internalization of the thin ideal was found to predict changes in body weight over time; further, implicit attitudes were more strongly associated with BD, disordered eating, and BMI than was the SATAQ Internalization scale. These results provide further support for the utility of implicit measures of Internalization and support the notion that explicit and implicit measures predict different outcomes. The multidimensional nature of Internalization was also apparent in a recent
qualitative study which asked high school and college age women to discuss their attitudes toward the thin ideal (Ahern, Bennet, Kelly, & Heatherington, 2011). The results revealed four main themes: the ideal body, ambivalent attitudes, cognitive control, and competing motivations. Across groups, the women agreed upon the importance of thinness, with some negative views toward very underweight women. Although the women pointed out the attractiveness of “curves”, a curvaceous body was considered attractive only when coupled with thinness. The women’s perception of normal weight was distorted in that they identified relatively thin celebrities as normal weights despite the large discrepancy between these celebrities and the women themselves. The women’s attitudes were also characterized by ambivalence. In particular, the women recognized the media’s efforts to manipulate their preferences and recognized that their belief in the acceptability of heavier weights did not extend to their own weight preference (that is, the women accepted a heavier weight for others than they would accept for themselves). Both the younger and older women reported efforts to use cognitive techniques to overcome their “irrational” desire to be thinner, with the college age women reporting greater cognitive control than the younger women. Finally, the women reported competing motivations in that they wanted to be thin but these desires were often trumped by the cost of thinness and desire to eat. Overall, the themes of the study revealed the multi-faceted nature of Internalization of the Thin Ideal.

Taking into consideration the results of recent studies which have used more complete methods to assess Internalization, a few themes become apparent. First, explicit and implicit measures of Internalization tap different aspects of the construct and are
predictive of different outcomes. Thus, future research should begin to use multimodal assessment of this construct to more fully understand women’s BD and disordered eating behaviors. It is also evident that the complexities of women’s experiences with the thin ideal may be lost through one-dimensional survey methods. Qualitative studies allow women’s voices to be heard and help to better define constructs (Morrow, 2007). Accordingly, this area of the literature would benefit from more qualitative designs. Further, the results of the Ahern et al (2011) qualitative study suggest that new explicit measures of Internalization which better capture the fullness of women’s experience will be more psychometrically sound and better predict useful outcomes. Self-report measures are useful screening tools and allow both researchers and clinicians to get a quick snapshot of an individual’s functioning. Although the use of implicit measures alongside explicit measures would likely be ideal, in practice it would be useful to develop new self-report measures that more accurately reflect women’s Internalization of the Thin Ideal. Finally, the suppressor effect which was apparent in this dataset is suggestive of a potential measurement issue. This finding was unexpected and the suppressor was inconsistent in the various analyses conducted in this study. Nonetheless, the findings here suggest that the three sources of Sociocultural Pressure were interacting with one another in an unexpected way; future researchers should be aware of the possibility of this suppression and explore the ways in which these variables influence one another.

*Theoretical Misspecification*

Given the poor fit of the measurement model, it cannot be determined if the poor fit of the structural models was solely due to a measurement issue or to both
measurement issues and theoretical misspecification. In order to determine if there is reason to suspect theoretical inaccuracies in the proposed models, I briefly review the literature on the DPM and TIM that have used SEM. I argue that past research has not demonstrated adequate fit indices for the models, suggesting the possibility of theoretical flaws within the models. In light of these findings, and based upon the apparent inadequacy of both the TIM and DPM in my sample, I provide suggestions for a more integrated model that would better explain women’s experiences with BD.

A review of the literature revealed eight recent studies that examined the TIM or the DPM using SEM. Of these studies, no single study examined either model exactly as it was specified by its original authors with the exception of Shroff and Thompson (2006). Paths were deleted, added, or modified, or additional variables were included in all cases. For these reasons, it is difficult to make direct comparisons of the models to determine if the specified models fit the data well without any post-hoc modifications. To better understand the available SEM research, Table 16 lists these studies with a brief description of the final structural model, the population examined, and the fit indices of each model. Only two of these seven studies reported fit indices for the measurement model. Most studies reported a significant chi-square statistic and other fit indices outside of acceptable thresholds. Further, the best-fitting models are typically those which include variables not hypothesized as parts of the original models.

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2 Studies with male and female data grouped together are excluded from the table, as are studies with non-Western populations.
For example, Myers and Crowther (2007) reported good fit for a model with Social Influence and Media Influence leading to Internalization, which in turn led to BD. The relationship between Internalization and BD was partially mediated by Self-Objectification. Self-objectification, a variable of interest in Objectification Theory, is a woman’s internalization of society’s sexual objectification of women (Fredrickson & Roberts, 1997). The finding that better-fitting models are those which include additional variables of interest is consistent with the comments of Shroff and Thompson (2006) who noted that based upon their own findings with the TIM and those from other studies, that “improvements to the Tripartite Model must be undertaken if we are to develop a model that better explains factors that are associated with body image and eating disturbances” (pp.22). Thus, the findings from this study are consistent with past research indicating that the DPM and TIM, when modeled as they were originally hypothesized, do not adequately explain women’s body dissatisfaction.

Although neither the TIM nor the DPM were supported in the current investigation, exploratory analyses supported the inclusion Social Comparison and the three sources of sociocultural pressures. In follow-up analyses, it was apparent that Social Comparison was a meaningful predictor of BD; this finding is consistent with past research (Myers & Crowther, 2009; Tiggemann et al., 2009; Tiggeman & Polivy, 2010). Both the primary analyses and exploratory analyses tentatively supported the notion of including Family, Peer, and Media influences separately within the model. First, the program-suggested modifications for the DPM included separating out the sources of influence. Additionally, exploratory analyses demonstrated that each source of influence
was predictive of BD above and beyond the others. Past modeling research is mixed in the relative impact of these influences, with some studies finding no difference in mediation across the influences (Keery et al., 2004), some finding stronger effects for peer and media influences (Shroff & Thompson, 2006), and some finding only media to have a significant impact (Myers & Crowther, 2007). Thus, I would argue that although the research is mixed, there is at least some evidence that the source of sociocultural pressures is meaningful, and future researchers would be well-served to continue to model these influences separately. Because there is moderate support for the primary contentions of the TIM, I propose that future research focus on integrating new variables into the TIM rather than the DPM.

**Model Improvements**

Because of the poor fit of the TIM as it is hypothesized, I turn now to potential improvements to the model based upon past research. Although the TIM is a sociocultural model, it takes a narrow view of women’s body image concerns in its argument that pressures lead to Internalization of the Thin Ideal. Women’s body image concerns are perhaps better understood within the larger context of a society that oppresses women in more ways than only through the propagation of an unrealistic physical ideal. Speight (2007) argued that internalized racism is the acceptance of the hegemony of the dominant white culture, which allows the dominant group to define normalcy. The acceptance of this personal inferiority is internalized racism, and through its acceptance, it becomes self-sustaining in the culture. Similarly, women’s tireless pursuit of the thin ideal concerns more than a personal choice about defining beauty; it is
women’s tacit acceptance of the dominant culture’s view that only their bodies make them valuable. That is, women’s body image concerns are part of a larger system of oppression toward women. Thus, a model aimed at understanding women’s BD must take into account the larger picture of women’s oppression.

