THE IMPACT OF SOCIAL COMPARISON ON BODY DISSATISFACTION IN THE NATURALISTIC ENVIRONMENT: THE ROLES OF APPEARANCE SCHEMA ACTIVATION, THIN-IDEAL INTERNALIZATION, AND FEMINIST BELIEFS

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by

Taryn A. Myers

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CHAPTER 1

INTRODUCTION

Body dissatisfaction consists of dysfunctional, negative beliefs and feelings about one’s weight and shape (Garner, 2002). In particular, body dissatisfaction is a belief that particular parts of the body (such as hips or buttocks) are too large. Due to Western cultures’ focus on a thin ideal that is often unattainable, the primary focus of dissatisfaction with one’s body in these cultures is body weight and shape (Heinberg, 1996; Tiggemann & Lynch, 2001). Body dissatisfaction is a widespread problem among women in Western society. For example, over 80% of women in college settings reported body dissatisfaction (Spitzer, Henderson, & Zivian, 1999), and 76.8% of adolescent girls reported wanting to be thinner (Ricciardelli & McCabe, 2001).

According to Tiggemann & Lynch (2001), levels of body dissatisfaction remain constant across the lifespan among adult women. In fact, as Silberstein, Striegel-Moore, and Rodin (1987) pointed out, a discrepancy between the ideal body type and the way women perceive and experience their own bodies is so common – even in nonclinical populations – that it may be a “normal part of the female experience” within Western culture (p. 89), a phenomenon which has been referred to as “normative discontent.”
Body dissatisfaction has been linked to several negative psychological consequences, including depression and negative affect. Levine and Smolak (2002) suggest that body dissatisfaction leads to increased risk of developing depression in adolescent girls. Longitudinal research has shown that body dissatisfaction was an important factor in predicting the onset (Stice, Hayward, Cameron, Killen, & Taylor, 2000) and persistence (Rierdan, Koff, & Stubbs, 1988) of depression in adolescent girls. Recent research even suggests that body dissatisfaction may predict reported suicide attempts in adolescents (Rodriguez-Cano, Beato-Fernandez, & Llario, 2006).

Dissatisfaction with one’s body may be detrimental to one’s ability to interact in social situations, leading to self-consciousness and social anxiety in women (Cash & Labarge, 1996). Body dissatisfaction may also contribute to sexual dysfunction in women. When women focus on appearance concerns during a sexual encounter, they experience less self-esteem in sexual situations and less sexual satisfaction (Wiederman, 2002).

Using meta-analytic methodology, Stice (2002) has shown that body dissatisfaction is a risk factor for dieting and eating pathology as well as a maintenance factor for bulimic pathology. Indeed, body dissatisfaction and disturbed body image are considered central features of anorexia nervosa (Cooper, Taylor, Cooper, & Fairburn, 1987) and bulimia nervosa (Fairburn & Garner, 1986). Body image disturbance is included as one of the diagnostic criteria for anorexia nervosa and self-evaluation that is unduly influenced by body shape and weight is included as one of the diagnostic criteria for bulimia nervosa in the *Diagnostic and Statistical Manual of Mental Disorders-IV-TR* (*DSM-IV-TR*; APA, 2000).
Eating disorders are a serious problem for women in America, with prevalence rates of approximately 0.5% for anorexia nervosa and 2-3% for bulimia nervosa (APA, 2000). Both of these disorders are disproportionately seen in women, with more than 90% of cases for each being females (APA, 2000). According to Grave (2003), eating disorders are one of the most common problems among young females in Western countries. In addition, many more women may experience problematic or disordered eating behaviors than these statistics show. Austin (2000) reported that 10-15% of girls and young women who are tested in studies actually score above the cut-off point for probable disordered eating. Moreover, approximately 1/3 of adolescent females use extreme forms of weight control (purging, diet pills, etc.) at some point during their adolescence, and up to 61% of college women engage in some form of disturbed eating (Mintz & Betz, 1988). In fact, only 33% of the women in Mintz and Betz’s (1988) study reported eating habits that these researchers considered “normal,” that is, healthy eating patterns without extreme dieting measures. Therefore, an examination of constructs related to body dissatisfaction is important not only because dissatisfaction with one’s body is associated with negative psychological consequences, but also because body dissatisfaction is a major risk factor for development of eating pathology.

**Social Comparison**

Social comparison theory (Festinger, 1954) provides a foundation for understanding women’s day-to-day experiences with body dissatisfaction. This theory proposes that people have a drive to determine their progress and standing in life, and they often do so by searching out standards to which they can compare themselves. This
theory differentiates two types of social comparisons: upward and downward comparisons. Upward social comparisons occur when individuals compare themselves to someone whom they believe to be better off than themselves, and downward social comparisons occur when individuals compare themselves to someone whom they believe to be worse off than themselves. Festinger (1954) proposed that upward comparisons were likely to produce negative consequences, such as decreased self-esteem, whereas downward comparisons were likely to produce positive consequences, such as increased self-esteem. His theory posits that people are most likely to compare themselves with individuals who are most similar to them, and that, in general, people will have a drive towards making favorable (rather than unfavorable) comparisons. Subsequent research, however, has suggested that other factors, such as the comparison target and the attainability or controllability of the evaluative dimension, may moderate the effects of upward or downward comparisons (Mills, Polivy, Herman, & Tiggemann, 2002; Testa & Major, 1990; Wood, 1989). Interestingly, social comparison theory also argues that as long as upward comparisons are not harmful, individuals may seek comparisons with slightly superior others to gain information on how to improve themselves (Festinger, 1954; Schutz, Paxton, & Wertheim, 2002).

Research has shown that when women make upward appearance-focused social comparisons and use this process to evaluate their own bodies, attainability of the evaluative dimension and other moderating factors produce effects that may seem to diverge from Festinger’s (1954) original theory. First, although social comparison theory argues that individuals are most likely to compare themselves to similar others,
women compare themselves to unrealistic, thin images of women portrayed in the media just as frequently as they will compare themselves to more relevant peers (Engeln-Maddox, 2005; Strahan, Wilson, Cressman, & Buote, 2006). Second, although social comparison theory argues that people will not continue to make comparisons (especially upward comparisons) if they are unfavorable and/or damaging to one’s self-image, women frequently make appearance-related social comparisons (Leahey, Crowther, & Mickelson, 2007) and continue to do so even when they have detrimental consequences (Strahan et al., 2006). The primary negative psychological consequence of unfavorable appearance-focused social comparisons is body dissatisfaction (e.g., Bessenoff, 2006; Engeln-Maddox, 2005; Gurari, Hetts, & Strube, 2006; Halliwell & Harvey, 2006; Krones, Stice, Batres, & Orjada, 2005; Leahey et al., 2007; Tiggemann & McGill, 2004; Trampe, Stapel, & Siero, 2007). Indeed, Groesz, Levine, and Murnen (2002) referred to social comparison as a “critically important construct that has received insufficient attention” in the study of body dissatisfaction (p. 12).

Social Comparison and Body Dissatisfaction

The role of social comparison, particularly appearance-focused social comparison, in the development of body dissatisfaction has been the focus of many recent empirical studies. Theory has suggested that social comparison is one of several processes by which individuals gather information about their own level of physical attractiveness; when the comparison is unfavorable, body dissatisfaction results (Tantleff-Dunn & Gokee, 2002). In particular, the theory argues that if women compare themselves to
media images representing an unattainable thin ideal, it is likely that they will develop dissatisfaction with their own bodies (Shaw & Waller, 1995).

In general, studies examining the relationship between social comparison and body dissatisfaction provide empirical support for this theory; that is, after making upward, appearance-focused comparisons, both women and men appear to experience increased levels of body dissatisfaction (e.g., Feingold & Mazzella, 1998; Tantleff-Dunn & Gokee, 2002). A large body of research has examined this relationship when comparisons are made to thin media images. For example, Irving (1990) found that, regardless of eating disorder pathology, women who were exposed to thin media images – and thus, he assumed, compared themselves unfavorably with these images – exhibited lower levels of weight satisfaction and self-esteem. More recently, Tiggemann and colleagues have explored the impact of comparison to media images on women’s body dissatisfaction. Hargreaves and Tiggemann (2004) found that after exposure to commercials illustrating women who represent the thin ideal, adolescent girls exhibited higher levels of body dissatisfaction. Tiggemann and McGill (2004) also found that women who were exposed to magazine advertisements illustrating all or parts of bodies that exemplified the thin ideal experienced higher levels of both body dissatisfaction and negative mood.

Other research has examined the relationship between social comparison and body dissatisfaction more generally. In one of the earliest studies in this area, Striegel-Moore, McAvey, and Rodin (1986) found the tendency to compare one’s body with that of other women was significantly related to feeling fat. Survey research by Rudd and
Lennon (2000) revealed that social comparison is such a potent factor in the development of body dissatisfaction that when participants were asked to write essays about their feelings about their physical appearance, 36.8% of them spontaneously included information about comparing their appearance to that of others. Stormer and Thompson (1996) showed that, even after controlling for self-esteem and level of obesity, social comparison was still a significant predictor of body dissatisfaction in college women. In one of the few studies that used an experimental manipulation to expose participants to a thin peer, Krones et al. (2005) found that women who interacted with this thin peer exhibited higher levels of body dissatisfaction than those who were exposed to a peer of more average body shape.

Because considerable research has been done in this area in recent years, several attempts have been made to synthesize the data quantitatively. In a meta-analysis of 25 studies, Groesz et al. (2002) showed that even brief exposure to media images was related to greater levels of body dissatisfaction. In a more recent meta-analysis of 156 studies, Myers and Crowther (in press) found a consistently strong, positive relationship between social comparison and body dissatisfaction. They also examined potential moderating factors of this relationship and found that the effect for social comparison and body dissatisfaction was inversely related to age and appeared to be stronger in females than in males. This effect was also stronger when social comparison was directly measured rather than inferred. However, this effect did not differ on the basis of the presence of eating psychopathology, study design, or object of comparison.
Generally, the current literature in this area is characterized by two types of studies: (1) laboratory studies, in which women are exposed to images of the thin ideal in the laboratory setting which induce appearance-focused comparisons; and (2) correlational studies, in which women fill out paper-and-pencil questionnaires that measure their tendencies to make appearance-focused comparisons. While such research is valuable, laboratory studies lack ecological validity; because the nature of the comparison is experimentally manipulated, it is difficult to generalize the results to comparisons that occur on a day-to-day basis in the naturalistic environment. Furthermore, correlational methodologies rely too heavily on retrospective report, and as a result are subject to recall errors and biases.

Recently, ecological momentary assessment has been implemented to study the relationships among constructs while minimizing the problems with laboratory and correlational research. Ecological momentary assessment samples experiences at the moment they occur in the naturalistic setting (Stone & Shiffman, 1994). This methodology maximizes the generalizeability of the findings while avoiding retrospective recall. This methodology was originally used to examine research questions such as the relationship between smoking and drinking (Shiffman et al., 1994) and the impact of stress on physical and psychological well-being (Smyth, Wonderlich, Crosby, Miltenberger, Mitchell, & Rorty, 2001; Stone, Kennedy-Moore, & Neale, 1995). To our knowledge, there have been four published studies using ecological momentary assessment to investigate body dissatisfaction (Leahey et al., 2007; Leahey & Crowther, 2008; Melnyk, Cash, & Janda, 2004; Rudiger, Cash, Roerhrig, & Thompson, 2006).
Melnyk et al. (2004) examined body image states over time to identify predictors of those states. In order to accomplish this task, they asked female undergraduate participants to call an automated telephone service twice daily for six days, once in the morning before noon, and once in the evening. They found that high trait body dissatisfaction, dysfunctional investment in one’s appearance, disturbed eating attitudes, and maladaptive body image coping strategies (such as ignoring feelings about one’s body or trying to change or cover up perceived problem areas of the body) predicted higher levels of state body dissatisfaction. They also found that psychological investment in one’s appearance, disturbance in eating attitudes, and body image coping strategies that focused on trying to fix one’s appearance rather than accepting it predicted variability in state body dissatisfaction over the six-day period. Although Melnyk et al.’s (2004) study made a strong contribution to the literature by measuring body dissatisfaction twice daily in an attempt to capture momentary fluctuations in this variable, they made no attempt to discern other events that may have been occurring that could have influenced variability in participants’ state body dissatisfaction.

As a follow-up to the study of Melnyk et al. (2004), Rudiger et al. (2006) were also interested in studying the day-to-day body image states of college-aged women. Participants were asked to complete an initial set of questionnaires online; they then signed in every night for 10 nights to fill out a state measure of body dissatisfaction. The researchers again hoped to discover constructs that would be predictive of body-image states. Results showed that investment in body image as a source of self-worth, cognitive distortions in the realm of body image, disturbed eating attitudes, and higher BMI
predicted higher levels of state body dissatisfaction. These researchers again examined constructs that influenced the variability of body dissatisfaction from one day to the next and found that cognitive distortions related to body image were the strongest predictor of variability in state body dissatisfaction from day to day. Other factors related to this variability included evaluating oneself on the basis of one’s body image and perfectionism. In this study, the researchers examined variability in state body dissatisfaction over a longer period of time. However, they measured this construct only once per day and again collected no data on what might have occurred over the course of the day that led to these fluctuations in state body dissatisfaction.

Recent research conducted by Leahey et al. (2007) expanded upon the findings and methodology of these two previous studies by examining the process of social comparison in the naturalistic environment utilizing ecological momentary assessment. In order to do so, Leahey et al. (2007) asked female participants who were low and high on a trait measure of body dissatisfaction to carry a Personal Data Assistant (PDA) and diary questionnaires for seven days. Over the course of those seven days, an alarm from the PDA sounded at four random times each day. At that time, participants completed a series of questionnaires from the diary measuring whether they had made a social comparison and, if so, the nature of this comparison, their body dissatisfaction, affect, and thoughts of engaging in behaviors that would change their bodies. Results showed that when women made upward social comparisons that were appearance-focused, this process was associated with several negative consequences, including an increase in body dissatisfaction, negative affect, guilt, and thoughts of dieting and exercising.
Leahey and Crowther (2008) again used ecological momentary assessment to examine the impact of social comparison on body dissatisfaction in the naturalistic setting, this time taking into account the nature of the comparison target. Their methodology again allowed for examination of contextual factors that led to body dissatisfaction in the naturalistic environment. Women who were low and high on trait body dissatisfaction carried PDAs for five days, and an alarm sounded six times per day indicating participants should complete diary questionnaires. Leahey and Crowther (2008) found that body satisfied women experienced lower levels of positive affect and higher levels of guilt after comparing themselves to a media target than a peer target, while body dissatisfied women experienced higher appearance esteem and more thoughts of dieting after comparing themselves to a peer target rather than a media target. Leahey and colleagues’ (2007; 2008) work suggests a strong relationship between appearance-focused social comparisons and body dissatisfaction in the naturalistic setting.

Interestingly, one of Leahey et al.’s (2007) hypotheses was only partially supported. These researchers hypothesized that women who experienced higher levels of body dissatisfaction would be more negatively affected by these unfavorable comparisons than would women with lower levels of body dissatisfaction – i.e., those who were more satisfied with their bodies. The researchers found that although women who were more dissatisfied with their bodies had greater increases in thoughts of dieting following social comparison, they did not experience greater body dissatisfaction or increases in thoughts of exercising relative to those women who were more satisfied with their bodies. One explanation why this hypothesis was only partially supported is that there may be factors
that influence the impact of social comparison on body dissatisfaction (i.e., mediators and moderators of this relationship) that were not examined in Leahey et al.’s (2007) study.

Therefore, to extend Leahey et al.’s (2007) research, a major purpose of this research was to investigate mediators and moderators that may impact the nature and effects of the social comparisons that women make on a day-to-day basis. The process of appearance schema activation was considered as a mediator of the relationship between upward, appearance-focused social comparisons and body dissatisfaction. Thin-ideal internalization was examined as a moderating or potentiating factor of the relationship between social comparison and body dissatisfaction. Finally, feminist beliefs were examined as moderating or protective factor against body dissatisfaction as a consequence of engaging in upward, appearance-focused social comparisons.