Objectification Theory (Fredrickson & Roberts, 1997) posits that women are treated as sexual objects that are valued primarily for the visual stimulus of their bodies rather than their whole selves. Objectification theory postulates a series of negative consequences to women as their bodies are constantly monitored by others, and, ultimately, themselves. The authors argued that women’s mental health concerns, particularly eating disorders, depression, and poor sexual functioning, can be linked to objectification. In a parallel to the system described by Speight (2007), women accept and internalize the dominant culture’s views and begin to self-objectify. Self-objectification occurs when a woman begins to view herself as the outside world does, seeing herself as an object to be examined and evaluated (Fredrickson & Roberts, 1997). Primary among the consequences of self-objectifying is body shame, which ultimately can lead to disordered eating.

The tenants of Objectification Theory, particularly the think between self-objectification, body shame, and disordered eating, have been well supported (Noll & Fredrickson, 1998; Moradi et al., 2005; Tiggeman & Kuring, 2004). For example, Tylka and Hill (2004) tested the hypotheses of objectification theory that relate to disordered eating using SEM. The model, which demonstrated good fit to the data with a large sample of college women, demonstrated that Pressures to be thin (from various sources)
lead to Body Surveillance, which in turn leads to Body Shame, Poor Interoceptive Awareness, and Disordered Eating. Subsequent researchers have integrated aspects of the TIM into Objectification Theory. For example, Tylka and Sabik (2010) examined a modified model based upon Objectification Theory and Social Comparison Theory, a key component of the TIM. In this model, appearance feedback led to disordered eating via a complex mediational chain through body surveillance, body comparison, and body shame. Feedback on Physical Appearance was measured by the FOPAS. This model indicated that women receive appearance feedback, which leads to greater monitoring of their bodies and greater comparison of their bodies to other women. Both of these cognitive processes leads to greater body shame as women continue to fail to meet the stringent appearance standards put forth by the media. Ultimately, this body shame leads to compensatory behaviors (e.g., eating disordered behaviors) with the goal of realigning the physical body with the perceived ideal. Self-esteem was also a significant exogenous variable in the model, as self-esteem was inversely related to body surveillance. Overall, the results of Tylka and Sabik (2010) supported the inclusion of elements of the TIM into Objectification Theory.

In a more recent example, Tiggeman and Williams (2012) examined the full model proposed by Objectification Theory and found good fit for the overall model. Although the full model was supported, the predictive validity of the model was better for eating disorders than for other outcome variables within Objectification Theory (namely, depression and sexual functioning). Overall, the authors’ findings supported the idea that self-objectification is linked to greater appearance anxiety, body shame, and disordered
eating. Given the existing support for Objectification Theory within the literature, it is important to consider how best to integrate these findings within the TIM. The findings from Tylka and Sabik (2010) support the inclusion of Social Comparison within the framework of OT. Further research is needed to corroborate this finding within the model, but the existing evidence strongly supports the role of Social Comparison in the development of BD. The other variables within the TIM—namely the three sources of sociocultural pressures and Internalization of the Thin Ideal—could be added to OT to create a more comprehensive model of young women’s experience. Although the sources of Sociocultural Pressure have less importance because presumably the cultural oppression of women is so prevalent that the various sources of this message are lost in the milieu, particularly for older women who have been exposed to these cultural ideals across their lifespan. For younger women in adolescence and early adulthood, however, these various sources of pressure may have greater salience as individual pressures.

Accordingly, the integration of the most useful elements of the TIM—namely Social Comparison and the three sources of influence—is a useful avenue for future research. Owing to the mixed findings in past research on the relative importance of these various sources of pressure, future researchers should continue to include the various sources of pressure in order to determine if they contribute uniquely to women’s experiences with BD.

Myers and Crowther (2007) found support for a model with Self-Objectification mediating the relationship between Thin Ideal Internalization and BD. Similarly, Tylka and Hill (2004) found support for a model with Pressures leading to Body Surveillance
and Body Shame. Body Surveillance is conceptualized as a behavioral manifestation of 
demonstrated that Social Comparison mediates the relationship between Self-
Objectification and Body Shame. Based upon these findings, a proposed model which 
integrates the key propositions of the TIM with OT is offered in Figure 11. A mediational 
chain based upon past findings links the three sources of sociocultural pressure to 
Internalization, self-objectification, social comparison, and body shame. Theoretically, I 
propose that Pressures to be Thin lead to greater Internalization of this cultural belief in 
the value of thinness. As women internalize this idea more strongly, they begin to view 
their bodies as objects and ultimately compare their bodies to other women. When 
women find that they cannot compete with the unrealistic thin ideal put forth by the 
dominant culture, they experience body shame or BD. Based upon the findings of the 
present investigation, a direct relationship between peer influence and Body shame is also 
included in the proposed model. Cash and Smolak (2011) emphasized the importance of 
researchers using conceptually meaningful assessments of Body Image that tap the 
element of this multidimensional construct that is of interest in a particular study or 
theory. Because Body Shame is the proposed outcome of Objectification, it is included in 
this model. Future research is necessary to determine if the theoretical differentiation 
between Body Shame and BD can be demonstrated empirically.

**Strengths, Limitations, and Summary of Recommendations**

This study had a number of strengths which increase confidence in these findings. 
Chief among these was the a priori specification of modifications to the models and the
use of rigorous cut-offs for fit indices as suggested by Kline (2011). Although much of
the past research has been limited by the use of considerable post hoc modifications to
the models, this study did not take that approach, increasing the likelihood that these
results are replicable in other samples. The use of SEM is also a major strength of this
study, as much of the past literature with this literature has used other statistical designs
that preclude multiple comparisons. The ability to simultaneously analyze complex
relationships among multiple variables while controlling for non-normality and missing
data is a major advantage of SEM. Additionally, this study utilized a large sample size of
college age women, allowing for adequate statistical power to assess the models.

Although this study was well designed, it also had several limitations which may
have affected the findings. First, due to an error in data collection, two of the latent
constructs had to be measured by parcels of items rather than full measures. Item
parceling is common in the CP literature; however it is possible that the homogeneity of
items assessing latent constructs may have impacted the findings. Additionally, the use of
all self-report measures may have impacted the results as participants may not be willing
or able to accurately report on certain sensitive subjects. Past research suggests that
women have mixed views about the mass media and its impact upon their own values
(Ahern et al., 2011) which may have led the participants in this sample to underreport
their perceptions of media pressures. Although the models in question are longitudinal in
nature, the data used to analyze these relationships were cross-sectional, limiting the
inferences that can be made from this data.
In addition to possible problems with the measures, several issues with the sample in this study affect the generalizability of the results. The sample of this study included only young college women, thus the results cannot be generalized to other groups. The sample was also relatively homogenous in terms of sexual orientation, race, and ethnicity, limiting the generalizability of results to other groups. Finally, this study utilized a convenience sample of women who self-selected to be in this study. Thus it cannot be determined if the women who opted to participate differ in significant ways from women who chose not to participate. Much of the past research has focused upon relatively racially and ethnically homogenous college age women; future researchers should use broader samples in order to determine the efficacy of the models among other groups.

Both the strengths and limitations of the current investigation can inform directions for future research. Given both the current findings and past research, I have offered the argument that both measurement issues and theoretical misspecification led to the poor fit of the TIM and the DPM in this sample. The lack of support for these two models, as they are originally hypothesized, is largely consistent with past research on these models which demonstrates poor fit when only the proposed variables and paths are included in the models. Based upon these findings, I offer the following recommendations:

1. Future researchers should work to develop new measures of Internalization of the Thin Ideal that better capture the multidimensional nature of women’s experiences.
2. Internalization of the Thin Ideal should ideally be assessed with both implicit and explicit measures.

3. Future researchers should continue to examine the relative influence of the three sources of Sociocultural Pressures in order to determine if subsequent studies should continue to measure them separately.