**Appearance Schema Activation**

The relevance of cognitive issues, especially those related to one’s appearance, to the study of body dissatisfaction and eating psychopathology was first addressed by Vitousek and Hollon (1990). Drawing on cognitive theory, these authors theorized that individuals with eating disorders would develop schemata or schemas – “organized cognitive structures” that increase the efficiency of information processing – specifically related to the issues of weight and appearance. These appearance schemata allow these individuals to “simplify, organize, and stabilize” their views of themselves relative to other people in the surrounding environment (p. 193). Vitousek and Hollon (1990) argue that although a schema related to one’s appearance may not always be accurate, individuals will be resistant to any material that conflicts with this schema. They also
argue that these schemata will be quickly activated in situations that make individuals think about their weight and shape, and the presence of these schemas may even lead them to interpret ambiguous situations as weight- or appearance-related.

Cash and colleagues (e.g., Cash & Labarge, 1996; Labarge, Cash, & Brown, 1998) have expanded the work of Vitousek and Hollon (1990) to consider appearance schema activation in populations without eating psychopathology. These researchers argue that contextual events will activate these schemas and lead to appearance-related evaluation of one’s self, which in turn may lead to thoughts or actions concerning one’s appearance and behaviors to alter that appearance. Cash and Labarge (1996) found that women who had extreme body dissatisfaction were especially likely to endorse activation of appearance-related schemas when completing a questionnaire measuring this activation. However, it is still unclear whether appearance schema effects observed among eating disordered patients are due to their eating psychopathology specifically or to their disturbed body image (Labarge et al, 1998). Therefore, it is important to continue to examine the role of appearance schema activation when studying the construct of body dissatisfaction outside the realm of eating psychopathology.

The activation of appearance-related schemas, also referred to as “appearance schema activation,” has been shown to be related to several negative consequences. Several studies have shown that appearance schema activation is related to greater body dissatisfaction (e.g., Jung & Lennon, 2003; Sinton & Birch, 2006). Research also has offered evidence that exposure to thin media images leads to appearance schema activation. Hargreaves and Tiggemann (2004) found that female participants exposed to
commercials featuring thin individuals had higher levels of appearance schema activation and body dissatisfaction than those who viewed commercials without these thin images. Previous research also has suggested that appearance schema activation mediates the relationship between sociocultural variables (appearance media exposure and peer conversations about appearance) and body dissatisfaction (Brown & Dittmar, 2005; Clark & Tiggemann, 2007). Finally, Tiggemann and McGill (2004) reported that appearance schema activation was significantly related to both social comparison and body dissatisfaction. Because experimental exposure to thin media images is often used to induce social comparison in laboratory settings (e.g., Groesz et al., 2002), these studies suggest that appearance schema activation may mediate the relationship between social comparison and body dissatisfaction.

Thin-Ideal Internalization

Early in his dual-pathway model, Stice (1994) proposed that thin-ideal internalization mediates the relationship between sociocultural pressures to be thin and body dissatisfaction. Thin-ideal internalization has been defined as the psychological process that occurs when women assimilate this thin ideal and its associated values (i.e., women must be thin to be considered attractive) into their own world view such that these ideas become guiding principles in the women’s lives (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). In other words, thin-ideal internalization represents women’s acceptance of these principles to the extent that they change their behavior in order to try to meet these standards (Thompson et al., 2004). Thin-ideal internalization is
problematic because the thin ideal promulgated by the media is often unattainable for most women (Heinberg, 1996; Tiggemann & Lynch, 2001).

Research suggests that thin-ideal internalization is central to our understanding of body dissatisfaction, serving as a risk factor for dissatisfaction with one’s body (Stice, 2002; Thompson & Stice, 2001). Using meta-analysis, Cafri, Yamimiya, Brannick, and Thompson (2001) showed that thin-ideal internalization was significantly related to body dissatisfaction. In a longitudinal study, Stice, Shaw, and Nemeroff (1998) found that thin-ideal internalization was directly related to body dissatisfaction even after controlling for body mass and perceived pressure to conform to the thin ideal. Thin-ideal internalization also has also been shown to serve a mediating role between pressures to conform to the thin ideal and body dissatisfaction (Myers & Crowther, 2007; Stice, 1994).

Recent research has sought to examine how internalization of the thin ideal may influence social comparison’s link with body dissatisfaction, particularly how it may potentiate the nature of this relationship. Bessenoff (2006) describes social comparison as a “common factor” in variables associated with thin-ideal internalization and body dissatisfaction (p. 239). Research suggests that thin-ideal internalization is highly related to both social comparison and body dissatisfaction (Engeln-Maddox, 2005; Tiggemann & McGill, 2004).

When one considers the relationships among sociocultural pressures to be thin, thin-ideal internalization, and body dissatisfaction, one theoretical question that arises is the point at which the process of social comparison becomes important. Bessenoff
(2006) suggests that appearance-focused social comparisons or the tendency to make them may be the primary basis for the negative consequences of exposure to the thin ideal, including body dissatisfaction. Cross-sectional research has found that tendency to make social comparisons mediate the relationship between external influences or pressures to conform to the thin-ideal and internalization of this thin-ideal (Halliwell & Harvey, 2006; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), suggesting that the comparison process precedes thin-ideal internalization. Recent longitudinal research by Jones (2004) showed that social comparison is directly related to subsequent internalization of the thin-ideal. Based upon these few studies, it appears that thin-ideal internalization may be an important factor to consider when examining the relationship between upward appearance-focused comparisons and body dissatisfaction.

However, it is important to note that, whether cross-sectionally or longitudinally, these studies reviewed above have examined the role of thin-ideal internalization within the context of etiological models. These studies have shown that the tendency to make appearance-focused social comparisons mediates the relationship between sociocultural pressures and thin-ideal internalization (e.g., Halliwell & Harvey, 2006; Thompson et al., 1999). The manner in which these variables interact on a day-to-day or moment-by-moment basis may be different, however. In this context, it is likely that thin-ideal internalization is a trait variable that may impact the nature of the relationship between making an appearance-focused social comparison and experiencing body dissatisfaction in the naturalistic environment. Specifically, the impact of social comparison on body dissatisfaction as it occurs in the moment is likely greater for those who have internalized
the thin ideal because acceptance of the unrealistic standards presented by the thin ideal will increase the likelihood that an appearance-focused comparison will be seen as unfavorable. Therefore, thin-ideal internalization may serve as a potentiating factor for the relationship between appearance-focused social comparisons and body dissatisfaction.

_Feminist Beliefs_

Feminist theory is rooted in the assertion that women should be seen as equals to men and respected for their accomplishments. As the feminist National Organization for Women (NOW) explained in their 1966 _Statement of Purpose_, the main goal of this feminist organization (as well as many individual feminists) is “to take action to bring women into full participation in the mainstream of American society now, exercising all the privileges and responsibilities thereof in truly equal partnership with men” (NOW, 1966, p. 169).

In addition to their primary focus on equality, feminist theorists have provided interesting perspectives on the development and maintenance of body image and eating problems among women (Heinberg, 1996). Smolak and Murnen (2004) argue that body image disturbance is a “gendered” problem, attributing the gender differential of this problem to issues of power and self-objectification. Objectification Theory (Fredrickson & Roberts, 1997), a common feminist explanation for gender differences in psychological problems, including body dissatisfaction, argues that women often are regarded as objects by society, with the focus being placed on all or part of their bodies in a sexual context rather than on their abilities. As a result, a woman is not seen as an
entire person of substance, but is instead considered to be represented entirely by her body or by one or several portions of her body. Other feminist theorists have argued that negative body image and eating pathology are “natural responses to pathological societal pressures to be thin” (Heinberg, 1996, p. 35).

Previous theory and research has suggested that feminist beliefs serve as a protective factor against body dissatisfaction for women (Ojerholm & Rothblum, 1999; Rubin, Nemeroff, & Russo, 2004; Tiggemann & Stevens, 1999). Piran’s (1999) inclusion of the discussion of feminist ideas in the prevention program she conducted at an elite ballet school suggests the potential importance of feminism as a protective factor. Yet, the relationship between holding feminist beliefs and body satisfaction may be complex. Rubin et al. (2004) found that for self-identified feminist women, their feminist beliefs appear to provide “an alternate way to understand cultural messages and reframe negative thoughts” about their appearance (Rubin et al., 2004, p. 27). However, even though feminist women “knew” they should not judge themselves based upon their own appearance, they still were critical of their own weight and shape sometimes, a finding consistent with Rothblum’s (1994) assertion that women may reject traditional gender roles, but continue to worry about their appearance. Indeed, the findings of Myers & Crowther (2007) suggest that although all women are exposed to the thin ideal through the media, holding higher levels of feminist beliefs may give women a different lens through which to interpret this information.

Given these complex relationships, it is unclear whether women who hold feminist beliefs would engage in fewer appearance-focused comparisons than women
who do not hold such beliefs, or whether they would still make these appearance-focused comparisons, but the comparisons would have less impact on their body satisfaction. Although not investigating appearance-focused comparisons, DasGupta and Liang (1988) found that those women who scored lower on a measure of feminism were more distressed than those who scored higher on this measure when told that their scores compared unfavorably to the norm on a feminism measure. They argued that those women who were more feminist were likely very confident in their identities and thus less affected by an unfavorable social comparison. Therefore, whether participants hold feminist beliefs is an important factor to consider when examining the relationship between social comparison and body dissatisfaction, because appearance-focused comparisons, although potentially just as frequent among women high on feminist beliefs, may be less likely to lead to body dissatisfaction among women who hold these beliefs.

The Current Study

The present study investigated the frequency and effects of appearance-focused social comparisons on body dissatisfaction among 99 undergraduate females using Ecological Momentary Assessment, a methodology that complements survey and laboratory methodologies by allowing for the study of phenomena in their natural context, thus increasing the ability of researchers to generalize findings to real-life circumstances (Smyth et al., 2001). In addition, this study examined three factors that may impact the effects of an appearance-focused comparison on body dissatisfaction: appearance schema activation, which was hypothesized to mediate the relationship
between social comparisons and body dissatisfaction; and two moderating factors, thin-ideal internalization, which was hypothesized to potentiate, or increase, the impact of appearance-focused comparisons on body dissatisfaction, and feminist beliefs, which was hypothesized to protect against, or lessen, the impact of such comparisons. Finally, a secondary purpose of this research was to examine further the impact of body dissatisfaction on thoughts of dieting and exercise.

This research is important for two reasons: (1) It was designed to test the replicability of the findings of Leahey et al. (2007) by providing information directly linking appearance-focused comparisons with body dissatisfaction and strategies that women use to alter their weight and shape and (2) it provided information that may bear directly on prevention programs for body image disturbance. Levine and Piran (2001) argue that the most effective prevention programs will be comprehensive in nature, incorporating targeted elements such as media literacy as well as changes in ecology (participants’ external environment); however, social comparison and the potential protective role of feminist beliefs against the negative consequences of appearance-focused comparisons have not yet been considered in these programs. These factors may be implicit in some currently implemented programs such as cognitive dissonance interventions, which instruct women to explore the costs of pursing the thin ideal and challenges them to examine their bodies in positive ways (Becker, Smith, & Ciao, 2005) and some media literacy programs; however, they have yet to be explicitly explored in the prevention literature.
Given that the majority of comparisons made in the naturalistic environment are upward comparisons (> 80%; Leahey et al., 2007), the focus of this research is on upward comparisons.

The following hypotheses were investigated. A model presenting the hypothesized relationships among the variables is presented in Figure 1.

1) Given that it seems likely that women who have internalized the thin beauty ideal would be more likely to compare themselves less favorably to others in the surrounding environment, it was hypothesized that women who have higher levels of internalization of the thin beauty ideal would make upward appearance-focused social comparisons more frequently than those with lower levels of thin-ideal ideal internalization.

2) Consistent with prior work (DasGupta & Liang, 1988; Rubin et al., 2004), women who have higher levels of feminist beliefs were predicted to make upward appearance-based social comparisons as frequently as women with lower levels of feminist beliefs.

3) Consistent with theory and research (e.g., Bessenoff, 2006; Engeln-Maddox, 2005; Halliwell & Harvey, 2006; Shaw & Waller, 1995; Tantleff-Dunn & Gokee, 2002) and given the findings of Leahey et al. (2007), who previously examined the relationships between these variables in a naturalistic setting, unfavorable, upward appearance-focused social comparisons were hypothesized to result in dissatisfaction with one’s body.
Figure 1. Hypothesized relationships among the variables.
4) Consistent with theory and research (Brown & Dittmar, 2005; Hargreaves & Tiggemann, 2004; van den Berg & Thompson, 2007), it was hypothesized that upward appearance-focused social comparisons would result in activation of appearance schemas.

5) Consistent with theory (Vitousek & Hollon, 1990) and research (Brown & Dittmar, 2005; Clark & Tiggemann, 2007) suggesting that activation of appearance schemas mediates the relationship between induced social comparison or sociocultural variables and body dissatisfaction, appearance schema activation was hypothesized to mediate the relationship between upward appearance-focused comparisons and body dissatisfaction.

6) Consistent with theory and research (e.g., Bessenoff, 2006; Halliwell & Harvey, 2006; Thompson et al., 1999; Tiggemann & McGill, 2004), women who have higher levels of internalization of the thin beauty ideal were predicted to be more negatively affected by unfavorable, upward social comparisons in that they would have higher levels of body dissatisfaction following these comparisons.

7) Consistent with the findings of DasGupta and Liang (1988), as well as with theory and research suggesting that holding feminist beliefs may allow women to reject the thin ideal and thus to have more positive feelings about their bodies (Myers & Crowther, 2007; Ojerholm & Rothblum, 1999; Rubin et al., 2004; Tiggemann & Stevens, 1999), it was hypothesized that those with higher levels of feminist beliefs would be less negatively affected by these
social comparisons (i.e., have lower body dissatisfaction following upward appearance-focused comparisons).

8) As a secondary research question and drawing on findings by Leahey et al. (2007), it was predicted that those women who experience body dissatisfaction following upward appearance-focused comparisons would be more likely to report thoughts about dieting and exercising after making these comparisons.
CHAPTER 2

METHOD

Participants

Participants were 99 young adult women recruited from undergraduate psychology courses via the General Psychology Research website. Two participants were excluded because they provided inadequate diary data, and three participants were excluded because they had not completed all or a large portion of the pre-test questionnaires. Mean age for the final sample of 94 participants was 19.52 (SD = 3.36), and mean BMI was 24.12 (SD = 5.08). The sample was comprised of 67% first-year students, 12.8% sophomores, 10.6% juniors, 6.4% seniors, and 2.2% other (fifth-year students, continuing education students, etc.). The sample was 80.9% Caucasian, 11.7% African American, 2.1% Asian American, 2.1% Hispanic/Latina, and 1% other. Two participants (2.1%) did not report their ethnicity.

Apparatus

_Palm Handheld Personal Data Assistant (PDA); Model Z22_. All participants were given a Palm brand PDA that programmed to sound an alarm whenever they were to complete a diary entry. Questions for the Social Comparison Diary were programmed into the PDA using the Purdue Momentary Assessment Tool (PMAT; Weiss, Beal, Lucy, &
McDermid, 2004) software so that participants could complete the diary questionnaires directly on the PDA device.

**Measures**

**Questionnaire Battery**

*Demographic Questionnaire.* This questionnaire asked the participants to report their age, class year, and race/ethnicity for demographic purposes. Self-reported height and weight were also collected and used to calculate Body Mass Index (BMI) using the formula: \[
\text{BMI} = \frac{\text{weight in pounds}}{(\text{height in inches})^2} \times 703
\]
(Center for Disease Control (CDC), 2006).

*Tendency to Make Social Comparisons.* The Physical Appearance Comparison Scale (PACS; Thompson, Heinberg, & Tantleff, 1991) is a five-item self-report questionnaire. Participants respond to questions about their tendency to engage in appearance-related social comparisons on a 5-point Likert scale ranging from 1 = *never* to 5 = *always*; higher scores indicate a greater tendency to make appearance-based comparisons. Thompson et al. (1991) showed the PACS to have good internal consistency (\(\alpha = .78\)) and test-retest reliability (\(r = .72\)). The PACS has good convergent validity, correlating with body dissatisfaction and disordered eating behaviors (Thompson et al., 1991). Internal consistency for the current sample was adequate, \(\alpha = .65\).

*Thin-Ideal Internalization. The Sociocultural Attitudes Towards Appearance Questionnaire - 3* (SATAQ-3; Thompson et al., 2004) is a 30 item self-report
questionnaire that measures recognition and acceptance of the sociocultural ideal of appearance (Heinberg, Thompson, & Stormer, 1995). Responses are scored on a 5-point Likert scale ranging from 1 = definitely disagree to 5 = definitely agree. Items are summed to create four subscales (Information, Pressures, Internalization – Athlete, Internalization – General) and a Total score. The SATAQ-3 has good psychometric properties, with alpha coefficients ranging from .89 (Internalization – Athlete) to .94 (Information). In addition, eating disordered patients and an eating-disturbed sample exhibited higher scores on the two Internalization subscales and the Pressure subscale than normal controls (Thompson et al., 2004). The current study used the Internalization – General subscale as a measure of internalization of the thin ideal. Internal consistency for the current sample was high, $\alpha = .94$.

Feminist Beliefs. The Feminist Perspectives Scale (FPS; Henley, Meng, O’Brien, McCarthy, & Sockloskie, 1998) is a 78-item self-report questionnaire designed to measure a wide range of feminist attitudes and behaviors. Participants respond to how much items are “true of me/not true of me” on a 7-point Likert scale, where 1 = strongly disagree and 7 = strongly agree. Its seven subscales include the Conservative Perspective, Liberal Feminist Perspective, Radical Feminist Perspective, Socialist Feminist Perspective, Cultural Feminist Perspective, Women of Color (“Womanist”) Perspective, and Fembehave Subscale. Scores on the subscales are calculated by summing items for those subscales, and the FemScore is calculated by summing the scores from the Liberal Feminist, Radical Feminist, Cultural Feminist, Socialist Feminist, and Woman of Color subscales. Higher scores indicate higher levels of feminist beliefs.
Henley et al. (1998) found that the internal consistency of the subscales ranged from .58 for the Liberal Feminist subscale to .84 for Radical Feminist; the FemScore subscale had an internal consistency of .91 for Henley et al.’s (1998) sample. Test-retest reliabilities were in a respectable range for the FemScore subscale, .91 at two weeks and .86 at four weeks. With respect to validity, the FemScore subscale was significantly positively correlated with self-reported feminism and the number of women’s studies courses participants had taken (Henley et al., 1998). Hyde (1998) noted that the high correlations between some subscales (e.g., the Radical Feminist and Social Feminist subscales) suggest that women may not be differentiating the theoretically based forms of feminism represented by those scales, an issue less central to this research given that the only the FemScore scale was used as a measure of feminist beliefs. Internal consistency for the current sample was high, $\alpha = .94$.

Appearence Schematicity. The Appearance Schemas Inventory (ASI; Cash & Labarge, 1996) is a 14-item self-report questionnaire that measures endorsement of appearance schemas. Participants respond to questions about their beliefs on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree; higher scores indicate greater endorsement of appearance schemas. Cash and Labarge (1996) found an acceptable internal consistency for the ASI ($\alpha = .84$). The ASI shows good convergent and discriminant validity, as it correlates moderately with measures of body dissatisfaction but is not related to BMI (Cash & Labarge, 1996). Internal consistency for the current sample was good, $\alpha = .84$. 
Trait Body Dissatisfaction. The Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) is a 34-item self-report questionnaire. Participants respond to questions about their thoughts and feelings concerning their bodies on a 6-point Likert scale, ranging from 1 = never to 6 = always; higher scores indicate higher levels of body dissatisfaction. Test-retest reliability for the BSQ is good, with alpha equal to .88 (Rosen, Jones, Ramirez, & Waxman, 1996). The BSQ shows good construct validity; scores on the scale correlated moderately highly with scores on the Eating Attitudes Test and very highly with the Body Dissatisfaction subscale of the Eating Disorders Inventory (Cooper et al., 1987). Scores on the BSQ also are related to scores on the Body Dysmorphic Disorder Examination, which measures feelings of embarrassment and shame about appearance (Rosen et al., 1996). Internal consistency for the current sample was high, α = .98.

Eating Disorders. The Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000) is a 22-item self-report questionnaire specifically designed to measure DSM-IV-TR (APA, 2000) criteria for anorexia nervosa (AN), bulimia nervosa (BN), and binge-eating disorder (BED). Participants are asked to respond to questions using a variety of formats. The questionnaire allows the establishment of DSM-IV-TR eating disorder diagnosis using two separate scoring algorithms: one based on diagnostic criteria that can be used to determine eating disorder diagnosis and one based on a continuous symptom scale score. For purposes of the current study, the diagnostic algorithm was utilized. The EDDS has good internal consistency (α = .91) and acceptable one-week test-retest reliability (.95 for AN, .71 for BN, and .75 for BED; Stice et al., 2000). In addition, the
overall accuracy rate for the EDDS was .98 for AN, .91 for BN, and .89 for BED (Stice et al., 2000). This measure also had good criterion validity: kappa coefficients for the agreement between the EDDS and a diagnostic interview were .93 for AN, .81 for BN, and .74 for BED (Stice et al., 2000).

**Diary Questionnaires**

**Diary: Opening question.** Each time the alarm sounds, participants were asked whether they engaged in an appearance-focused social comparison since the last time the alarm sounded (“Since the last alarm, have you compared your body/shape to someone else?”). This question was used to determine whether or not a social comparison had been made for analyses.

**Social Comparison Diary.** Participants were asked about the frequency with which they have made social comparisons since the last time the alarm sounded (“If yes, how many times?”), to whom they compared (“To whom did you compare your body/shape?”), and a series of follow-up questions about the nature of that comparison. Participants were asked whether they had been alone or with others since the last time the alarm sounded and whether they had been viewing any sources of media. If the comparison was to a person in the media, they were asked about the nature of the media source (“Did the comparison involve a print media source (magazine, billboard, etc.)/live media source (television, movie, music video, etc.)?”). Regardless of the target of their comparison, participants then were asked how they felt on a number of dimensions relative to the woman to whom they compared (“Compared to person I felt much
less/much more … attractive, competent, likeable, confident.”) on 5-point Likert scales where 1 = much less and 5 = much more. The item “Compared to this person, I felt much less attractive/much more attractive” was used to determine the direction of appearance-focused social comparison, with a score of 1 or 2 being coded as an upward comparison, a score of 3 considered a neutral comparison, and scores of 4 or 5 considered downward comparisons. Finally, participants were asked to rank how much knowledge they gained from making the comparison (“To what extent did making this comparison provide you with information about how to improve your appearance?”) on a 5-point Likert scale, where 1 = not at all and 5 = very much.

**Social Comparison Diary: Appearance Schema Activation.** A modified word-stem completion task was used as an implicit measure of appearance schema activation. It was based on that devised by Hargreaves and Tiggemann (2002), expanded by Tissot (2007), and modified for the current study to facilitate ease of completion on the Palm Pilots. Participants were presented with three-letter word-stems that could be completed to form either an appearance-related word or a non-appearance-related word. For example, the stem SKI could be completed as skinny or skill. Participants were shown the stems and offered four words that complete the stem plus an “other” option if the word they were thinking of was not on the list. The words given as options for word-stem completion were matched on length and frequency of use in the English language utilizing the MRC Psycholinguistic Database: Machine Usable Dictionary (Wilson, 1988), which provides information about a word’s written frequency of use based on normative data. Participants were asked to select the word that came to mind first when
they saw the three-letter stem. Participants completed five word stems from a pool of 60
each time they complete a diary entry in order to maintain variability within the scale and
to prevent familiarity effects that would result from participants completing the same
word stems each time they complete the task. The word stem task is scored by summing
the number of appearance words selected by the participant.

Social Comparison Diary: Body Dissatisfaction. Because body dissatisfaction is a
multifaceted construct consisting of feelings, behaviors, and thoughts about one’s body, it
was measured in a multidimensional way, incorporating information from two
questionnaires, each measuring a different aspect of body dissatisfaction. For the purpose
of analyses, these questionnaires were standardized and the scores summed to create a
body dissatisfaction composite variable.

Body Esteem. The State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991) is a 20-item self-report questionnaire with three subscales, measuring three
different dimensions of state self-esteem. The current study used the Appearance
Subscale, which is a six-item questionnaire designed to measure satisfaction with
one’s body shape and weight as well as feelings of attractiveness. Participants
respond to how true items are for them “right now” on a 5-point Likert scale,
ranging from 1 = not at all to 5 = extremely. High scores indicate higher levels of
self-esteem. The SSES has been shown to have good internal consistency ($\alpha = .92$) and the appearance subscale has acceptable test-retest reliability ($r = .65$;
Heatherton & Polivy, 1991). The SSES also has acceptable convergent and
discriminant validity. The Appearance Subscale correlates .72 with satisfaction with current figure and -.45 with dieting behavior. Internal consistency for the current sample, which was calculated utilizing the SSES items from the second diary entry completed by each participant, was high, $\alpha = .90$.

**Body Checking.** The Body Checking Questionnaire (BCQ; Reas, Whisenhunt, Netemeyer, & Williamson, 2002) is a 23-item questionnaire designed to measure the behavioral manifestation of body dissatisfaction, obsessively checking areas of one’s body (e.g., “I check to see if my thighs spread when I’m sitting down.”). Participants respond to how often they engage in these behaviors at the present time on a 5-point Likert scale, ranging from 1 = *never* to 5 = *very often*. The BCQ has excellent test-retest reliability ($r = .94$) and its three factors have acceptable levels of internal consistency ($\alpha = .88, .92, \text{and } .83$; Reas et al., 2002). The BCQ also has good concurrent validity, as it correlates with measures of body dissatisfaction ($r = .86$) and disordered eating attitudes ($r = .70$). Only the 10 most frequently endorsed items based upon pilot research were incorporated into the diary. Based on a pilot sample of 161 undergraduate women, this empirically derived subscale has acceptable internal consistency ($\alpha = .89$) and correlates highly with the full scale BCQ ($r = .96, p < .001$). Internal consistency for the current sample, which was calculated utilizing the BCQ items from the second diary entry completed by each participant, was high, $\alpha = .91$. 
**Social Comparison Diary: Thoughts of Dieting and Exercising.** Participants answered questions assessing thoughts of dieting and exercising using questions adapted from the Eating Disorders Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) by Leahey et al (2007). Participants rated the extent to which they have thought about trying to restrict their food intake (“Have you thought about trying to restrict the amount of food you eat in order to influence your shape or weight?”) and the extent to which they have thought about exercising (“Have you thought about exercising as a means of controlling your weight, altering your shape or amount of fat, or burning off calories?”) on a 5-point Likert scale where 1 = *not at all* and 5 = *very much.*

**No Comparison Diary.** If participants had made no social comparisons when the alarm sounded, they still completed the five word stems, the SSES and BCQ, and the questions assessing thoughts about dieting and exercising. Participants were asked to rate how they have *generally* been feeling on the body dissatisfaction scales since the last alarm. They also received the same set of questions about the amount and nature of social comparisons; however, they were instructed to select the response “I did not make a comparison” to these items.

**Post-Study Measure.** Leahey et al. (2007) used a similar diary and methodology. They administered pre- and post-measures to a group that completed the diary and a control group that did not complete the diary, and they found no reactivity to diary completion. However, to be conservative, the present study will include a brief measure of reactivity. Following diary completion, participants will be asked to rate how much they thought
recording appearance-focused comparisons made them more aware of how often they engaged in such comparisons on a 4-point Likert scale ranging from 1 = *not at all* to 4 = *definitely*.

**Design and Procedure**

Those participants who volunteered for the study met with the principal investigator in small groups (two to seven participants). Following informed consent, participants completed a battery of questionnaires, including the Demographic Questionnaire, the SATAQ-3, FPS, BSQ, EDDS, and PACS.

After completing these questionnaires, participants received preprogrammed Palm PDAs and received instruction for their use. Participants then carried these devices for the next five days, during which time they were asked to complete the Diary Questionnaires whenever an alarm from the Palm PDA sounded during the day. The alarm sounded at five randomly selected times each day between the hours of 10am and 10pm over the course of five days. The randomly selected times for the questionnaires differed for each of the five days and were constrained to be at least 120 minutes apart. To increase the likelihood that participants responded to the PDA, the alarm sounded every 30 seconds for 2 minutes for each of the random questionnaires. If participants did not respond to the alarm within 15 minutes, the PDA reset and the participant missed the opportunity to complete that particular questionnaire. However, to reduce the occurrence of missed questionnaires, the PDA included a *do not disturb* function. Participants could set periods of time ranging from 5-60 minutes at a time during which the PDA alarm would not sound. Any random questionnaires scheduled to occur within this time period were
rescheduled to occur after the *do not disturb* period ended. Participants were also instructed to not respond to the PDA alarm at times when it might be dangerous or inappropriate to do so (i.e. while driving a car).

After five days, participants returned to the lab to return their Palm PDAs and fill out a brief questionnaire as a reactivity check that assessed their perceptions of whether completing the diary study altered their tendencies to engage in social comparisons. Participants earned credit for the psychology courses by taking part in the study and also earned monetary compensation on the basis of their compliance. Participants earned $5.00 if they completed 6-10 diary entries, $10.00 if they completed 11-14 diary entries, and $15.00 if they completed 15 or more diary entries.
CHAPTER 3

ANALYSES

Preliminary Analyses

The database was constructed by the principal investigator. Data from the Questionnaire Battery were entered and examined for accuracy by an undergraduate research assistant. Data from the diaries were downloaded to the database directly from the Palm PDAs. Preliminary exploratory analyses were conducted to assess variable distributions for normality, linearity, and outliers. Correlations and frequencies were also used to examine the potential presence of multicollinearity and ceiling and floor effects.

Analyses for Hypotheses

There are several methods that can be utilized to analyze longitudinal data. One is aggregating data by summing or averaging across time points for each individual. This method was utilized to examine how the frequency of social comparisons made by participants may relate to other constructs being examined.

Hypothesis 1 states that higher levels of thin-ideal internalization would be related to a greater frequency of making appearance-focused comparisons. To test this hypothesis, diary data were reduced by summing the number of upward social comparisons made by each individual, and bivariate correlations were used to examine
the relationship between thin-ideal internalization and frequency of appearance-focused comparisons.

Hypothesis 2 states that the relationship between feminist beliefs and frequency of social comparisons would be nonsignificant. This hypothesis was tested by summing the number of upward social comparisons made by each individual and using bivariate correlations to examine the relationship between feminist beliefs and frequency of social comparisons.

Although aggregating data can be useful in analyzing longitudinal data, it has several drawbacks. First, collapsing the data results in a loss of intra-individual effects. Second, by its very nature, aggregating data leads to a significant decrease in statistical power, which in turn results in an increased likelihood of making a Type II error (failing to reject the null hypothesis when it is false). Third, aggregating data increases the risk of supporting the ecological fallacy that a relationship exists between individual and group level variables, when, in fact, this relationship may not be present. Although aggregating data may be useful, analyses that take into account intra-individual variability across time while maintaining accurate statistical power and ecological validity were conducted.