4. Researchers should specify a priori acceptable modifications to models in order to avoid capitalizing on idiosyncrasies within specific samples. Post hoc modifications to models without theoretical justification reduce the replicability of models in other samples (Kline, 2011).

5. Future researchers should continue to explore modifications to the TIM that will better explain women’s experiences, such as those modifications offered in Figure 11.

Implications

Although the proposed models were not supported in this study, the results nonetheless have important implications. Most broadly, it is clear that sociocultural pressures to be thin influence the body image of college age women. The acceptance of this cultural value impacts women’s experiences with their own bodies, which may lead them to compare their bodies to other women more frequently, with a net effect of increased body dissatisfaction. Given CP’s unique role as therapists, teachers, and advocates, we have the opportunity to intervene upon this negative process at several levels. Here, I briefly address the ways that CP’s might advocate for women by breaking this cycle at a societal and individual level.
At the individual level, an obvious method for reducing the negative impact of a culture that prizes thinness is through helping women to avoid internalizing these values. Creating a buffer for women from the acceptance of these cultural values has been a growing area of the BD literature. For example, Stice et al. (2000) developed a dissonance based intervention that aims to increase women’s critical consciousness about the thin ideal. The authors found initial support for the intervention in that it reduced the young women’s Internalization of the Thin Ideal and BD both immediately after the intervention and at one-month follow up. These findings indicate that the process of questioning the messages that women have received about their bodies is useful for reducing their BD. This is consistent with a rich tradition in feminist thought of consciousness raising to allow women the opportunity to question the dominant cultural values (Whelehan, 2007). In addition to the possibility of implementing consciousness-raising activities based upon the Stice dissonance model, CP’s could also provide space for individual therapy clients to discuss the messages that they have received about their bodies from the dominant culture.

While addressing BD at a personal level is useful for individual clients, focusing upon a societal change would benefit larger groups of women. Arguably, CP’s have a responsibility to engage in social justice (Vera & Speight, 2003) and by only focusing upon the ways that women can ward off the deleterious effects of the societal pressures to be thin, we inappropriately deflect the blame onto the victim. At a minimum, CP’s in clinical practice should promote an atmosphere that does not glamorize the thin ideal through small means such as providing waiting room reading materials that are not
objectifying of women and using size inclusive furniture in therapy rooms. Based upon the tenants of Objectification Theory, political action that serves to promote women’s rights and equality across a variety of domains should reduce the societal objectification of women. Accordingly, CP’s should become involved with local and state legislation that serves to protect and promote women’s equality.

**Summary**

The goal of this study was to demonstrate the fit of two models of Body Dissatisfaction in college age women, with the objective of determining the risk factors most closely associated with BD. In contrast to the primary hypothesis that the Tripartite Influence Model would best fit the data, both of the tested models did not demonstrate adequate fit. Several possible explanations for these findings were offered, particularly that measurement issues and theoretical misspecification led to the poorly fitting models. Based upon the strengths and limitations of this study, a series of recommendations were offered for future researchers. The results of this study provide additional evidence that the existing models of Body Dissatisfaction are inadequate, and further research is needed to determine how social pressures to be thin lead to poor body image. Overall, these findings support the role of Sociocultural Pressures, Social Comparison, and Internalization of the Thin Ideal in the development of Body Dissatisfaction and highlight the need for a more integrated model of Body Dissatisfaction.
REFERENCES


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APPENDICES
APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE

1. What is your sex?
   a. Male
   b. Female
2. What is your sexual orientation?
   a. Gay/lesbian
   b. Heterosexual
   c. Bisexual
   d. Other (please specify) _____________________
3. What is your current weight? _____________________
4. What is your current height? ______________________
5. How old are you? ______________________
6. What is your marital status?
   a. Never married
   b. Currently married
   c. Divorced
   d. Separated
   e. Widowed
7. Are you Hispanic or Latino?
   a. Yes
   b. No
8. Please specify your race.
   a. American Indian or Alaska Native
   b. Asian
   c. Black or African American
   d. Native Hawaiian or Other Pacific Islander
   e. White
   f. Other (Please specify: _________________________________)
9. Are you currently on a diet?
   a. Yes
   b. No
Are you currently in a treatment program for an Eating Disorder such as Anorexia or Bulimia?
   c. Yes
   d. No
   If yes: For what eating disorder are you being treated?
     a. Anorexia Nervosa
     b. Bulimia Nervosa
     c. Binge Eating Disorder
     d. Other Eating Disorder (Please specify: __________________)

10. How often do you exercise, on average, per week?
   a. 1 day per week
   b. 2-3 days per week
   c. 4-5 days per week
   d. 6 or more days per week
APPENDIX B

PARENTAL INFLUENCE QUESTIONNAIRE

Directions: Think back to your interactions with your parents when you were a child and adolescent. Using the scale below, please indicate the degree to which either or both of your parents communicated the following messages to you or behaved in the following ways:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. My parents wanted me to be thinner.

2. My parents told me that I looked like I gained weight.

3. My parents encouraged me to lose weight.

4. My parents said, “If you do not lose weight, you will never get a date, get a boyfriend/girlfriend, get married, etc.”

5. My parents made negative comments about my physical appearance.

6. My parents said critical things to me about my eating.
7. My parents told me to eat different foods in order to lose weight or keep from gaining weight.

8. I received negative feedback from my parents about the size or shape of my body.

9. My parents commented on each other’s weight

10. My parents talked about dieting.

11. My parents complained about their weight.

12. My parents would ask, “Am I gaining weight?”

13. My parents would ask, “Am I as fat as him/her?”

14. My parents worried about their weight.

15. Physical appearance (shape, weight, clothing) was important to my parents.

16. My parent’s weight and shape influenced how they felt about themselves.
APPENDIX C

PERCEIVED SOCIOCULTURAL PRESSURES SCALE

Please circle the response that best captures your own experience.

<table>
<thead>
<tr>
<th>None</th>
<th>some</th>
<th>a lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

1. I've felt pressure from my friends to lose weight.
2. I've noticed a strong message from my friends to have a thin body.
3. I've felt pressure from my family to lose weight.
4. I've noticed a strong message from my family to have a thin body.
5. I've felt pressure from people I've dated to lose weight.
6. I've noticed a strong message from people I've dated to have a thin body.
7. I've felt pressure from the media (e.g., TV, magazines) to lose weight.
8. I've noticed a strong message from the media to have a thin body.
9. Family members tease me about my weight or body shape.
10. Kids at school tease me about my weight or body shape.
APPENDIX D

SOCIOCULTURAL ATTITUDES TOWARD APPEARANCE QUESTIONNAIRE

Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Internalization: General

1. I do not care if my body looks like the body of people who are on TV. (R)
2. I compare my body to the bodies of people who are on TV.
3. I would like my body to look like the models who appear in magazines.
4. I would like my body to look like the people who are in movies.
5. I compare my appearance to the appearance of TV and movie stars.
6. I wish I looked like the models in music videos.
7. I compare my appearance to the appearance of people in magazines.
8. I do not try to look like the people on TV. (R)
9. I do not compare my body to the bodies of people who appear in magazines. (R)
Pressures

1. I've felt pressure from TV or magazines to lose weight.
2. I do not feel pressure from TV or magazines to look pretty. (R)
3. I've felt pressure from TV and magazines to be thin.
4. I've felt pressure from TV or magazines to diet.
5. I've felt pressure from TV or magazines to have a perfect body.
6. I've felt pressure from TV or magazines to change my appearance.
7. I've felt pressure from TV or magazines to exercise.

Information

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 not an important source of information about fashion and "being attractive." (R)
4. Magazine articles are not an important source of information about fashion and "being attractive." (R)
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 starts are not an important source of information about fashion and "being attractive." (R)
9. Famous people are an important source of information about fashion and "being attractive."
APPENDIX E

IDEAL BODY STEREOTYPE INTERNALIZATION

How much do you agree with these statements:

1. Slender women are more attractive. . . . . . . . . . . . . . . . . . . . . . . . . . . 1 2 3 4 5
2. Women who are in shape are more attractive . . . . . . . . . . . . . . . 1 2 3 4 5
3. Tall women are more attractive . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1 2 3 4 5
4. Women with toned (lean) bodies are more attractive . . . . . . . . . . . . . . . . 1 2 3 4 5
5. Shapely women are more attractive . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1 2 3 4 5
6. Women with long legs are more attractive . . . . . . . . . . . . . . . . . . . 1 2 3 4 5
APPENDIX F

PHYSICAL APPEARANCE COMPARISON SCALE

Using the following scale please select a number that comes closest to how you feel:

<table>
<thead>
<tr>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
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</table>

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

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

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

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

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

BODY COMPARISON SCALE

For the items below, use the following scale to rate how often you compare these aspects of your body to those of other individuals of the same sex. NOTE: Please be sure that you read and respond to all of the questions according to how you would compare yourself to your same sex peers.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
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<td>1.</td>
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<td>5.</td>
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1. Ears
2. Nose
3. Lips
4. Hair
5. Teeth
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<tr>
<th></th>
<th>Description</th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
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</thead>
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<td>Chin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Shape of face</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cheeks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Forehead</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Upper arm</td>
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<td>11</td>
<td>Forearm</td>
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<td>13</td>
<td>Chest</td>
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</tr>
<tr>
<td>14</td>
<td>Back</td>
<td></td>
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</tr>
<tr>
<td>15</td>
<td>Waist</td>
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<td>16</td>
<td>Stomach</td>
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<td>18</td>
<td>Thighs</td>
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</tr>
<tr>
<td>19</td>
<td>Hips</td>
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</tr>
<tr>
<td>21</td>
<td>Muscle tone of upper body</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>22</td>
<td>Overall shape of upper body</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>23</td>
<td>Muscle tone of lower body</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Overall shape of lower body</td>
<td></td>
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<td>25</td>
<td>Overall body</td>
<td></td>
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</tr>
</tbody>
</table>
APPENDIX H

BODY SHAPE QUESTIONNAIRE

We should like to know how you have been feeling about your appearance over the
**PAST FOUR WEEKS**. Please read each question and circle the appropriate number to
the right. Please answer all the questions.

**OVER THE PAST FOUR WEEKS:**

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. Has feeling bored made you brood about your shape?  
   1 2 3 4 5

2. Have you thought that your thighs, hips or bottom are too large for the rest of you?  
   1 2 3 4 5

3. Have you worried about your flesh being not firm enough?  
   1 2 3 4 5

4. Have you felt so bad about your shape that you have cried?  
   1 2 3 4 5

5. Have you avoided running because your flesh might wobble?  
   1 2 3 4 5

6. Has being with thin women made you feel self-conscious about your shape?  
   1 2 3 4 5
7. Have you worried about your thighs spreading out when sitting down? 1 2 3 4 5
8. Has eating even a small amount of food made you feel fat? 1 2 3 4 5
9. Have you avoided wearing clothes which make you particularly aware of the shape of your body? 1 2 3 4 5
10. Has eating sweets, cakes, or other high calorie food made you feel fat? 1 2 3 4 5
11. Have you felt ashamed of your body? 1 2 3 4 5
12. Has worry about your shape made you diet? 1 2 3 4 5
13. Have you felt happiest about your shape when your stomach has been empty (e.g. in the morning)? 1 2 3 4 5
1. Have you felt that it is not fair that other women are thinner than you? 1 2 3 4 5
15. Have you worried about your flesh being dimply? 1 2 3 4 5
16. Has worry about your shape made you feel you ought to exercise? 1 2 3 4 5
APPENDIX I

BODY ESTEEM SCALE

Indicate how often you agree with the following statements ranging from "never" (0) to "always" (4). Circle the appropriate number beside each statement.

<table>
<thead>
<tr>
<th>Never (1)</th>
<th>Seldom (2)</th>
<th>Sometimes (3)</th>
<th>Often (4)</th>
<th>Always (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. I like what I look like in pictures. 0 1 2 3 4
2. Other people consider me good looking. 0 1 2 3 4
3. I'm proud of my body. 0 1 2 3 4
4. I am preoccupied with trying to change my body weight. 0 1 2 3 4
5. I think my appearance would help me get a job. 0 1 2 3 4
6. I like what I see when I look in the mirror. 0 1 2 3 4
7. There are lots of things I'd change about my looks if I could. 0 1 2 3 4
<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>I am satisfied with my weight.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>9</td>
<td>I wish I looked better.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>10</td>
<td>I really like what I weigh.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>11</td>
<td>I wish I looked like someone else.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>12</td>
<td>People my own age like my looks.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>13</td>
<td>My looks upset me.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>14</td>
<td>I'm as nice looking as most people.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>15</td>
<td>I'm pretty happy about the way I look.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>16</td>
<td>I feel I weigh the right amount for my height.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>17</td>
<td>I feel ashamed of how I look.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>18</td>
<td>Weighing myself depresses me.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>19</td>
<td>My weight makes me unhappy</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>20</td>
<td>My looks help me to get dates.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>21</td>
<td>I worry about the way I look.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>22</td>
<td>I think I have a good body.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>23</td>
<td>I'm looking as nice as I'd like to.</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>
APPENDIX J

FIGURES

Figure 1. Dual Pathway Model. Dotted lines indicate the paths to be tested in this study.
Figure 2. Tripartite Influence Model. Dotted lines indicate paths to be tested in this study.
Figure 3. Dual Pathway Model with indicators.

Note. Parental Influence Questionnaire (PIQ), Perceived Sociocultural Pressures (PSP), Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS), Body Shape Questionnaire (BSQ), Body Esteem Scale (BES).
Figure 4. Tripartite Influence Model with indicators.

*Note.* Parental Influence Questionnaire (PIQ), Perceived Sociocultural Pressures (PSP), Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS), Physical Appearance Comparison Scale (PACS), Body Comparison Scale (BCS), Body Shape Questionnaire (BSQ), Body Esteem Scale (BES).
Figure 5. Measurement Model for Sociocultural Pressures Hierarchical CFA (Standardized Solution; N=413).

*Note.* One asterisk (*) indicates a significant value at $p<.001$. Parental Influence Questionnaire (PIQ), Perceived Sociocultural Pressures (PSP), Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS).
Figure 6. Full Measurement model of TIM (Standardized Solution, N=415).

Note. One asterisk (*) indicates a significant value at $p<.001$. Parental Influence Questionnaire (PIQ), Perceived Sociocultural Pressures (PSP), Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS), Physical Appearance Comparison Scale (PACS), Body Comparison Scale (BCS), Body Shape Questionnaire (BSQ), Body Esteem Scale (BES).
Figure 7. Full Measurement Model of DPM (Standardized Solution, N=414).

Note. One asterisk (*) indicates a significant value at $p<.001$. Parental Influence Questionnaire (PIQ), Perceived Sociocultural Pressures (PSP), Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS), Body Shape Questionnaire (BSQ), Body Esteem Scale (BES).
Figure 8. DPM Structural Model (Standardized Solution, N=414).

Note. One asterisk (*) indicates a significant value at $p<.05$; two asterisks (**) indicates a significant value at $p<.01$. 
Figure 9. TIM Structural Model (Standardized Solution, N=415).