Therefore, data were analyzed using Hierarchical Linear Modeling (HLM), which allows for analysis of multiple time points of data for each participant, making it ideal for analysis of diary (ecological momentary assessment) data. To take into account intra-individual variability across time while maintaining statistical power and ecological validity, HLM (Bryk & Raudenbush, 1992; Raudenbush, Bryk, Cheong, & Congdon, 2000) was used to examine how daily changes in body dissatisfaction (measured as a
multifaceted construct consisting of body esteem and body checking) were affected by social comparison information and to determine whether appearance schema activation mediated these changes and whether levels of thin-ideal internalization and feminist beliefs moderated these changes.

HLM is intended to be used to model between-subject moderators of within subject relationships. In other words, it examines whether intraindividual variables (i.e., effects of social comparisons on body dissatisfaction) are related to between-person characteristics (i.e., level of thin-ideal internalization or feminist beliefs). In HLM, intra-individual Level-1 equations are used to model within-subject relationships, which are represented as repeated measures nested within participants. Within these analyses, separate regression equations are estimated for each person at Level-1. Level-2 equations then use the between subjects predictors to model inter-individual differences in the within-subjects, Level-1 relationships. Therefore, variability of the slopes and intercepts at Level-1 are modeled with the predictors at Level-2. Because HLM allows for analysis of inter-individual moderators of intra-individual relationships, it was the method of choice to investigate whether day-to-day changes in appearance schema activation, body dissatisfaction, and thoughts about dieting and exercising are the result of appearance-focused comparisons and whether individuals’ levels of thin-ideal internalization and feminist beliefs moderate these changes. For each HLM analysis used in the current study, variables were grand centered as they were entered into the models.

The five major assumptions of HLM must be met in order for it to be used as a method of analysis. First, HLM assumes that observations are not independent of one
another. Therefore, how a participant answers a question on Day 4 may be influenced by her answer on Day 1. The data that were collected in this project met this assumption, as it is possible that an appearance-focused social comparison on Day 1 influenced how that individual reacts to another appearance-focused comparison on Day 4. The efficiency and power of HLM rests on the second assumption, which is adequate sample size. Kreft (1996) suggests that at least three time points of data be collected for each individual in a repeated-measures study. Participants in the current study completed five time points of data per day for five days, resulting in a total of 25 possible time points of data and meeting this assumption. The third assumption states that for levels above the base level of individuals as units of analysis, the groups are assumed to be a random sample of all such groups. Because this data was collected from a convenience sample, it is possible that participants do not represent a random sampling of individuals with varying levels of body dissatisfaction. However, because no pre-selection of participants was completed based on their initial level of body dissatisfaction, it was assumed that a wide range of levels of this construct will be represented. Analyses confirmed a wide range of body dissatisfaction values on the BSQ ($M = 105.5$, $sd = 43.55$, range = 34.00-193.00).

Regardless, HLM is robust to the violation of this assumption. Therefore, data were analyzed despite potential non-random grouping. Fourth, a normal distribution of data is assumed for HLM. All dependent variables were subjected to exploratory data analyses as previously described to examine whether they were normally distributed. Finally, random error variance is assumed across all groups. Preliminary exploratory analyses were used to test whether the dataset meets this assumption.
Hypotheses 3, 4, and 5 predicted that appearance-focused social comparisons would lead to both appearance schema activation and body dissatisfaction and that appearance schema activation would mediate the relationship between appearance-focused comparisons and body dissatisfaction. To test for the mediation proposed by these hypotheses, a series of HLM models was used, with all variables entered as Level-1 variables. The first examined the relationship between social comparison and body dissatisfaction. The second examined the relationship between social comparison and appearance schema activation. The third examined the relationship between appearance schema activation and body dissatisfaction. The fourth examined the relationship between social comparison and body dissatisfaction, controlling for the effect of appearance schema activation. After these analyses were completed, a Sobel test was calculated utilizing the alpha and beta values obtained from HLM analyses two and three to determine whether appearance schema activation’s impact on the relationship between social comparison and body dissatisfaction was significant. This specialized Sobel test for mediation in HLM takes into account the covariation in slopes for the alpha and beta values from these analyses (Kenny, Korchmaros, & Bolger, 2003).

Hypothesis 6 predicted that thin-ideal internalization would moderate the relationship between appearance-focused social comparisons and body dissatisfaction. To test this hypothesis, an HLM model was conducted examining social comparison and body dissatisfaction as Level-1 variables and thin-ideal internalization as a Level-2 moderating variable.
Hypothesis 7 states that feminist beliefs would moderate the relationship between social comparison and body dissatisfaction. To test this hypothesis, an HLM model was run with social comparison and body dissatisfaction as Level-1 variables and feminist beliefs as a Level-2 moderator variable.

Hypothesis 8 predicted that women who experience body dissatisfaction following appearance-focused comparisons would be more likely to report thoughts about dieting and exercising after making these comparisons. This hypothesis proposed that body dissatisfaction would mediate the relationship between social comparisons and thoughts of dieting and exercising. Therefore, two sets of HLM models were conducted to examine this mediational hypothesis – one for thoughts of dieting and one for thoughts of exercising – with all variables entered as Level-1 variables. The first examined the relationship between social comparison and thoughts of dieting or exercising. The second examined the relationship between social comparison and body dissatisfaction. The third examined the relationship between appearance body dissatisfaction and thoughts of dieting or exercising. The fourth examined the relationship between social comparison and thoughts of dieting or exercising, controlling for the effect of body dissatisfaction. After these analyses were completed, a Sobel test was calculated utilizing the alpha and beta values obtained from HLM analyses in the second and third steps to determine whether body dissatisfaction’s impact on the relationship between social comparison and thoughts of dieting and exercising was significant.
Statistical Power

Power analyses using Gpower (Buchner, Faul, & Erdfelder, 1998) indicate that for a bivariate correlation with medium effect size, 42 participants are needed. For a multiple regression with two predictors (the highest number anticipated for any analysis in the proposed study, for the mediational analyses), 89 participants are needed. Kreft (1996) found that 25 time points provide sufficient power for 60 participants for HLM analyses. He also reported that at least three time points of data are required per participant for repeated measures analyses. Since participants completed a maximum of 25 time points (five per day for five days) and to account for possible attrition of participant data due to noncompliance with diary procedures, data were collected from 99 participants.
CHAPTER 4

RESULTS

Characteristics of the Sample

The final sample consisted of 94 participants. For descriptive purposes, means and standard deviations for demographic and pretest variables are included in Table 1. Using cut points established by the CDC (2006), it was determined that the sample was 6.4% underweight (BMI < 18.5), 66% normal weight (BMI between 18.5 and 24.9), 14.9% overweight (BMI between 25.0 and 29.9), and 12.8% obese (BMI > 30). Six participants (6.4% of the sample) reported previously being diagnosed with and receiving treatment for an eating disorder. Based on self-reported symptoms on the EDDS (Stice et al., 2000), 13.8% of the sample (n = 13) met criteria for bulimia nervosa and 1.1% (n = 1) met criteria for binge eating disorder. In addition, 5.3% (n = 5) met subthreshold criteria for anorexia nervosa, 10.6% (n = 10) met subthreshold criteria for bulimia nervosa, and 2.1% (n = 2) met subthreshold criteria for binge eating disorder.

Diary Reactivity

Upon returning their PDAs, participants were asked how much they thought participating in the study made them more aware of the process of making social comparisons. Mean self-reported reactivity was 3.13 (sd = .85). On this four-point Likert scale asking how much carrying the PDA affected them, 2.1% (n = 2) of participants said
Table 1. Descriptive statistics for the pretest variables of interest.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
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<td>Body Dissatisfaction (BSQ)</td>
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<td>43.55</td>
<td>34.00</td>
<td>193.00</td>
</tr>
<tr>
<td>Disordered Eating (EDDS)</td>
<td>34.68</td>
<td>13.21</td>
<td>15.00</td>
<td>81.00</td>
</tr>
</tbody>
</table>
“not at all,” 23.4% \((n=22)\) said “somewhat,” 34% \((n=32)\) said “moderately,” and 40.4% \((n=38)\) said “definitely.”

To further examine actual reactivity to study participation, daily report of the sum of number of social comparisons made from the diary data were aggregated for each participant. Following the initial Social Comparison Diary question “Since the last alarm, have you compared your body/shape to someone else?” participants answered the question “If yes, how many times?” Responses to the latter question were used to compute the aggregates for this analysis. These aggregates were then combined for the first two days and last two days of carrying the PDA. Results of a repeated-measures ANOVA showed that there was no significant difference between the number of reported social comparisons on the first two days of the study \((M = 22.91, sd = 9.07)\) versus the last two days of the study \((M = 21.52, sd = 9.34)\), \(F(1,93) = 2.24, p = .14\), suggesting that study participation did not significantly affect the number of social comparisons reported.

Daily mean body dissatisfaction composite scores from the diary data also were aggregated for each participant. The composite was calculated by standardizing the scores on both the SSES and the BCQ, then summing them. These aggregates were then averaged for the first two days and the last two days of carrying the PDA. Results of a repeated-measures ANOVA showed that there was no significant difference between body dissatisfaction on the first two days of the study \((M = .10, sd = 1.52)\) versus the last two days of the study \((M = .01, sd = 1.45)\), \(F(1,93) = 2.41, p = .12\), suggesting that study participation did not significantly affect state body dissatisfaction.
**Relationships among the Variables**

Bivariate correlational analyses were used to examine the relationships among the pretest variables. (See Table 2.) Tendency to make social comparisons was significantly related to appearance schematicity \( (r = .47, p < .001) \), thin-ideal internalization \( (r = .63, p < .001) \), trait body dissatisfaction \( (r = .65, p < .001) \), and disordered eating behaviors \( (r = .47, p < .001) \). Appearance schematicity was significantly related to thin-ideal internalization \( (r = .56, p < .001) \) body dissatisfaction \( (r = .56, p < .001) \) and disordered eating behaviors \( (r = .53, p < .001) \), Thin-ideal internalization was significantly related to trait body dissatisfaction \( (r = .64, p < .001) \) and disordered eating behaviors \( (r = .50, p < .001) \), and the latter two variables were significantly correlated \( (r = .78, p < .001) \).

Feminist beliefs were not significantly related to any of the other variables (all \( p \)’s > .10).

**Self-Reported Tendency to Make Comparisons and Frequency of Comparisons.**

In order to examine the relationship between trait and state social comparison, exploratory analyses were run to examine whether self-reported tendency to make social comparisons, as measured by the PACS, was related to the reported frequency of social comparisons in the diary data. In order to account for individual differences in compliance to diary completion, the sums of the number of comparisons made and the number of upward comparisons made by each participant were prorated based on the proportions of times they completed diary questionnaires. Tendency to make comparisons was not significantly related to total number of comparisons made \( (r = .14, p < .10) \), although this relationship approached significance when the prorated number of
Table 2. Correlations among the pretest variables.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Comparison (PACS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Appearance Schematicity (ASI)</td>
<td>.47**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Thin-Ideal Internalization (SATAQ)</td>
<td>.63**</td>
<td>.56**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Feminist Beliefs (FPS)</td>
<td>-0.18</td>
<td>0.02</td>
<td>-0.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Body Dissatisfaction (BSQ)</td>
<td>.65**</td>
<td>.56**</td>
<td>.64**</td>
<td>-0.04</td>
<td></td>
</tr>
<tr>
<td>6. Disordered Eating (EDDS)</td>
<td>.46**</td>
<td>.53**</td>
<td>.50**</td>
<td>-0.03</td>
<td>.78**</td>
</tr>
</tbody>
</table>

** $p < .01$
comparisons was used ($r = .18, p = .08$). Tendency to make comparisons was also not significantly related to the number of upward comparisons made ($r = -.02, p < .10$), even when the prorated sum was considered ($r = .02, p < .10$).

**Major Analyses**

A total of 1536 diary entries were completed by participants, with 400 of those documenting social comparisons. Participants completed between 4 and 26 diary entries, with the mean number being 16.39 ($sd = 4.73$). From these diary completions, the number of social comparisons made ranged from 0 to 20 ($M = 4.73, sd = 4.10$), and the number of upward social comparisons made ranged from 0 to 11 ($M = .79, sd = 1.51$). Diary response compliance was not related to any of the Level-2 variables, including BMI, social comparison, appearance schematicity, thin-ideal internalization, feminist beliefs, body dissatisfaction, or disordered eating (all $p$'s > .10).

Hypothesis 1 states that women who have higher levels of internalization of the thin beauty ideal would make upward appearance-focused social comparisons more frequently than those with lower levels of thin-ideal ideal internalization. The total number of social comparisons made by each participant during the diary phase of the study was summed for these analyses, as were the total number of upward social comparisons made. Bivariate correlations examined the relationship between thin-ideal internalization and frequency of social comparison. Thin-ideal internalization was significantly correlated with the total number of social comparisons made by each participant ($r = .21, p < .05$), but not with the number of upward social comparisons made ($r = .05, p > .10$). For the prorated sums, thin-ideal internalization was again related to
total number of comparisons \((r = .27, p < .01)\), but still not related to the number of upward comparisons \((r = .11, p > .10)\). Therefore, Hypothesis 1 was only partially supported.

Hypothesis 2 states that women who have higher levels of feminist beliefs would make upward appearance-based social comparisons as frequently as women with lower levels of feminist beliefs. Feminist beliefs were not significantly related to total number of social comparisons made, whether the raw numbers of comparisons \((r = -.08, p > .10)\) or the prorated sums \((r = -.04, p > .10)\) were used. Likewise, level of feminist beliefs was not significantly related to the number of upward comparisons made, regardless of whether the total number \((r = .01, p > .10)\) or the prorated sums \((r = .03, p > .10)\) were used. Therefore, Hypothesis 2 was fully supported.

**Social Comparison and Body Dissatisfaction**

Hypothesis 3 states that unfavorable, upward appearance-focused social comparisons would be associated with dissatisfaction with one’s body. Hierarchical linear modeling examined whether upward appearance-focused social comparisons affected body dissatisfaction in the naturalistic environment. For these analyses, upward appearance-focused social comparisons were contrasted with not making a social comparison. If results for this contrast were non-significant, follow-up analyses contrasting upward social comparisons with neutral and downward comparisons were considered. The body comparison composite, consisting of the sum of the z-scores of the SSES and BCQ, was used to measure body dissatisfaction throughout the HLM analyses.
However, if results for the composite were non-significant, follow-up analyses were run examining the SSES and BCQ separately. The following equation was used:

\[ Y_{ij} = \beta_{0j} + \beta_{1j} \text{Comparison}_{1ij} + r_{ij} \]

with \( Y_{ij} \) representing body dissatisfaction for the participant j’s ith comparison. \( \beta_{0j} \) is the intercept, or the body dissatisfaction score, for the jth participant when the comparison equals zero (either no comparison or a downward/neutral comparison). \( \text{Comparison}_{1ij} \) represents whether a comparison was made the for j’s ith diary entry. This variable was dummy coded such that 1 indicates a comparison was made and 0 indicates a comparison was not made. \( \beta_{1j} \) is the body dissatisfaction slope for participant j. Finally, \( r_{ij} \) is the residual, or random error, associated with participant j’s ith comparison.

When making an upward appearance-focused comparison was contrasted with not making a comparison, a positive coefficient was obtained (\( \beta_{1j} = .55, SE = .11, t(93) = 4.95, p < .001 \)). Therefore, Hypothesis 3 was supported, indicating that making an upward, appearance-focused comparison is related to increased body dissatisfaction.