Note. One asterisk (*) indicates a significant value at $p<.05$; two asterisks (**) indicates a significant value at $p<.01$. 
Figure 10. Modified TIM Structural Model (Standardized Solution, N=415).

*Note*. One asterisk (*) indicates a significant value at $p<.05$; two asterisks (**) indicates a significant value at $p<.01$. 
Figure 11. Proposed Integration of the TIM with Objectification Theory
### Table 2. Demographic Information

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>( N )</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td><strong>Sexual Orientation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gay/Lesbian</td>
<td>5</td>
<td>1.2</td>
</tr>
<tr>
<td>Heterosexual</td>
<td>389</td>
<td>93.7</td>
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<tr>
<td>Bisexual</td>
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<td>3.9</td>
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<tr>
<td>Other</td>
<td>5</td>
<td>1.2</td>
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<tr>
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<td></td>
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<td><strong>Marital Status</strong></td>
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<td>Never Married</td>
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<td>Married/partnered</td>
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<td>Divorced</td>
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<td>1.4</td>
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<td>Separated</td>
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<td>Widowed</td>
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<td>0.2</td>
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<tr>
<td>Missing</td>
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<td><strong>Race</strong></td>
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<td>Asian</td>
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<td>Native Hawaiian/Pacific Islander</td>
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<td>White</td>
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<tr>
<td>Not Hispanic/Latino</td>
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<td>97.8</td>
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<td><strong>Dieting</strong></td>
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Table 2. Demographic Information (continued)

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<tr>
<th>Exercise</th>
<th>Number</th>
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<tr>
<td>0 Days per Week</td>
<td>88</td>
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<td>1 Day per Week</td>
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<td>2-3 Days per Week</td>
<td>158</td>
<td>38.1</td>
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<td>4-5 Days per Week</td>
<td>53</td>
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<tr>
<td>6 or More Days per Week</td>
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<td>6.0</td>
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<tr>
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Table 3. Skewness and Kurtosis for Indicator Variables

<table>
<thead>
<tr>
<th>Scale/Subscale</th>
<th>Skewness (SE)</th>
<th>Kurtosis (SE)</th>
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</thead>
<tbody>
<tr>
<td>PIQ Direct Influence</td>
<td>.719 (.121)</td>
<td>-.582 (.241)</td>
</tr>
<tr>
<td>PIQ Indirect Influence</td>
<td>.057 (.121)</td>
<td>-.870 (.241)</td>
</tr>
<tr>
<td>PSP</td>
<td>.779 (.121)</td>
<td>.096 (.241)</td>
</tr>
<tr>
<td>SATAQ Information</td>
<td>-.079 (.121)</td>
<td>-.018 (.241)</td>
</tr>
<tr>
<td>SATAQ Pressures</td>
<td>-.409 (.121)</td>
<td>-.643 (.242)</td>
</tr>
<tr>
<td>SATAQ General Internalization</td>
<td>-.327 (.121)</td>
<td>-.635 (.241)</td>
</tr>
<tr>
<td>IBIS</td>
<td>-.694 (.120)</td>
<td>1.658 (.240)</td>
</tr>
<tr>
<td>BCS Muscularity</td>
<td>.339 (.120)</td>
<td>-.284 (.240)</td>
</tr>
<tr>
<td>BCS General Appearance</td>
<td>.552 (.120)</td>
<td>.298 (.240)</td>
</tr>
<tr>
<td>BCS Weight</td>
<td>-.282 (.120)</td>
<td>-.749 (.240)</td>
</tr>
<tr>
<td>PACS</td>
<td>-.230 (.121)</td>
<td>-.500 (.242)</td>
</tr>
<tr>
<td>BES Weight</td>
<td>-.100 (.120)</td>
<td>-.837 (.240)</td>
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<tr>
<td>BES Attributions</td>
<td>.239 (.120)</td>
<td>-.498 (.240)</td>
</tr>
<tr>
<td>BSQ</td>
<td>.106 (.121)</td>
<td>-.728 (.240)</td>
</tr>
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</table>

*Note.* Parental Influence Questionnaire (PIQ), Perceived Sociocultural Pressures (PSP), Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS), Physical Appearance Comparison Scale (PACS), Body Comparison Scale (BCS), Body Shape Questionnaire (BSQ), Body Esteem Scale (BES).
Table 4. Reliability for Scales and Subscales

<table>
<thead>
<tr>
<th>Scale/Subscale</th>
<th>Sample Size</th>
<th>Cronbach's α</th>
<th>Number of Items</th>
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<tbody>
<tr>
<td>PIQ Direct Influence</td>
<td>390</td>
<td>.942</td>
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<td>PSP</td>
<td>407</td>
<td>.865</td>
<td>10</td>
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<td>SATAQ General Internalization</td>
<td>405</td>
<td>.946</td>
<td>9</td>
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<td>SATAQ Pressures</td>
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<td>.941</td>
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<td>SATAQ Information</td>
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<td>.889</td>
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<td>IBIS</td>
<td>411</td>
<td>.794</td>
<td>6</td>
</tr>
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<td>PACS</td>
<td>406</td>
<td>.742</td>
<td>5</td>
</tr>
<tr>
<td>BCS General Appearance</td>
<td>411</td>
<td>.833</td>
<td>9</td>
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<td>BCS Muscular</td>
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<td>BSQ</td>
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<td>BES Appearance</td>
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<td>BES Weight</td>
<td>410</td>
<td>.933</td>
<td>8</td>
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</table>

Note. Sample size for each measure was calculated based upon participants with complete data for that measure. Parental Influence Questionnaire (PIQ), Perceived Sociocultural Pressures (PSP), Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS), Physical Appearance Comparison Scale (PACS), Body Comparison Scale (BCS), Body Shape Questionnaire (BSQ), Body Esteem Scale (BES).
Table 5. Means, Standard Deviations, Ranges, and Factor Loadings for Initial Measurement Model for Tripartite Influence Model (Standard Errors in Parentheses; N=415)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>Unstandardized Factor Loading</th>
<th>Standardized Factor Loading</th>
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</thead>
<tbody>
<tr>
<td><strong>Family Influence</strong></td>
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</tr>
<tr>
<td>PIQ Direct Influence</td>
<td>2.90</td>
<td>1.153</td>
<td>1-5</td>
<td>1.00</td>
<td>0.878</td>
</tr>
<tr>
<td>PIQ Indirect</td>
<td>2.764</td>
<td>1.065</td>
<td>1-5</td>
<td>0.526 (0.052)</td>
<td>0.500</td>
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<tr>
<td>PSP Family Parcel</td>
<td>2.039</td>
<td>1.219</td>
<td>1-5</td>
<td>1.09 (0.064)</td>
<td>0.905</td>
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<tr>
<td><strong>Peer Influence</strong></td>
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<td>PSP Peer Parcel 1</td>
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<td>1.063</td>
<td>1-5</td>
<td>1.00</td>
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<tr>
<td>PSP Peer Parcel 2</td>
<td>1.801</td>
<td>0.894</td>
<td>1-5</td>
<td>0.825 (0.047)</td>
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<td><strong>Media Influence</strong></td>
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<td>SATAQ Information</td>
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<td>0.841</td>
<td>1-5</td>
<td>1.00</td>
<td>0.483</td>
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<tr>
<td>SATAQ Pressures</td>
<td>3.296</td>
<td>1.103</td>
<td>1-5</td>
<td>2.37 (0.328)</td>
<td>0.872</td>
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<tr>
<td>PSP Media Parcel</td>
<td>3.284</td>
<td>1.392</td>
<td>1-5</td>
<td>2.705 (0.376)</td>
<td>0.790</td>
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<td><strong>Internalization of the</strong></td>
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<tr>
<td>IBIS Parcel 1</td>
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<td>0.754</td>
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<td>1.00</td>
<td>0.675</td>
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<tr>
<td>IBIS Parcel 2</td>
<td>3.865</td>
<td>0.835</td>
<td>1-5</td>
<td>1.093 (0.074)</td>
<td>0.666</td>
</tr>
<tr>
<td>SATAQ General</td>
<td>3.207</td>
<td>1.044</td>
<td>1-5</td>
<td>1.692 (0.186)</td>
<td>0.826</td>
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<td><strong>Social Comparison</strong></td>
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<td>BCS Muscularity</td>
<td>2.478</td>
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<td>1.00</td>
<td>0.820</td>
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<td>BCS General</td>
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<td>1-5</td>
<td>0.674 (0.041)</td>
<td>0.694</td>
</tr>
<tr>
<td>BCS Weight</td>
<td>3.321</td>
<td>1.102</td>
<td>1-5</td>
<td>1.218 (0.056)</td>
<td>0.824</td>
</tr>
<tr>
<td>PACS</td>
<td>3.058</td>
<td>0.838</td>
<td>1-5</td>
<td>0.848 (0.054)</td>
<td>0.754</td>
</tr>
<tr>
<td><strong>Body Dissatisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BES Weight</td>
<td>2.015</td>
<td>0.909</td>
<td>0-4</td>
<td>1.00</td>
<td>0.849</td>
</tr>
<tr>
<td>BES Attributions</td>
<td>1.856</td>
<td>1.045</td>
<td>0-4</td>
<td>0.907 (0.030)</td>
<td>0.885</td>
</tr>
<tr>
<td>BSQ</td>
<td>2.698</td>
<td>0.978</td>
<td>1-5</td>
<td>0.998 (0.039)</td>
<td>0.906</td>
</tr>
</tbody>
</table>