---

1 BMI was significantly related to trait body dissatisfaction when it was examined both linearly (\( r = .28, p < .05 \)) and curvilinearly (\( r = .26, p < .05 \)). BMI was also considered as a moderator in the relationship between social comparison and body dissatisfaction using HLM. The following Level-1 and Level-2 equations were used for analyses:

\[
\begin{align*}
\text{L1: } Y_{ij} & = \beta_{0j} + \beta_{1j} \text{Comparison}_{1ij} + r_{ij} \\
\text{L2: } \beta_{0j} & = \gamma_{00} + \gamma_{01} \text{BMI} + \mu_{0j} \\
\beta_{1j} & = \gamma_{10} + \gamma_{11} \text{BMI}
\end{align*}
\]

where \( Y_{ij} \) represents the dependent variable; \( \beta_{0j} \) is the intercept, or average score on the dependent variable, for participants not making a social comparison. \( \beta_{1j} \) is the slope for participants making a social comparison. \( r_{ij} \) is the residual, or random error. \( \gamma_{00} \) is mean of body dissatisfaction at the average level of BMI when a comparison was not made. \( \gamma_{01} \) is the effect of the slope of BMI on the average individual’s change in score (or slope) on body dissatisfaction when the individual has not made a comparison. \( \mu_{0j} \) is the unique
Self-Reported Body Dissatisfaction and State Body Dissatisfaction

To examine the relationship between trait and state body dissatisfaction, exploratory analyses were run to see if self-report of trait body dissatisfaction at pretest was related to state body dissatisfaction in the social comparison diary. In order to conduct these analyses, means of scores for the body dissatisfaction composite, the SSES, and the BCQ were aggregated for each participant for the diary data, and these scores were correlated participants’ scores on the BSQ. Correlational analyses revealed effect of the individual holding BMI constant. \( \gamma_{10} \) is the mean of body dissatisfaction at the average level of BMI when a comparison was made. \( \gamma_{11} \) is the effect of the slope of BMI women on the average individual’s change in slope on body dissatisfaction when the individual has made a comparison.

Results revealed a significant coefficient for the intercept such that body dissatisfaction score at the average level of linear BMI for women reporting an upward social comparison was .55 \((SE = .11, t(92) = 4.85, p < .001)\). However, the coefficient for the intercept for women not making a social comparison was non-significant \( (\gamma_{00} = -.11, SE = .14, t(92) = -.84, p > .10) \). In addition, results did not reveal significant coefficients for the interaction between making a social comparison and BMI \( (\gamma_{01} = .02, SE = .02, t(92) = 1.03, p > .10; \gamma_{11} = .01, SE = .01, t(92) = .65, p > .10) \). Results examining the SSES scores and BCQ scores separately yielded similar, non-significant results, with the interaction coefficients at -.04 \((SE = .03, t(92) = -1.20, p > .10)\) and -.12 \((SE = .09, t(92) = 1.28, p > .10)\), respectively.

Results revealed a significant coefficient for the intercept such that body dissatisfaction score at the average level of curvilinear BMI for women reporting an upward social comparison was .55 \((SE = .11, t(92) = 4.92, p < .001)\). However, the coefficient for the intercept for women not making a social comparison was non-significant \( (\gamma_{00} = -.12, SE = .14, t(92) = -.84, p > .10) \). In addition, results did not reveal significant coefficients for the interaction between making a social comparison and curvilinear BMI \( (\gamma_{01} = .01, SE = .01, t(92) = 1.00, p > .10; \gamma_{11} = .01, SE = .01, t(92) = .62, p > .10) \). Results examining the SSES scores and BCQ scores separately yielded similar, non-significant results, with the interaction coefficients at -.01 \((SE = .01, t(92) = -1.23, p > .10)\) and .01 \((SE = .01, t(92) = 1.21, p > .10)\), respectively. These results indicate that BMI does not moderate the relationship between social comparison and body dissatisfaction. All subsequent analyses were also run with BMI as a moderator. The inclusion of BMI did not alter the directionality or significance of any of the findings; therefore, results are reported without BMI as a covariate.
significant relationships between scores on the BSQ and the diary body image composite \((r = .73, p < .01)\), SSES \((r = .72, p < .01)\), and BCQ \((r = .54, p < .01)\), indicating that pretest trait body dissatisfaction was highly correlated with state body dissatisfaction.

**Appearance Schema Activation as a Mediator**

Hypothesis 4 and 5 state that upward appearance-focused social comparisons would result in activation of appearance schemas and that appearance schema activation would mediate the relationship between upward appearance-focused comparisons and body dissatisfaction. HLM analyses were used to examine the potential mediational role of appearance schema activation on the relationship between making an upward appearance-focused social comparison when contrasted to not making a comparison and body dissatisfaction as measured by the composite score. In order to test for mediation, a series of HLM analyses are run.

First, the path from the independent variable to the dependent variable was tested (upward social comparison to body dissatisfaction). This path was tested for Hypothesis 3 and found to be significant, indicating that upward social comparisons were associated with increased body dissatisfaction.

Second, the path from the independent variable to the mediator was tested (social comparison to appearance schema activation). The following equation was used for this analysis:

\[
Y_{ij} = \beta_{0j} + \beta_{1j} \text{Comparison}_{ij} + r_{ij}
\]

with \(Y_{ij}\) representing appearance schema activation for the participant \(j\)’s \(i\)th comparison. \(\beta_{0j}\) is the intercept, or the appearance schema activation score, for the \(j\)th participant when
the comparison equals zero (no comparison). Comparison\textsubscript{ij} represents whether a comparison was made for j’s \textit{i}th diary entry. This variable was dummy coded such that 1 indicates a comparison was made and 0 indicates a comparison was not made. $\beta_{ij}$ is the appearance schema activation slope for participant j. Finally, $r_{ij}$ is the residual, or random error, associated with participant j’s \textit{i}th comparison. This relationship was not significant ($\beta_{ij} = -.11, SE = .08, t(93) = -1.46, p > .10$). Therefore, Hypothesis 4 was not supported, as upward, appearance-focused social comparisons were not related to appearance schema activation.

Third, the path from the mediator to the dependent variable was tested (appearance schema activation (ASA) to body dissatisfaction). The following equation was used for this analysis:

$$Y_{ij} = \beta_{0j} + \beta_{1j} ASA_{ij} + r_{ij}$$

with $Y_{ij}$ representing body dissatisfaction for the participant j’s \textit{i}th comparison. $\beta_{0j}$ is the intercept, or the body dissatisfaction score, for the jth participant when appearance schema activation equals zero (no appearance words selected). $ASA_{ij}$ represents the level of appearance schema activation for j’s \textit{i}th diary entry. $\beta_{1j}$ is the body dissatisfaction slope for participant j. Finally, $r_{ij}$ is the residual, or random error, associated with participant j’s \textit{i}th appearance schema activation. No significant relationship was found for this path ($\beta_{ij} = -.02, SE = .03, t(93) = -.57, p > .10$).

Although Baron and Kenny (1986) argued that mediation should not be tested if the paths in these first three steps are not significant, they have since revised these guidelines, particularly in the case of multilevel models, where mediation can exist even
when these paths are nonsignificant because lower level units can vary by upper level units (Bauer, Preacher, & Gil, 2006; Kenny et al., 2003). Therefore, the relationship between the independent variable and dependent variable was tested, taking into account the influence of the mediator. The following equation was used for this analysis:

\[ Y_{ij} = \beta_0 + \beta_{10j} ASA_{1ij} + \beta_{20j} Comparison_{1ij} + r_{ij} \]

with \( Y_{ij} \) representing body dissatisfaction for the participant \( j \)'s \( i \)th comparison. \( \beta_0 \) is the intercept, or the body dissatisfaction score, for the \( j \)th participant when comparison and appearance schema activation equals zero. \( \text{Comparison}_{1ij} \) represents whether a comparison was made for \( j \)'s \( i \)th diary entry. \( ASA_{1ij} \) represents the level of appearance schema activation for \( j \)'s \( i \)th diary entry. \( \beta_{10j} \) is the body dissatisfaction slope for participant \( j \) on appearance schema activation. \( \beta_{20j} \) is the body dissatisfaction slope for participant \( j \) on social comparison. Finally, \( r_{ij} \) is the residual, or random error, associated with participant \( j \)'s \( i \)th social comparison and appearance schema activation.

Results revealed a non-significant coefficient for appearance schema activation \((\beta_{10j} = -.11, SE = .03, t(93) = -.37, p > .10)\) but a significant coefficient for social comparison \((\beta_{20j} = .55, SE = .11, t(93) = 4.87, p < .001)\). Following procedures outlined by Bauer and colleagues (2006) and utilizing the guidelines presented in Mathiowetz and Bauer (2008), results yielded an average indirect effect of -.005 and an average total effect of .556, indicating .9% of the total effect was mediated by appearance schema activation. Therefore, Hypothesis 5 was not supported, as appearance schema activation did not mediate the relationship between social comparison and body dissatisfaction.
Although mediational analyses did not support Hypothesis 5, it is possible that activation of appearance schemas does not mediate the relationship between social comparison and body dissatisfaction because it operates as a trait, rather than a state, construct. Instead, the trait construct of appearance schematicity may serve as a moderator for this relationship. In order to test this possibility, an HLM analysis was run to test appearance schema activation as a moderator using scores from the Appearance Schemas Inventory (ASI) administered at pretest. Values for the ASI were grand centered when they were entered into the Level-2 equations. The following Level-1 and Level-2 equations were used for analyses:

\[
L1: Y_{ij} = \beta_{0j} + \beta_{1j}\text{Comparison}_{ij} + r_{ij}
\]

\[
L2: \beta_{0j} = \gamma_{00} + \gamma_{01}\text{ASI} + \mu_{0j}
\]

\[
\beta_{1j} = \gamma_{10} + \gamma_{11}\text{ASI}
\]

where \(Y_{ij}\) represents the dependent variable. \(\beta_{0j}\) is the intercept, or average score on the dependent variable, for participants not making a social comparison. \(\beta_{1j}\) is the slope for participants making a social comparison. \(r_{ij}\) is the residual, or random error. \(\gamma_{00}\) is the mean of body dissatisfaction at the average level of appearance schematicity when a comparison was not made. \(\gamma_{01}\) is the effect of the slope of appearance schematicity on the average individual’s change in score (or slope) on body dissatisfaction when the individual has not made a comparison. \(\mu_{0j}\) is the unique effect of the individual holding appearance schematicity constant. \(\gamma_{10}\) is the mean of body dissatisfaction at the average level of appearance schematicity when a comparison was made. \(\gamma_{11}\) is the effect of the
slope of appearance schematicity on the average individual’s change in slope on body
dissatisfaction when the individual has made a comparison.

For the analysis considering upward social comparisons contrasted with no
comparisons using the body image composite, results revealed a non-significant
coefficient for the intercept for body dissatisfaction score at the average level of
appearance schematicity for women not reporting an upward social comparison ($\beta_{0j} = -.11, SE = .12, t(92) = -.95, p > .10$). Results revealed a significant coefficient for the
intercept such that body dissatisfaction score at the average level of appearance
schematicity for women reporting an upward social comparison was .53 ($SE = .10, t(92) = 5.33, p < .001$). At the average level of appearance schematicity, body dissatisfaction
increases by .99 units for women who have not made an upward social comparison ($SE = .18, t(92) = 5.53, p < .001$).

A significant coefficient also was found for the cross-level interaction between
making an upward social comparison and appearance schematicity, indicating that
appearance schematicity moderates the relationship between social comparisons and
body dissatisfaction ($\gamma_{11} = .40, SE = .18, t(92) = 2.27, p < .05$). For every unit increase in
appearance schematicity, body dissatisfaction increases by .40 units for those making an
upward, appearance-focused social comparison relative to those who are not making a
social comparison. (See Figure 2.) Therefore, appearance schematicity serves as a
moderator, rather than a mediator, of the relationship between upward, appearance-
focused social comparisons and body dissatisfaction.
Figure 2. Moderating effect of appearance schematicity on the relationship between social comparison and body dissatisfaction.
A post-hoc correlational analysis was conducted to explore the relationship between appearance schema activation as measured by the word stem task and appearance schematicity as measured by the ASI. The resulting correlation was significant but moderate \((r = .32, p < .01)\).

**Thin-Ideal Internalization as a Moderator**

Hypothesis 6 states that women who have higher levels of internalization of the thin beauty ideal would be more negatively affected by unfavorable, upward social comparisons in that they would have higher levels of body dissatisfaction following these comparisons. HLM was used to examine whether thin-ideal internalization (TII) moderated the relationship between social comparison and body dissatisfaction. Values for TII were grand centered when they were entered into the Level-2 equations. The following Level-1 and Level-2 equations were used for analyses:

\[
\text{L1: } Y_{ij} = \beta_{0ij} + \beta_{1ij}\text{Comparison}_{ij} + r_{ij}
\]

\[
\text{L2: } \beta_{0ij} = \gamma_{00} + \gamma_{01}\text{TII} + \mu_{0j} \\
\beta_{1ij} = \gamma_{10} + \gamma_{11}\text{TII}
\]

where \(Y_{ij}\) represents the dependent variable, \(\beta_{0ij}\) is the intercept, or average score on the dependent variable, for participants not making a social comparison. \(\beta_{1ij}\) is the slope for participants making a social comparison. \(r_{ij}\) is the residual, or random error. \(\gamma_{00}\) is the mean of body dissatisfaction at the average level of thin-ideal internalization when a comparison was not made. \(\gamma_{01}\) is the effect of the slope of thin-ideal internalization on the average individual’s change in score (or slope) on body dissatisfaction when the individual has not made a comparison. \(\mu_{0j}\) is the unique effect of the individual holding
thin-ideal internalization constant. \( \gamma_{10} \) is the mean of body dissatisfaction at the average level of thin-ideal internalization when a comparison was made. \( \gamma_{11} \) is the effect of the slope of thin-ideal internalization on the average individual’s change in slope on body dissatisfaction when the individual has made a comparison.

Results revealed a non-significant coefficient for the intercept such that body dissatisfaction score at the average level of thin-ideal internalization for women not reporting an upward social comparison was -.11 (\( SE = .12, t(92) = -.93, p > .10 \)). Results revealed a significant coefficient for the intercept such that body dissatisfaction score at the average level of thin-ideal internalization for women reporting an upward social comparison was .49 (\( SE = .10, t(92) = 5.22, p < .001 \)). At the average level of thin-ideal internalization, body dissatisfaction increases by .07 units for women who have not made an upward social comparison (\( SE = .01, t(92) = 5.16, p < .001 \)).

A significant coefficient also was found for the cross-level interaction between making an upward social comparison and thin-ideal internalization, indicating that thin-ideal internalization moderates the relationship between social comparisons and body dissatisfaction (\( \gamma_{11} = .02, SE = .01, t(92) = 1.99, p = .05 \)). For every unit increase in thin-ideal internalization, body dissatisfaction increases by .02 units for those making a social comparison. (See Figure 3.) Therefore, Hypothesis 6 was supported.

**Feminist Beliefs as a Moderator**

Hypothesis 7 states that those with higher levels of feminist beliefs would be less negatively affected by these social comparisons (i.e., have lower body dissatisfaction following upward appearance-focused comparisons). HLM was used to examine whether
Figure 3. Thin-ideal internalization as a moderator of the relationship between social comparison and body dissatisfaction.
feminist beliefs (FemScore) moderated the relationship between social comparison and body dissatisfaction. Values for feminist beliefs were grand centered when they were entered into the Level-2 equations. The following Level-1 and Level-2 equations were used for analyses:

\[
L1: Y_{ij} = \beta_{0j} + \beta_{1j} \text{Comparison}_{ij} + r_{ij}
\]

\[
L2: \beta_{0j} = \gamma_{00} + \gamma_{01} \text{FemScore} + \mu_{0j}
\]

\[
\beta_{1j} = \gamma_{10} + \gamma_{11} \text{FemScore}
\]

where \(Y_{ij}\) represents the dependent variable, \(\beta_{0j}\) is the intercept, or average score on the dependent variable, for participants not making a social comparison. \(\beta_{1j}\) is the slope for participants making a social comparison. \(r_{ij}\) is the residual, or random error. \(\gamma_{00}\) is the mean of body dissatisfaction at the average level of feminist beliefs when a comparison was not made. \(\gamma_{01}\) is the effect of the slope of feminist beliefs on the average individual’s change in score (or slope) on body dissatisfaction when the individual has not made a comparison. \(\mu_{0j}\) is the unique effect of the individual holding feminist beliefs constant. \(\gamma_{10}\) is the mean of body dissatisfaction at the average level of feminist beliefs when a comparison was made. \(\gamma_{11}\) is the effect of the slope of feminist beliefs on the average individual’s change in slope on body dissatisfaction when the individual has made a comparison.