Note. All factor loadings significant at p<.001. Parental Influence Questionnaire (PIQ), Perceived Sociocultural Pressures (PSP), Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS), Physical Appearance Comparison Scale (PACS), Body Comparison Scale (BCS), Body Shape Questionnaire (BSQ), Body Esteem Scale (BES). Observed ranges for each scale were the same as the possible ranges for each scale.
Table 6. Factor structure of the Internalization and Body Dissatisfaction Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Internalization Factor</th>
<th>Body Dissatisfaction Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SATAQ General</td>
<td>0.310</td>
<td>0.492</td>
</tr>
<tr>
<td>IBIS Parcel 1</td>
<td>0.819</td>
<td>-0.011</td>
</tr>
<tr>
<td>IBIS Parcel 2</td>
<td>0.820</td>
<td>0.116</td>
</tr>
<tr>
<td>Body Dissatisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ</td>
<td>0.056</td>
<td>0.852</td>
</tr>
<tr>
<td>BES Weight</td>
<td>-0.200</td>
<td>0.970</td>
</tr>
<tr>
<td>BES Attributions</td>
<td>0.003</td>
<td>0.989</td>
</tr>
</tbody>
</table>

Note. Factor Correlation between Internalization and Body Dissatisfaction Factors=0.465. N=414. Geomin Rotation. Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS), Body Shape Questionnaire (BSQ), Body Esteem Scale (BES).
Table 7. Factor structure of IBIS and SATAQ General Internalization items

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SATAQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I do not care if my body looks like the</td>
<td>0.625</td>
<td>0.160</td>
</tr>
<tr>
<td>2. I compare my body to the bodies of</td>
<td>0.865</td>
<td>0.003</td>
</tr>
<tr>
<td>3. I would like my body to look like the</td>
<td>0.888</td>
<td>-0.045</td>
</tr>
<tr>
<td>4. I compare my appearance to the</td>
<td>0.863</td>
<td>0.043</td>
</tr>
<tr>
<td>5. I would like my body to look like the</td>
<td>0.886</td>
<td>0.006</td>
</tr>
<tr>
<td>6. I do not compare my body to the bodies</td>
<td>0.862</td>
<td>-0.065</td>
</tr>
<tr>
<td>7. I wish I looked like the models in music</td>
<td>0.901</td>
<td>-0.014</td>
</tr>
<tr>
<td>8. I compare my appearance to the</td>
<td>0.607</td>
<td>0.056</td>
</tr>
<tr>
<td>9. I do not try to look like the people on TV.</td>
<td>0.618</td>
<td>0.166</td>
</tr>
<tr>
<td>IBIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Slender women are more attractive</td>
<td>0.198</td>
<td>0.613</td>
</tr>
<tr>
<td>2. Women who are in shape are more</td>
<td>-0.001</td>
<td>0.790</td>
</tr>
<tr>
<td>3. Tall women are more attractive</td>
<td>0.082</td>
<td>0.471</td>
</tr>
<tr>
<td>4. Women with toned (lean) bodies are more</td>
<td>-0.007</td>
<td>0.891</td>
</tr>
<tr>
<td>5. Shapely women are more attractive</td>
<td>-0.184</td>
<td>0.299</td>
</tr>
<tr>
<td>6. Women with long legs are more attractive</td>
<td>0.129</td>
<td>0.562</td>
</tr>
</tbody>
</table>

*Note.* Factor Correlation between Factor 1 and Factor 2=0.514. N=413. Geomin rotation. Negatively worded items were reverse coded. Sociocultural Attitudes Toward Appearance Scale (SATAQ), Ideal Body Internalization Scale (IBIS).
Table 8. Correlations Among Indicator Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PIQ D</td>
<td>-</td>
<td>.49</td>
<td>.66</td>
<td>.10</td>
<td>.25</td>
<td>.12</td>
<td>.33</td>
<td>.22</td>
<td>.31</td>
<td>.27</td>
<td>.53</td>
<td>.43</td>
<td>.47</td>
</tr>
<tr>
<td>3. PSP</td>
<td>-</td>
<td>.35</td>
<td>.53</td>
<td>.42</td>
<td>.50</td>
<td>.43</td>
<td>.49</td>
<td>.53</td>
<td>.59</td>
<td>.61</td>
<td>.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. SATAQI</td>
<td>-</td>
<td></td>
<td>.36</td>
<td>.57</td>
<td>.35</td>
<td>.34</td>
<td>.36</td>
<td>.41</td>
<td>.25</td>
<td>.37</td>
<td>.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. SATAQP</td>
<td>-</td>
<td></td>
<td></td>
<td>.63</td>
<td>.46</td>
<td>.40</td>
<td>.47</td>
<td>.49</td>
<td>.53</td>
<td>.55</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. SATAQ</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>.51</td>
<td>.45</td>
<td>.54</td>
<td>.61</td>
<td>.45</td>
<td>.61</td>
<td>.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. BCS M</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.65</td>
<td>.71</td>
<td>.56</td>
<td>.50</td>
<td>.59</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. BCS G</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.56</td>
<td>.50</td>
<td>.31</td>
<td>.49</td>
<td>.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. BCS W</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.57</td>
<td>.54</td>
<td>.60</td>
<td>.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. PACS</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.49</td>
<td>.64</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. BES W</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.79</td>
<td>.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. BES A</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>.77</td>
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<tr>
<td>13. BSQ</td>
<td>-</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