For the model considering upward social comparisons contrasted with not making a social comparison with the body dissatisfaction composite variable, results revealed a non-significant coefficient for the intercept when a social comparison was not made (\(\gamma_{00} = -.11, SE = .14, t(92) = -.84, p > .10\)). Results revealed a significant coefficient for the
intercept such that body dissatisfaction score at the average level of feminist beliefs when an upward social comparison was made was .55 (SE = .11, t(92) = 4.90, p < .001).

Results did not reveal a significant coefficient for the cross-level interaction between not making a comparison or making an upward social comparison and feminist beliefs ($\gamma_{11} = .01$, SE = .01, t(92) = 1.05, p > .10; See Figure 4). Results examining the SSES scores and BCQ scores separately yielded similar, non-significant results, with the cross-level interaction coefficients at .01 (SE = .01, t(92) = .91, p > .10) and .01 (SE = .02, t(92) = .54, p > .10), respectively. Therefore, feminist beliefs did not moderate the relationship between upwards, appearance-focused social comparisons and body dissatisfaction when contrasting upward comparisons with not making a comparison. (See Figure 4).

To further consider this analysis, the model contrasting upward social comparisons with downward and neutral comparisons was analyzed. For analyses with the body dissatisfaction composite variable, results did not reveal a significant cross-level coefficient for the interaction between making an upward social comparison and feminist beliefs ($\gamma_{11} = -.01$, SE = .01, t(81) = -.01, p > .10), indicating that feminist beliefs did not moderate this relationship. (See Figure 5.)

To further explore these results, the moderating effect of feminist beliefs was considered with the components of the body dissatisfaction composite as the dependent variable. The analyses for the SSES revealed a statistically significant cross-level coefficient for the interaction between upward social comparison and feminist beliefs, indicating that feminist beliefs moderate the relationship between upward social comparisons and state body dissatisfaction ($\gamma_{11} = .03$, SE = .01, t(81) = 2.58, p < .05). For
Figure 4. Feminist beliefs as a moderator of the relationship between upward social comparisons versus no social comparisons and body dissatisfaction as measured by the composite variable.
Figure 5. Feminist beliefs as a moderator of the relationship between upward social comparisons versus other social comparisons and body dissatisfaction as measured by the composite variable.
every unit increase in feminist beliefs, state body dissatisfaction increases by .03 units for those making an upward social comparison. However, this moderation occurred in the opposite direction than that hypothesized, as women experienced comparable levels of state body dissatisfaction following upward social comparisons regardless of their level of feminist beliefs. On the other hand, when women made a neutral or downwards social comparison, there was a negative relationship between feminist beliefs and body dissatisfaction such that levels of state body dissatisfaction were lower for women with higher levels of feminist beliefs (see Figure 6).

The analysis for the BCQ also revealed a statistically significant cross-level coefficient for the interaction between upward social comparison and feminist beliefs, indicating that feminist beliefs moderate the relationship between upward social comparisons and body checking ($\gamma_{11} = -.04$, $SE = .02$, $t(81) = -2.10$, $p < .05$). For every unit increase in feminist beliefs, body checking decreases by .04 units for those making an upward social comparison, indicating that feminist beliefs moderated the relationship between upward, appearance-focused social comparisons and body checking. These findings were in the hypothesized direction. Women with higher levels of feminist beliefs engaged in less body checking following an upward, appearance-focused social comparison than did women with lower levels of feminist beliefs (see Figure 7). Therefore, Hypothesis 7, that feminist beliefs would buffer the negative effects of upward, appearance-focused social comparisons on body dissatisfaction, was supported for body checking behaviors, but not for state body dissatisfaction, and only when upward social comparisons were contrasted with downward and neutral comparisons.
Figure 6. Feminist beliefs as a moderator of the relationship between upward social comparisons versus other social comparisons and state body dissatisfaction as measured by the SSES.
Figure 7. Feminist beliefs as a moderator of the relationship between upward social comparisons versus other social comparisons and body checking as measured by the BCQ.
Thoughts of Dieting and Exercising: Body Dissatisfaction as a Mediator

As a secondary research question, Hypothesis 8 predicted that those women who experience body dissatisfaction following upward appearance-focused comparisons would be more likely to report thoughts about dieting and exercising after making these comparisons. HLM analyses were used to examine the potential mediational role of body dissatisfaction on the relationship between upward, appearance-focused social comparison and thoughts of dieting and thoughts of exercising. A series of HLM analyses was run for each potential mediating relationship: the relationship between social comparison and thoughts of dieting/exercising, the relationship between social comparison and body dissatisfaction, the relationship between body dissatisfaction and thoughts of dieting/exercising, and the relationship between social comparison and thoughts of dieting/exercising, taking into account the influence of body dissatisfaction.

For the relationship between upward social comparisons and thoughts of dieting, the following equation was used:

\[ Y_{ij} = \beta_{0j} + \beta_{1j} \text{Comparison}_{ij} + r_{ij} \]

with \( Y_{ij} \) representing thoughts of dieting for the participant j’s ith comparison. \( \beta_{0j} \) is the intercept, or the thoughts of dieting score, for the jth participant when the comparison equals zero (no comparison). \( \text{Comparison}_{ij} \) represents whether a comparison was made the for j’s ith diary entry. \( \beta_{1j} \) is the thoughts of dieting slope for participant j. Finally, \( r_{ij} \) is the residual, or random error, associated with participant j’s ith comparison. A positive coefficient was obtained (\( \beta_{1j} = .48, SE = .10, t(93) = 4.65, p < .001 \)), indicating that
participants experienced more thoughts of dieting following upward, appearance-focused social comparisons.

The relationship between the independent variable (social comparison) and the mediator (body dissatisfaction) was shown to be significant in Hypothesis 3. Upward social comparisons were associated with increased body dissatisfaction.

To test the path from the mediator to the dependent variable (body dissatisfaction to thoughts of dieting), the following equation was used:

\[ Y_{ij} = \beta_{0j} + \beta_{1j} \text{BodyDissatisfaction}_{1ij} + r_{ij} \]

with \( Y_{ij} \) representing thoughts of dieting for the participant j’s ith comparison. \( \beta_{0j} \) is the intercept, or the thoughts of dieting score, for the jth participant when body dissatisfaction equals zero. \( \text{BodyDissatisfaction}_{1ij} \) represents the level of body dissatisfaction for j’s ith diary entry. \( \beta_{1j} \) is the thoughts of dieting slope for participant j. Finally, \( r_{ij} \) is the residual, or random error, associated with participant j’s ith body dissatisfaction. A positive coefficient was obtained (\( \beta_{ij} = .30, SE = .03, t(93) = 9.24, p < .001 \)), indicating that participants who reported greater body dissatisfaction also reported more thoughts of dieting.

The following equation was used for considering the relationship between social comparison and thoughts of dieting, taking into account the influence of body dissatisfaction:

\[ Y_{ij} = \beta_{0j} + \beta_{10j} \text{BodyDissatisfaction}_{1ij} + \beta_{20j} \text{Comparison}_{1ij} + r_{ij} \]

with \( Y_{ij} \) representing thoughts of dieting for the participant j’s ith comparison. \( \beta_{0j} \) is the intercept, or the thoughts of dieting score, for the jth participant when comparison and
body dissatisfaction equal zero. Comparison_{ij} represents whether a comparison was made the for j’s \( i \)th diary entry. BodyDissatisfaction_{ij} represents level of body dissatisfaction for j’s \( i \)th diary entry. \( \beta_{10j} \) is the thoughts of dieting slope for participant j on body dissatisfaction. \( \beta_{20j} \) is the thoughts of dieting slope for participant j on comparison. Finally, \( r_{ij} \) is the residual, or random error, associated with participant j’s \( i \)th social comparison and body dissatisfaction.

Results revealed significant coefficients for social comparison (\( \beta_{20j} = .34, SE = .02, t(93) = 3.64, p < .001 \) and body dissatisfaction (\( \beta_{10j} = .27, SE = .03, t(93) = 8.36, p < .001 \)), indicating that participants experienced more thoughts of dieting when an upward, appearance-focused social comparison was made and when they experienced greater body dissatisfaction. Following procedures outlined by Bauer et al. (2006) and utilizing the guidelines presented in Mathiowetz and Bauer (2008), results yielded an average indirect effect of .156 and an average total effect of .432, indicating 36% of the total effect was mediated by appearance schema activation. In addition, the relationship between social comparison and thoughts of dieting was reduced from \( \beta = .48 \) to \( \beta = .34 \) when body dissatisfaction was entered simultaneously with social comparison. Results of the Sobel test showed that this reduction was statistically significant, \( z = 4.22, p < .001 \) (Preacher, 2003). Therefore, Hypothesis 8 was supported for thoughts of dieting, as body dissatisfaction partially mediated the relationship between upward, appearance-focused social comparison and thoughts of dieting.

For the relationship between upward social comparisons and thoughts of exercising, the following equation was used:
\[ Y_{ij} = \beta_{0j} + \beta_{1j} \text{Comparison}_{ij} + r_{ij} \]

with \( Y_{ij} \) representing thoughts of exercising for the participant j’s ith comparison. \( \beta_{0j} \) is the intercept, or the thoughts of exercising score, for the jth participant when the comparison equals zero (no comparison). \( \text{Comparison}_{ij} \) represents whether a comparison was made for j’s ith diary entry. \( \beta_{1j} \) is the thoughts of exercising slope for participant j. Finally, \( r_{ij} \) is the residual, or random error, associated with participant j’s ith comparison. A positive coefficient was obtained (\( \beta_{1j} = .55, SE = .10, t(93) = 5.50, p < .001 \)), indicating that participants experienced more thoughts of exercising following upward, appearance-focused social comparisons.

The relationship between the independent variable (social comparison) and the mediator (body dissatisfaction) was shown to be significant in Hypothesis 3. Upward social comparisons were associated with increased body dissatisfaction.

To test the path from the mediator to the dependent variable is tested (body dissatisfaction to thoughts of exercising), the following equation was used:

\[ Y_{ij} = \beta_{0j} + \beta_{1j} \text{BodyDissatisfaction}_{ij} + r_{ij} \]

with \( Y_{ij} \) representing thoughts of exercising for the participant j’s ith comparison. \( \beta_{0j} \) is the intercept, or the thoughts of exercising score, for the jth participant when body dissatisfaction equals zero. \( \text{BodyDissatisfaction}_{ij} \) represents the level of body dissatisfaction for j’s ith diary entry. \( \beta_{1j} \) is the thoughts of exercising slope for participant j. Finally, \( r_{ij} \) is the residual, or random error, associated with participant j’s ith body dissatisfaction. A positive coefficient was obtained (\( \beta_{1j} = .23, SE = .04, t(93) = 5.88, p < .001 \)).
.001), indicating that when participants experienced greater body dissatisfaction, they also had more thoughts of exercising.

The following equation was used for considering the relationship between social comparison and thoughts of exercising, taking into account the influence of body dissatisfaction:

\[ Y_{ij} = \beta_{0j} + \beta_{10j}\text{BodyDissatisfaction}_{1ij} + \beta_{20j}\text{Comparison}_{1ij} + r_{ij} \]

with \( Y_{ij} \) representing thoughts of exercising for the participant j’s ith comparison. \( \beta_{0j} \) is the intercept, or the thoughts of exercising score, for the jth participant when comparison and body dissatisfaction equal zero. \( \text{Comparison}_{1ij} \) represents whether a comparison was made for j’s ith diary entry. \( \text{BodyDissatisfaction}_{1ij} \) represents the level of body dissatisfaction for j’s ith diary entry. \( \beta_{10j} \) is the thoughts of exercising slope for participant j on body dissatisfaction. \( \beta_{20j} \) is the thoughts of exercising slope for participant j on comparison. Finally, \( r_{ij} \) is the residual, or random error, associated with participant j’s ith social comparison and body dissatisfaction.

Results revealed significant coefficients for social comparison (\( \beta_{20j} = .39, SE = .09, t(93) = 4.26, p < .001 \)) and body dissatisfaction (\( \beta_{10j} = .20, SE = .04, t(93) = 5.35, p < .001 \)), indicating that participants experienced more thoughts of exercising when an upward, appearance-focused social comparison was made and when they experienced greater body dissatisfaction. Following procedures outlined by Bauer et al. (2006) and utilizing the guidelines presented in Mathiowetz and Bauer (2008), results yielded an average indirect effect of .159 and an average total effect of .533, indicating 30% of the total effect was mediated by appearance schema activation. The relationship between
social comparison and thoughts of dieting was reduced from $\beta = .55$ to $\beta = .39$ when body dissatisfaction was entered simultaneously with social comparison. Results of the Sobel test showed that this reduction was statistically significant, $z = 3.61, p < .001$ (Preacher, 2003). Therefore, Hypothesis 8 was supported for thoughts of exercising, as body dissatisfaction partially mediated the relationship between upward, appearance-focused social comparison and thoughts of exercising.

**Self-Reported Dieting and Exercising and State Thoughts of Dieting and Exercising.**

To examine the relationship between state and trait thoughts of dieting and exercising, exploratory analyses were run to see if self-report of actual dieting and exercising behaviors was related to reported thoughts of dieting and exercising in the social comparison diary. In order to conduct these analyses, means of scores for the dieting and exercising questions were aggregated for the diary data, and these scores were correlated with the questions about fasting and excessive exercising from the EDDS. Correlational analyses revealed no significant relationship ($r = .16, p > .10$) for dieting but did reveal a significant relationship for thoughts of exercising ($r = .30, p < .01$). These results indicated that greater reported exercising behaviors were related to greater state thoughts of exercising.

**Environmental Influence on Social Comparison.**

In order to examine the context in which these relationships occurred, exploratory analyses were utilized to examine whether aspects of the environment influenced the occurrence of social comparison. The following equation was used to run two separate
HLM analyses, considering whether participants had been alone or with others and whether or not they had been viewing media:

\[ Y_{ij} = \beta_0j + \beta_1j \text{Environ}_{1ij} + r_{ij} \]

with \( Y_{ij} \) representing social comparison for the participant j’s ith environmental influence. \( \beta_0j \) is the intercept, or the social comparison score, for the jth participant when the environmental influence is equal to 0 (being alone or not viewing media). \( \text{Environ}_{1ij} \) represents whether there was an environmental influence the for j’s ith diary entry. \( \beta_1j \) is the social comparison slope for participant j. Finally, \( r_{ij} \) is the residual, or random error, associated with participant j’s ith environmental influence.