*Note. Correlations at or above |.10| are significant at the .05 level.*
Table 9. Estimated Correlations among Latent Variables in the Dual Pathway Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family</td>
<td>--</td>
<td>.388</td>
<td>.484</td>
<td>.588</td>
<td>.420</td>
<td>.554</td>
</tr>
<tr>
<td>2. Peers</td>
<td>--</td>
<td>--</td>
<td>.542</td>
<td>.660</td>
<td>.471</td>
<td>.621</td>
</tr>
<tr>
<td>3. Media</td>
<td>--</td>
<td>--</td>
<td>.822</td>
<td>.587</td>
<td>.774</td>
<td></td>
</tr>
<tr>
<td>4. Latent Factor</td>
<td>--</td>
<td>--</td>
<td></td>
<td>.714</td>
<td>.941</td>
<td></td>
</tr>
<tr>
<td>5. Internalization</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td>.654</td>
</tr>
<tr>
<td>6. BD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>--</td>
</tr>
</tbody>
</table>
Table 10. Estimated Correlations Among Latent Variables in the TIM

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family</td>
<td>--</td>
<td>.654</td>
<td>.401</td>
<td>.206</td>
<td>.461</td>
<td>.538</td>
</tr>
<tr>
<td>2. Peers</td>
<td>--</td>
<td>.563</td>
<td>.419</td>
<td>.548</td>
<td>.621</td>
<td></td>
</tr>
<tr>
<td>3. Media</td>
<td>--</td>
<td>.825</td>
<td>.769</td>
<td>.847</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Internalization</td>
<td>--</td>
<td>.639</td>
<td>.671</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. BD</td>
<td>--</td>
<td>.882</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Social Comparison</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Path/Effect</td>
<td>Parameter Estimate (Standard Error)</td>
<td>$p$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family $\rightarrow$ Internalization $\rightarrow$ Body Dissatisfaction</td>
<td>-.014 (.014)</td>
<td>.309</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family $\rightarrow$ Social Comparison $\rightarrow$ Body Dissatisfaction</td>
<td>.156 (.058)</td>
<td>.007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer $\rightarrow$ Internalization $\rightarrow$ Body Dissatisfaction</td>
<td>.003 (.010)</td>
<td>.740</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer $\rightarrow$ Social Comparison $\rightarrow$ Body Dissatisfaction</td>
<td>.076 (.070)</td>
<td>.281</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Media $\rightarrow$ Internalization $\rightarrow$ Body Dissatisfaction</td>
<td>.074 (.069)</td>
<td>.284</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media $\rightarrow$ Social Comparison $\rightarrow$ Body Dissatisfaction</td>
<td>.594 (.094)</td>
<td>.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 12. Summary of Indirect Effects for the Modified TIM (Standardized Solution, N=415)

<table>
<thead>
<tr>
<th>Path/Effect</th>
<th>Parameter Estimate (Standard Error)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family $\rightarrow$ Internalization $\rightarrow$ Body Dissatisfaction</td>
<td>-.019 (.009)</td>
<td>.036</td>
</tr>
<tr>
<td>Family $\rightarrow$ Social Comparison $\rightarrow$ Body Dissatisfaction</td>
<td>.129 (.040)</td>
<td>.001</td>
</tr>
<tr>
<td>Media $\rightarrow$ Internalization $\rightarrow$ Body Dissatisfaction</td>
<td>.115 (.053)</td>
<td>.031</td>
</tr>
<tr>
<td>Media $\rightarrow$ Social Comparison $\rightarrow$ Body Dissatisfaction</td>
<td>.481 (.072)</td>
<td>.001</td>
</tr>
</tbody>
</table>
Table 13. Goodness-of-Fit Indices for the Structural Models

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>SRMR</th>
<th>CFI</th>
<th>RMSEA</th>
<th>90% CI for RMSEA</th>
<th>AIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmodified DPM</td>
<td>404.409</td>
<td>70</td>
<td>.079</td>
<td>.911</td>
<td>.107</td>
<td>(.097, .118)</td>
<td>12788.694</td>
</tr>
<tr>
<td>Unmodified TIM</td>
<td>579.929</td>
<td>124</td>
<td>.059</td>
<td>.909</td>
<td>.094</td>
<td>(.086, .102)</td>
<td>15980.473</td>
</tr>
<tr>
<td>Modified TIM</td>
<td>557.354</td>
<td>125</td>
<td>.056</td>
<td>.913</td>
<td>.091</td>
<td>(.084, .099)</td>
<td>15958.647</td>
</tr>
</tbody>
</table>

*Note.* SRMR=Standardized Root Mean Square Residual; CFI=Comparative Fit Index; RMSEA=Root Mean Square Error of Approximation; CI=Confidence Interval; AIC=Akaike Information Criterion.
Table 14. Hierarchical Regression of Body Dissatisfaction on Internalization and Social Comparison

<table>
<thead>
<tr>
<th>Step 1</th>
<th>B</th>
<th>SE(B)</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Internalization</td>
<td>.56</td>
<td>.04</td>
<td>.59**</td>
<td>0.35</td>
<td>--</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2</th>
<th>B</th>
<th>SE(B)</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Internalization</td>
<td>.30</td>
<td>.04</td>
<td>.32**</td>
<td>0.53</td>
<td>.18**</td>
</tr>
<tr>
<td>BCS Weight</td>
<td>.45</td>
<td>.04</td>
<td>.51**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3</th>
<th>B</th>
<th>SE(B)</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Internalization</td>
<td>.28</td>
<td>.04</td>
<td>.30**</td>
<td>0.54</td>
<td>.004</td>
</tr>
<tr>
<td>BCS Weight</td>
<td>.42</td>
<td>.04</td>
<td>.47**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCS General Appearance</td>
<td>.11</td>
<td>.06</td>
<td>.08</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 4</th>
<th>B</th>
<th>SE(B)</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
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</thead>
<tbody>
<tr>
<td>General Internalization</td>
<td>.260</td>
<td>.04</td>
<td>.28**</td>
<td>0.55</td>
<td>.02**</td>
</tr>
<tr>
<td>BCS Weight</td>
<td>.33</td>
<td>.04</td>
<td>.38**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCS General Appearance</td>
<td>.01</td>
<td>.06</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCS Muscularity</td>
<td>.23</td>
<td>.06</td>
<td>.21**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Total F (4,400) for Step 4=53.73; BCS = Body Comparison Scale; two asterisks (**) indicates a significant value at p<.01.
Table 15. Hierarchical Regression of Body Dissatisfaction on Family, Peer, and Media Influences

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>B</th>
<th>SE(B)</th>
<th>β</th>
<th>R²</th>
<th>Δ R²</th>
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<tbody>
<tr>
<td>1</td>
<td>PIQ Direct Influence</td>
<td>.40</td>
<td>.04</td>
<td>.47**</td>
<td>.22</td>
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</tr>
<tr>
<td>2</td>
<td>PIQ Direct Influence</td>
<td>.28</td>
<td>.03</td>
<td>.33**</td>
<td>.49</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td>SATAQ Pressures</td>
<td>.48</td>
<td>.03</td>
<td>.54**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PIQ Direct Influence</td>
<td>.20</td>
<td>.03</td>
<td>.24**</td>
<td>.54</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>SATAQ Pressures</td>
<td>.42</td>
<td>.03</td>
<td>.47**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSP Parcel 1</td>
<td>.22</td>
<td>.04</td>
<td>.24**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>PIQ Direct Influence</td>
<td>.20</td>
<td>.03</td>
<td>.23**</td>
<td>.54</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>SATAQ Pressures</td>
<td>.42</td>
<td>.03</td>
<td>.47**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSP Parcel 1</td>
<td>.19</td>
<td>.05</td>
<td>.20**</td>
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</tr>
<tr>
<td></td>
<td>PSP Parcel 2</td>
<td>.05</td>
<td>.06</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Total F (4,396) for Step 4=51.27; PIQ=Parental Influence Questionnaire; SATAQ=Sociocultural Attitudes Toward Appearance Questionnaire; PSP=Perceived Sociocultural Pressures; two asterisks (**) indicates a significant value at p<.01.
Table 16. Previous Studies Using SEM for the TIM or DPM