When considering upward social comparisons, a positive coefficient emerged for viewing media (\( \beta_1j = .19, SE = .03, t(93) = 7.20, p < .001 \)); however, the coefficient was not significant for whether participants had been alone or with others (\( \beta_1j = .02, SE = .02, t(93) = .81, p > .10 \)). When considering whether participants made any social comparisons, positive coefficients emerged for both whether a participant was alone or with others since the last time the alarm sounded (\( \beta_1j = .07, SE = .02, t(93) = 3.04, p < .01 \)) and whether participants had been viewing media since the last time the alarm sounded (\( \beta_1j = .28, SE = .03, t(93) = 9.95, p < .001 \)). Therefore, factors in the environment that influence whether participants had the opportunity to make a social comparison influenced the number of comparisons made by participants throughout the study. In particular, participants were more likely to make a social comparison if they were with other people or if they had been viewing media sources.
CHAPTER 5

DISCUSSION

The primary aim of the current study was to examine previously unexplored mediators and moderators of the relationship between upward, appearance-focused social comparison and state body dissatisfaction as these constructs occur in the naturalistic environment. Both thin-ideal internalization and feminist beliefs moderated this relationship, providing further insight into the nature of the social comparison-body dissatisfaction relationship as it occurs in the naturalistic environment. In addition, although state appearance schema activation was predicted to mediate the relationship between social comparison and state body dissatisfaction, this hypothesis was not supported; instead, trait appearance schematicity also moderated this relationship. In particular, these trait variables were shown to influence the relationship between making an appearance-focused social comparison in the naturalistic environment and state body dissatisfaction. Having internalized the societal thin ideal or holding schemas about one’s appearance were related to higher state body dissatisfaction following an upward appearance-focused social comparison, whereas holding feminist beliefs was related to women engaging in less body checking following an appearance-focused upward social comparison. Thus, the current findings expand upon previous theory in this area by examining how established trait constructs influence the impact of social comparison
on state body dissatisfaction in the naturalistic environment. The current study also demonstrates the utility of collecting data using PDA’s.

**Thin-Ideal Internalization as a Moderator**

These results indicated that women with greater trait thin-ideal internalization engaged in more frequent appearance-focused social comparisons and that among women with higher levels of thin-ideal internalization, there was a stronger relationship between upward social comparisons and body dissatisfaction as these constructs occur in the naturalistic environment. Previous research utilizing self-report questionnaires has linked thin-ideal internalization to both social comparison and body dissatisfaction (Engeln-Maddox, 2005; Tiggemann & McGill, 2004). However, these findings represent a slight departure from this previous research on pressures to conform to the thin ideal, which has examined thin-ideal internalization as a mediator of the relationship between these pressures and trait body dissatisfaction (e.g., Myers & Crowther, 2007; Stice, 1994). These findings also seem to be a departure from past research suggesting that the social comparison process precedes thin-ideal internalization (Halliwell & Harvey, 2006; Jones, 2004; Thompson et al., 1999). When these variables are examined on a day-to-day, state basis, the interaction among them may be different. As proposed, it seems that thin-ideal internalization is, in fact, a trait variable that, once developed, may impact not only the frequency of appearance-focused comparisons but the nature of the relationship between making an upward appearance-focused comparison and experiencing body dissatisfaction in the naturalistic environment. Thus, women with high levels of thin-ideal internalization may be more aware of and more likely to have a negative reaction to
social comparison stimuli in their environment. It seems that those who have already internalized the thin ideal experience a greater impact of social comparison on body dissatisfaction in the moment.

There are three possible explanations for this finding. First, developmentally, thin-ideal internalization has likely already been established by the time women have reached college. It may be that women first become aware of the thin ideal and begin to internalize it through the comparison process, but by the time they have reached college age, this process has already established the level of thin-ideal internalization. Therefore, for undergraduate women, thin-ideal internalization now becomes a trait variable that perpetuates the day-to-day effects of appearance-focused comparisons on body dissatisfaction. Thus, those who have this trait internalization of the thin ideal are more likely to see an upward, appearance-focused comparison as unfavorable precisely because they are already focused on the discrepancy between their own bodies and the thin ideal. When they engage in upward, appearance-focused comparisons, they are reminded of this discrepancy and subsequently experience greater state body dissatisfaction than women who are not already aware of their own inadequacy in contrast to the thin ideal.

A second explanation for these findings is that previous research has examined these variables utilizing self-report questionnaires either cross-sectionally or longitudinally. In other words, previous research has only examined these constructs as trait variables. However, the current findings examined the influence of a trait variable, thin-ideal internalization, on the relationship between the occurrence of a social
comparison and the state variable of body dissatisfaction. Therefore, it follows that the nature of this relationship may differ from what was found in previous studies because these constructs are being conceptualized and examined in a new way. Third, it is also possible that these constructs have an ongoing cyclical relationship wherein social comparison leads to thin-ideal internalization, which, in turn, leads to women engaging in the social comparison process more frequently. Thus, the act of making an appearance-focused social comparison may reinforce and maintain a woman’s internalization of the thin ideal.

_Feminist Beliefs as a Moderator_

The current findings were mixed regarding the role of holding feminist beliefs as a moderator of the relationship between appearance-focused social comparisons and body dissatisfaction. Level of feminist beliefs did not affect the number of social comparisons made. In addition, women who endorsed feminist beliefs to a greater extent actually experienced comparable levels of state body dissatisfaction following upward, appearance-focused social comparisons as women who agreed less with feminist beliefs. On the other hand, women who hold feminist beliefs do experience lower levels of body dissatisfaction when an upward social comparison has not been made. This latter finding is consistent with previous research suggesting that, in general, feminist beliefs serve a protective function against body dissatisfaction in women (Ojerholm & Rothblum, 1999; Rubin et al., 2004; Tiggemann & Stevens, 1999). The current findings illuminate the role of holding feminist beliefs in the naturalistic environment, suggesting that under normal circumstances, feminist beliefs are indeed protective against body dissatisfaction.
However, once an upward comparison has been made, even the protective role of these beliefs is nullified. These findings are consistent with previous theory and research suggesting that feminist women are critical of their own weight and shape despite believing that they should not be (Rothblum, 1994; Rubin et al., 2004). Although our own work suggests that feminist beliefs may serve a buffering role against the consequences of sociocultural pressures to conform to the thin ideal (Myers & Crowther, 2007), these results illustrate the strong, pervasive nature of the relationship between upward, appearance-focused social comparison and state body dissatisfaction shown in previous studies (e.g., Leahey et al., 2007; Leahey & Crowther, 2008; Myers & Crowther, 2009).

Results for body checking are more consistent with the hypothesized protective role of feminist beliefs following upward social comparison and previous research, suggesting a protective role of feminist beliefs against the behavioral component of body dissatisfaction (Ojerholm & Rothblum, 1999; Rubin et al., 2004; Tiggemann & Stevens, 1999). As Figure 7 illustrates, a clear interaction exists for body checking, such that women who hold more feminist beliefs engage in fewer body checking behaviors following upward social comparisons than women who agree less with feminist beliefs. These findings seem to be cause for optimism, because although women with feminist beliefs still experience body dissatisfaction following upward, appearance-focused social comparison, they do not engage in as many body checking behaviors as their less feminist counterparts. Therefore, although more feminist women do experience as much of the cognitive-affective components of body dissatisfaction following upward social
comparisons, they do not engage in the behavioral component as often. Thus, the current findings refine our understanding of the protective effects of feminist beliefs against body dissatisfaction.

One possible explanation for these findings is that feminist women may be able to dismiss these feelings of body dissatisfaction more quickly and thus do not engage in the body checking behavior. Although we were unable to capture this difference with the measures we utilized, one can speculate, based on the findings of Rubin et al. (2004), that even though feminist women still experience body dissatisfaction following an appearance-focused social comparison, holding feminist beliefs provides women with the ability to be critical of this dissatisfaction. In so doing, women who hold feminist beliefs may be able to stop the cycle of dissatisfaction with their bodies before they begin to engage in maladaptive behavioral manifestations of this dissatisfaction, such as body checking. These results are promising because body checking has been shown to be associated with eating disorder symptoms (Shafran, Fairburn, Robinson, & Lask, 2004) and can be used to differentiate between normal control and eating disordered participants (Reas et al., 2002). Therefore, it may be more important for feminist beliefs to protect against this behavioral component of body dissatisfaction because of its strong link to eating disorder symptomatology.

**Appearance Schema Activation and Appearance Schematicity**

When examined using a diary methodology on a PDA with a multiple-choice format for the word stem task, social comparison was not related to appearance schema activation. In addition, appearance schema activation was not related to subsequent body
dissatisfaction, nor did it mediate the relationship between social comparison and body
dissatisfaction. These results are inconsistent with previous findings, which have shown
that appearance schema activation follows exposure to thin media images (Hargreaves &
Tiggemann, 2004), a process that is often utilized to produce social comparison in a
laboratory setting (e.g., Groesz et al., 2002). These results are also inconsistent with
previous findings showing that appearance schema activation is related to body
dissatisfaction (Jung & Lennon, 2003; Sinton & Birch, 2006; Tiggemann & McGill,
2004) and that appearance schema activation mediates the relationship between
sociocultural variables and body dissatisfaction (Brown & Dittmar, 2005; Clark &
Tiggemann, 2007).

There are several explanations for the discrepant findings in the current study.
First, the relationship between these constructs on a day-to-day basis in the naturalistic
environment may be different than when these variables are studied using retrospective
self-report questionnaires or laboratory manipulations. Indeed, results of post-hoc
analyses showing that the related, state construct of appearance schematicity moderated
the relationship between social comparison and body dissatisfaction support this
assertion. These results are informative, as they suggest that endorsement of appearance
schemas may be an underlying, trait variable that leads women to experience greater
body dissatisfaction following upward social comparisons rather than a construct that is
briefly activated when social comparisons take place. In this way, appearance
schematicity seems to act in a similar manner to thin-ideal internalization. Undergraduate
women have likely already developed schemas about their bodies throughout adolescence
after years of engaging in the comparison process. Therefore, it is unlikely that these schemas will change in nature or affect body dissatisfaction as it occurs following social comparison as this process happens on a daily basis. Therefore, rather than being activated in the moment, it seems that the underlying tendency to think about one’s body in certain ways affects the amount of body dissatisfaction women experience following appearance-focused upward comparisons.

Second, there may be several reasons why the multiple choice word stem task may not have operated in the manner originally intended. First, because there was no way to quantify it, we had to assume that when a participant chose “other” on the word stem task, it was a non-appearance related word. Although we searched extensively for all possible body-related words to complete the stems through the lexical software and our piloting of the word stem task and included all of those words we found, it is possible that participants may have been thinking of appearance-related words we had not included. Therefore, our conservative choice to designate “other” as non-appearance words may have interfered with our ability to find significant results.

Second, this difference may have occurred because of the lack of spontaneity in choosing from multiple-choice answers. Third, there may also be a cognitive element to actually completing the word stem that makes a multiple choice task fundamentally different, even if the individual would be writing the same word that they would choose on a multiple choice task. The very act of searching for and generating a unique word to complete a word stem may involve greater schema activation than does choosing a word from a predetermined list. In other words, appearance schema activation may occur so
automatically that the multiple choice word stem task did not capture it. Thus, it is possible that appearance schema activation was not captured effectively on a moment-by-moment basis by the multiple-choice word stem task used in the current study.

**Social Comparison, Body Dissatisfaction, and Thoughts of Dieting and Exercising**

The current study further supports the notion that women continue to engage in upward, appearance-related social comparisons frequently even when they have detrimental consequences, including body dissatisfaction (Strahan et al., 2006). The findings of the current study support past findings on the positive relationship between social comparison and body dissatisfaction (e.g., Myers & Crowther, 2009). These findings expand upon previous findings by Leahey and colleagues (2007; 2008) by examining the relationship between social comparison and body dissatisfaction using EMA with a new technology. Although the previous EMA studies in this area have utilized pencil-and-paper diaries with a PDA serving as an alarm signal, the current study found similar results with participants completing all questionnaires using PDA technology. An advantage to the PDAs over the pencil-and-paper technique is that participants only have to carry one item which is small enough to fit easily in a purse or bookbag. With the pencil-and-paper technique, participants had to carry both the questionnaires and the PDA that served as the alarm. Although participants reported that they thought they experienced increased awareness of making social comparisons, statistical analyses indicated that carrying the device increased neither the frequency of reported social comparisons nor the level of body dissatisfaction. In addition, the PDA technology offers an advantage over the pencil-and-paper technique because participants
are not able to examine their responses to previous prompts, so they cannot simply copy
their prior responses. Not only do these findings lend further support to the relationship
between upward, appearance-focused social comparisons and body dissatisfaction, but
they also suggest that this technology has utility in studying these constructs in the
naturalistic environment. In fact, women in the current study continued to make these
upward comparisons throughout the study, even though the earlier comparison resulted in
body dissatisfaction.

A secondary goal of the current study was to examine other consequences of
upward, appearance-focused comparisons when they occur in the naturalistic
environment, particularly thoughts of dieting and exercising. Findings showed that these
comparisons were related to subsequent thoughts of both dieting and exercising and that
body dissatisfaction partially mediated both of these relationships. These results support
the findings of Muir, Wertheim, and Paxton (1999), who found that both social
comparison and body dissatisfaction were commonly reported triggers of dieting
behaviors. Consistent the earlier findings of Leahey et al. (2007), results indicated that
upward social comparisons were related to subsequent thoughts of dieting and exercising;
however, these results also expand upon Leahey et al.’s (2007) findings by illuminating
the roles of body dissatisfaction as a mediator of this relationship. These findings are
important because they show that social comparison may lead not only to body
dissatisfaction but also to thoughts of more serious ways to change one’s body. Both
dieting (Presnell, Stice, & Tristan, 2008; Stice, 2002) and excessive exercise (LePage,
Crowther, Harrington, & Engler, 2008; Mond, Hay, Rodgers, Owen, & Beumont, 2004)
have been found to be risk factors for subsequent development of an eating disorder. In addition, previous research has suggested that social comparison may be related to disordered eating attitudes and behaviors (Bessenoff, 2006; Halliwell & Harvey, 2006). Therefore, the fact that engaging in upward, appearance-focused comparisons leads to thoughts of engaging in each of these behaviors further strengthens the argument that social comparison can lead to serious psychological consequences, including behaviors that may be detrimental to one’s body.

To our knowledge, the current study is the first EMA study to show that body dissatisfaction partially mediates the relationship between social comparison and body change cognitions or behaviors. Based on the current findings, it appears that after a woman compares herself unfavorably to another woman, she experiences greater state body dissatisfaction and immediately thinks about dieting and exercising as potential methods to change her body. Past research has suggested that body dissatisfaction is a risk and maintenance factor for dieting behaviors and eating disordered behaviors (Stice, 2002). Indeed, Stice (1994) suggested that body dissatisfaction was one mediating pathway between sociocultural messages about one’s body and food and bulimic pathology. In addition, body dissatisfaction has been shown to be one of the strongest predictors of both extreme exercise behaviors and disordered eating among adolescent girls (McCabe & Ricciardelli, 2006). Therefore, although these findings are consistent with previous research about the individual relationships among these trait variables, the results of the current study are the first to show the mediational relationships among these three constructs in the naturalistic environment, providing information about what is
happening to women each day in their home environments.

Limitations

The current study had several limitations. First, the sample was composed primarily of Caucasian, college-aged women. Although research is important in this population because college-aged women are known to experience high levels of body dissatisfaction and to be at risk for disordered eating, current findings cannot be generalized to women of other ages or ethnicities. It would be interesting to replicate this study with women of different ages and various ethnicities to determine whether the relationships among the constructs would be similar. Second, the sample size was fairly small (94 participants). However, the fact that significant relationships were still found among the constructs speaks to the strength of this methodology and the relationships among these variables and indicates that the small sample size was not necessarily a hindrance in this study. Third, as previously mentioned, although the word stem appearance schema activation task was piloted, this study represents the first time that a multiple-choice version of this task was utilized on a PDA. Because participants could not write in the first word that may have come to mind, this task may not have measured implicit appearance schema activation in the same way as the traditional task. Unfortunately, the software we used did not allow for this option. Future research should develop a program that has this capability and compare the traditional word stem task with the multiple choice methodology when implemented via a PDA. Finally, although diary data gives us a clearer picture of the nature of the relationships among these variables, it only provides us a brief look at participants’ lives, in this case, five days. It is
unclear by what process women learn to engage in appearance-focused social comparisons and why they continue to make these comparisons in spite of the negative consequences. Therefore, future studies should examine longitudinally the developmental aspects of social comparison as it relates to body dissatisfaction.