<table>
<thead>
<tr>
<th>Authors</th>
<th>N</th>
<th>Model Description</th>
<th>df</th>
<th>( \chi^2 )</th>
<th>RMSEA</th>
<th>CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fingeret &amp; Gleaves (2004)</td>
<td>202</td>
<td>Awareness → Internalization → BD</td>
<td>90</td>
<td>182.5</td>
<td>.072</td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Feminism, Self-esteem and BMI also in model</td>
<td>93</td>
<td>188.9</td>
<td>.073</td>
<td>.93</td>
</tr>
<tr>
<td>Stice et al. (1994)</td>
<td>238</td>
<td>Media Exposure → Internalization → BD</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender Role Endorsement also in model</td>
<td>3</td>
<td>2.33</td>
<td>NR</td>
<td>1.0</td>
</tr>
<tr>
<td>Myers &amp; Crowther (2006)</td>
<td>250</td>
<td>Social/Media Influence → Internalization → BD</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-objectification partially mediates relationship between Internalization and BD</td>
<td>19</td>
<td>13.06</td>
<td>.000</td>
<td>1.0</td>
</tr>
<tr>
<td>Duemm et al. (2003)</td>
<td>184</td>
<td>Pressures → Internalization → BD</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Full DPM tested; Sociotropy also included</td>
<td>9</td>
<td>7.62</td>
<td>.01</td>
<td>NR</td>
</tr>
<tr>
<td>Keery et al. (2004)</td>
<td>433</td>
<td>Pressures → Internalization and Comparison → BD</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Six Hypothesized Models showed poor fit</td>
<td>9</td>
<td>35.96</td>
<td>.096</td>
<td>.97</td>
</tr>
<tr>
<td>Rodgers et al. (2009)</td>
<td>188</td>
<td>Parental Comment → Comparison → Internalization → BD</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initial model rejected</td>
<td>10</td>
<td>24.4</td>
<td>.09</td>
<td>.96</td>
</tr>
</tbody>
</table>
Table 16. Previous Studies Using SEM for the TIM or DPM (continued)

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Variables</th>
<th>CMIN</th>
<th>CFI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van den Berg et al. (2002)</td>
<td>196</td>
<td>Family/Peer/Media Influence→Comparison→BD Perfectionism, BMI, Global Psychological Functioning also in model</td>
<td>273</td>
<td>474.4</td>
<td>.076</td>
<td>.90</td>
</tr>
<tr>
<td>Schroff &amp; Thompson (2006)</td>
<td>391</td>
<td>TIM as hypothesized; replicated Keery et al. (2004)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>

Note. **Bolded** numbers are from the structural model; non-bolded numbers from measurement models. Some studies included variables other than BD as an outcome measure (e.g., Eating Disorder symptoms), however, only the variables preceding BD are included in the table. NR=Not Reported.
INFORMED CONSENT for Body Image Research

INVESTIGATOR’S NAME: Coda Pritchard, MA, and Dawn Johnson, PhD

RESEARCH PURPOSE AND DESCRIPTION OF PROCEDURES: The purpose of this study is to better understand how women think about their bodies. This study involves responding to several questionnaires about your body image and your past experiences.

TIME COMMITMENT: This experiment takes at most 90 minutes in a single session.

RISKS AND DISCOMFORTS: There are no known risks or discomforts associated with this research except that you may feel psychological discomfort in revealing information about your own experiences. You do not have to answer questions that make you feel uncomfortable.

BENEFITS: There are no anticipated benefits to you other than extra course credit. Participation in this research will also aid in our understanding of women’s body image.

ALTERNATIVES: Participation in this study is voluntary. University of Akron Psychology students have the opportunity to participate in other research studies or complete alternate assignments for optional course credit. Non-psychology students can choose to participate in other studies or none at all.

I have been fully informed of the above-described procedure with its possible benefits and risks. I understand that my responses will be maintained in a confidential manner by the researcher. I voluntarily give permission for my participation in this study. I know
that the investigator and his/her associates will be available to answer any questions that I may have. If, at any time, I feel my questions have not been adequately answered, I may request to speak with Dr. Dawn Johnson (330-972-2505) or the University of Akron IRB Administrator (Ms. Sharon McWhorter, 330-972-8311). I understand that I am free to withdraw this consent and discontinue participation in this project at any time without penalty.

By clicking “Next”, I agree to the terms of this informed consent.
APPENDIX M

DEBRIEFING

After reading this debriefing, go to the next page to record your psychology extra credit.

The purpose of this study is to examine the relationship between messages you have received about the importance of thinness and your current body image. The measures that you completed included measures to assess messages you have received from family, peers, and media, your tendency to compare yourself to other people, and your body image. Previous research has suggested that women receive strong messages from people around them regarding the importance of being thin, which leads to women accepting these messages and ultimately reducing their body dissatisfaction (e.g., Stice, 2001; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). The study that you just participated in will help to clarify the relationship between these variables and may be useful in developing preventative interventions for eating disorders.

It is difficult to assess this type of information, and your willingness to participate in this study is greatly appreciated. Your input will help to advance the field of disordered eating research. Sometimes people find that the subject matter of the questionnaires can cause them to feel uncomfortable. If answering any of the questions led you to feel distressed and you would like to speak to someone, please contact one of the following agencies:

Eating Disorders Awareness and Prevention (EDAP)
1-800-931-2237
University of Akron Counseling Center
330-972-7082
Portage Path Behavioral Health
330-253-3100
We would ask you to maintain confidentiality about the purpose of the experiment since any pre-knowledge of the purpose will bias the data for that person and thus cannot be used.

If you have any complaints, concerns, or questions about this research, please feel free to contact Dr. Dawn Johnson (330-972-2505), or University of Akron IRB Administrator (Ms. Sharon McWhorter, 330-972-8311).
APPENDIX N

INSTITUTIONAL REVIEW BOARD APPROVAL

NOTICE OF APPROVAL

August 27, 2012

Cindy Derrig
Psychology Department
The University of Akron
Akron, Ohio 44325-4301

From: Sharon McWhorter, IRB Administrator

Re: IRB Number 20120812 "Comparing Two Models of Body Dissatisfaction"

Thank you for submitting your IRB Application for Review of Research Involving Human Subjects for the referenced project. Your application was approved on August 27, 2012. Your protocol represents minimal risk to subjects and matches the following federal category for exemption:

☐ Exemption 1 – Research conducted in established or commonly accepted educational settings, involving normal educational practices.

☐ Exemption 2 – Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior.

☐ Exemption 3 – Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior not exempt under category 2, but subjects are elected or appointed public officials or candidates for public office.

☐ Exemption 4 – Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens.

☐ Exemption 5 – Research and demonstration projects conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine public programs or benefits.

☐ Exemption 6 – Tests and reword quality evaluation and consumer acceptance studies.

Annual continuation applications are not required for exempt projects. If you make changes to the study’s design or procedures that increase the risk to subjects or include activities that do not fall within the approved exemption category, please contact me to discuss whether or not a new application must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to implementation.

Please retain this letter for your files. This office will hold your exemption application for a period of three years from the approval date. If you wish to continue this protocol beyond this period, you will need to submit another Exemption Request. If the research is being conducted for a master’s thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

Cc: Dawn Johnson - Advisor
Cc: Stephanie Woods - IRB Chair

☐ Approved consent forms enclosed