**Future Directions and Implications**

Future research in this area should use diary methodology and the PDA technology to explore other constructs potentially related to social comparison and body dissatisfaction as they occur in the naturalistic environment. For example, it would be of interest to examine cognitions that individuals experience as they engage in upwards, appearance-focused social comparisons. In particular, a measure of body image cognitive distortions could be added to the social comparison diary to examine the occurrence of these distortions as comparisons are made. Another construct that could potentially be examined in future studies is whether participants actually engaged in dieting behaviors, exercising behaviors, or maladaptive eating behaviors after engaging in social comparisons. Future studies could also use EMA to examine the relationship among these variables in different populations. For example, the relationship between social comparison and body dissatisfaction should be studied in populations that meet criteria for eating disorders, or in populations at high risk for developing disordered eating, such as athletes in sports that emphasize a lean body shape.

These findings also have implications for prevention and intervention programs for body dissatisfaction and disordered eating. Historically, cognitive-behavioral interventions have utilized cognitive restructuring to address the irrational beliefs clients
may have developed about their bodies (Garner, Vitousek, & Pike, 1997). These results suggest that eating disorder treatment programs might address the concept of thin-ideal internalization, perhaps as a maladaptive belief to be challenged during the course of cognitive restructuring. In addition, given the strong relation shown between upward appearance-focused comparisons, thin-ideal internalization, and body dissatisfaction, these results support the continued inclusion of media literacy training in both prevention and treatment programs. Because of feminism’s buffering role against body checking after upward, appearance-focused social comparison, it may be helpful to incorporate feminist ideas into these interventions (see Piran, 1999), as they may provide women a different lens through which to interpret the thin ideal. Levine and Piran (2001) argue that comprehensive prevention programs that incorporate targeted elements such as media literacy as well as changes in ecology (participants’ external environment) will be most effective in the prevention of eating disorders.

Conclusion

The current study contributes to the growing literature on the nature of the relationship between appearance-focused social comparison and body dissatisfaction in the naturalistic environment. The current study is also the first to examine several moderators of this relationship as it occurs in the naturalistic environment, namely thin-ideal internalization, feminist beliefs, and appearance schematicity. The contribution of these moderators, whether exacerbating the effects of social comparison on body dissatisfaction, as in the case of thin-ideal internalization and appearance schematicity, or protecting against body checking, as in the case of feminist beliefs, further illuminates
our knowledge about the nature of the social comparison process and the trait variables that may affect it on a daily basis. In addition, the finding that body dissatisfaction mediates the relationship between social comparison and thoughts of engaging in behaviors to alter one’s body emphasizes the importance of studying these constructs, as these processes may eventually result in unhealthy eating behaviors. Future research should continue to examine the relationships among these constructs and examine other potential mediators and moderators of the link between social comparison and body dissatisfaction.
REFERENCES


APPENDIX A

CONSENT FORM
CONSENT FORM

Women’s Day-to-Day Experiences

We want to do research on how women’s perceptions of day-to-day interpersonal experiences impact their emotions, body images, and eating attitudes and behaviors. We want to do this because we are interested in how certain situations may impact women’s emotions, body satisfaction, and eating behaviors on a daily basis. We would like you to take part in this project. If you decide to do this, you will be asked to fill out a series of questionnaires related to body satisfaction, eating habits, and your attitudes about a variety of topics today, which should take you approximately 70 to 80 minutes to complete. You will then be asked to carry a Palm Pilot personal data assistant (PDA) device for the next five (5) days. Over this period of time, the Palm will signal you to fill out a brief series of questionnaires four times per day at random intervals. At the end of each day, you will be asked to complete another brief set of questionnaires. When five days are completed, you will be asked to return to this office to turn in your Palm and complete a brief set of follow-up questionnaires.

There are no significant risks to participating in this study. Some of the questions may be regarded by some people as personal, and you have the right not to answer any questions you feel are too personal or that make you uncomfortable. Your answers to the questions in this study are strictly confidential. Your name and other identifying information will not be associated with any data collected, and all data will be analyzed and reported in terms of group, rather than individual, performance. Only we will have access to the names of individual participants.

If you take part in this project, you will be awarded 3 participation points toward your General Psychology research requirement for completing the questionnaires today, an additional 6 participation points for completing the Palm portion of the study, and 1 participation point for the debriefing meeting. In addition, as an incentive, you will be paid $5.00 if you successfully complete 6-10 Palm entries, $10.00 if you complete 11-14 Palm entries, and $15.00 if you complete 15 or more Palm entries. Taking part in this project is entirely up to you, and no one will hold it against you if you decide not to do it. If you do take part, you may stop at any time. You may also choose to skip or not answer any question. Nothing will be counted against you for leaving, and you will receive partial credit even if you are not willing to complete all sections or items of this experiment.

If you want to know more about this research project, please call us at (330) 672-2166 or send an e-mail to dridolfi@kent.edu or tmyers3@kent.edu. You may also contact our advisor, Dr. Janis Crowther, at (330) 672-2090. The project has been approved by Kent State University. If you have questions about Kent State University's rules for research, please call Dr. John West, Vice President of Research, Division of Research and Graduate Studies (Tel. 330.672.2704).

You will get a copy of this consent form.

Sincerely,

Danielle Ridolfi
Project Co-Coordinator
Department of Psychology
Kent State University

Taryn A. Myers, M.A.
Project Co-Coordinator
Department of Psychology
Kent State University

Janis H. Crowther, Ph.D.
Professor
Department of Psychology
Kent State University
B. CONSENT STATEMENT(S)

1. I agree to take part in this project. I know what I will have to do and that I can stop at any time. I also understand that I must return the Palm device to the researchers at the end of the study or assume financial responsibility for it.

Signature ___________________________ Date ___________________________
APPENDIX B

QUESTIONNAIRE BATTERY
DEMOGRAPHIC INFORMATION

Age ___ Height ___ Weight ___

Current year (choose one):

___ 1) First-Year
___ 2) Sophomore
___ 3) Junior
___ 4) Senior
___ 5) 5th year of program
___ 6) Graduate student
___ 7) Other (please explain):

Employment status (check one):

___ 1) not currently employed
___ 2) employed part-time
___ 3) employed full-time
___ 4) other

Occupation/job:

Your Annual Income (check one):

___ 1) Less than $5,000
___ 2) $5,000 to $9,999
___ 3) $10,000 to $14,999
___ 4) $15,000 to $24,999
___ 5) $25,000 to $34,999
___ 6) $35,000 to $49,999
___ 7) $50,000 to $74,999
___ 8) $75,000 to $99,999
___ 9) $100,000 to $149,999
___ 10) $150,000 or more

Your Household’s Annual Income (check one):

___ 1) Less than $5,000
___ 2) $5,000 to $9,999
___ 3) $10,000 to $14,999
___ 4) $15,000 to $24,999
___ 5) $25,000 to $34,999
___ 6) $35,000 to $49,999
___ 7) $50,000 to $74,999
___ 8) $75,000 to $99,999
___ 9) $100,000 to $149,999
___ 10) $150,000 or more

Who lives in your household?

Your ethnic origin (check one):

___ 1) American Indian or Alaskan Native
___ 2) African American/Black
___ 3) Asian, Asian American, Asian Indian, or Pacific Islander
___ 4) Caucasian/White
___ 5) Hispanic/Latina
___ 6) Other (please specify):

Your nation of origin (Where you were born):
Have you ever sought or received treatment for an eating problem?
____ 1) Yes (please specify):
____ 2) No

Have you ever been diagnosed with an eating disorder?
____ 1) Yes (please specify): __________
____ 2) No

What is your current marital status?
____ 1) Never married
____ 2) Married
____ 3) Separated/divorced
____ 4) Widowed
____ 5) Living with partner
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>
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___ 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.

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

Indicate your beliefs about these items using the 1 to 5 scale:

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<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Mostly Disagree</td>
<td>Neither Disagree</td>
<td>Mostly Agree</td>
<td>Strongly Agree</td>
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<tr>
<td></td>
<td>Nor Agree</td>
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</table>

___ 1. What I look like is an important part of who I am.

___ 2. What’s wrong with my appearance is one of the first things that people will notice about me.

___ 3. One’s outward physical appearance is a sign of the character of the inner person.

___ 4. If I could look just as I wish, my life would be much happier.

___ 5. If people knew how I really look, they would like me less.

___ 6. By controlling my appearance, I can control many of the social and emotional events in my life.

___ 7. My appearance is responsible for much of what has happened to me in my life.

___ 8. I should do whatever I can to always look my best.

___ 9. Aging will make me less attractive.

___ 10. To be feminine, a woman must be as pretty as possible.

___ 11. The media’s messages in our society make it impossible for me to be satisfied with my appearance.

___ 12. The only way I could ever like my looks would be to change what I look like.

___ 13. Attractive people have it all.

___ 14. Homely people have a hard time finding happiness.
## SOCIOCULTURAL ATTITUDES TOWARD APPEARANCE QUESTIONNAIRE-3

Indicate how much you agree with each statement using the values below.

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</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neither agree nor disagree</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

___ 1. TV programs are an important source of information about fashion and “being attractive.”

___ 2. I’ve felt pressure from TV or magazines to lose weight.

___ 3. I would like my body to look like the people who are on TV.

___ 4. I compare my body to the bodies of TV and movie stars.

___ 5. TV commercials are an important source of information about fashion and “being attractive.”

___ 6. I’ve felt pressure from TV or magazines to feel pretty.

___ 7. I would like my body to look like the models who appear in magazines.

___ 8. I compare my appearance to the appearance of TV and movie stars.

___ 9. Music videos on TV are an important source of information about fashion and “being attractive.”

___ 10. I’ve felt pressure from TV and magazines to be thin.

___ 11. I would like my body to look like the people who are in the movies.

___ 12. I compare my body to the bodies of people who appear in magazines.

___ 13. Magazine articles are an important source of information about fashion and “being attractive.”

___ 14. I’ve felt pressure from TV or magazines to have a perfect body.

___ 15. I wish I looked like the models in music videos.

___ 16. I compare my appearance to the appearance of people in magazines.
17. Magazine advertisements are an important source of information about fashion and being “attractive.”

18. I’ve felt pressure from TV or magazines to diet.

19. I wish I looked as athletic as the people in magazines.

20. I compare my body to that of people in “good shape.”

21. Pictures in magazines are an important source of information about fashion and “being attractive.”

22. I’ve felt pressure from TV or magazines to exercise.

23. I wish I looked as athletic as sports stars.

24. I compare my body to that of people who are athletic.

25. Movies are an important source of information about fashion and “being attractive.”

26. I’ve felt pressure from TV or magazines to change my appearance.

27. I try to look like the people on TV.

28. Movie stars are an important source of information about fashion and “being attractive.”

29. Famous people are an important source of information about fashion and “being attractive.”

30. I try to look like sports athletes.
For each of the following, please think about how much you agree with each statement.

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<td>Strongly Disagree</td>
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___ 1. Pornography exploits female sexuality and degrades all women.

___ 2. In education and legislation to stop rape, ethnicity and race must be treated by sensitivity to ensure that women of color are protected equally.

___ 3. Whether one chooses a traditional or alternative family form should be a matter of personal choice.

___ 4. People should define their marriage and family roles in ways that make them feel most comfortable.

___ 5. The government is responsible for making sure that all women receive an equal chance at education and employment.

___ 6. Racism and sexism make double the oppression for women of color in the work environment.

___ 7. Prostitution grows out of the male culture of violence and male values of social control.

___ 8. Capitalism and sexism are primarily responsible for the increased divorce rate and general breakdown of families.

___ 9. Replacing the word “God” with “Goddess” will remind people that the deity is not male.

___ 10. Women of color have less legal and social service protection from being battered than White women have.

___ 11. Men should follow women’s lead in religious matters, because women have a higher regard for love and peace than men.

___ 12. Using “man” to mean both men and women is one of many ways sexist language destroys women’s existence.
13. Sex role stereotypes are only one symptom of the larger system of patriarchal power, which is the true source of women’s subordination.

14. The workplace is organized around men’s physical, economic, and social oppression of women.

15. Men’s control over women forces women to be the primary caretakers of children.

16. Making women economically dependent on men is capitalism’s subtle way of encouraging heterosexual relationships.

17. Women of color are oppressed by White standards of beauty.

18. The availability of adequate child care is central to a woman’s right to work outside the home.

19. Homosexuality is not a moral issue, but rather a question of liberty and freedom of expression.

20. A socialist restructuring of businesses and institutions is necessary for women and people of color to assume equal leadership with White men.

21. Being put on a pedestal, which White women have protested, is a luxury that women of color have not had.

22. Social change for sexual equality will best come about by acting through federal, state, and local government.

23. Putting women in positions of political power would bring about new systems of government that promote peace.

24. Men use abortion laws and reproductive technology to control women’s lives.

25. Traditional notions of romantic love should be replaced with ideas based on feminine values of kindness and concern for all people.

26. Romantic love supports capitalism by influencing women to place men’s emotional and economic needs first.

27. By not using sexist and violent language, we can encourage peaceful social change.
28. Legislation is the best means to ensure a woman’s choice of whether or not to have an abortion.

29. Men prevent women from becoming political leaders through their control of economic and political institutions.

30. Beauty is feeling one’s womanhood through peace, caring, and nonviolence.

31. Women’s experience in life’s realities of cleaning, feeding people, caring for babies, etc., makes their vision of reality clearer than men’s.

32. The way to eliminate prostitution is to make women economically equal to men.

33. Antigay and racist prejudice act together to make it more difficult for gay male and lesbian people of color to maintain relationships.

34. Capitalism hinders a poor woman’s chance to obtain adequate prenatal medical care or an abortion.

35. Women should try to influence legislation in order to gain the right to make their own decisions and choices.

36. In rape programs and workshops, not enough attention has been given to the special needs of women of color.

37. Rape is best stopped by replacing the current male-oriented culture of violence with an alternative culture based on more gentle, womanly qualities.

38. It is the capitalist system which forces women to be responsible for child care.

39. Marriage is a perfect example of men’s physical, economic, and sexual oppression of women.

40. Romantic love brainwashes women and forms the basis for their subordination.

41. Discrimination in the workplace is worse for women of color than for all men and White women.

42. Bringing more women into male-dominated professions would make the professions less cutthroat and competitive.

43. Much of the talk about power for women overlooks the need to empower people of all races and colors first.
44. Women should have the freedom to sell their sexual services.

45. All religion is like a drug to people and is used to pacify women and other oppressed groups.

46. Rape is ultimately a powerful tool that keeps women in their place, subservient to and terrorized by men.

47. Capitalism forces most women to wear feminine clothes to keep a job.

48. The tradition of Afro-American women who are strong family leaders has strengthened the Afro-American community as a whole.

49. The personalities and behaviors of “women” and “men” in our society have developed to fit the needs of advanced capitalism.

50. Men need to be liberated from oppressive sex role stereotypes as much as women do.
BODY SHAPE QUESTIONNAIRE

Please think about how you have been feeling about your appearance over the PAST FOUR WEEKS. Please read each question and select the appropriate number to the right. Please answer all the questions.

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<th>6</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Rarely</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td>Always</td>
</tr>
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</table>

OVER THE PAST FOUR WEEKS:

___ 1. Has feeling bored made you brood about your shape?

___ 2. Have you been so worried about your shape that you have been feeling that you ought to diet?

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

___ 4. Have you been afraid that you might become fat (or fatter)?

___ 5. Have you worried about your flesh not being firm enough?

___ 6. Has feeling full (e.g., after eating a large meal) made you feel fat?

___ 7. Have you felt so bad about your shape that you have cried?

___ 8. Have you avoided running because your flesh might wobble?

___ 9. Has being with thin women made you feel self-conscious about your shape?

___ 10. Have you worried about your thighs spreading out when sitting down?

___ 11. Has eating even a small amount of food made you feel fat?

___ 12. Have you noticed the shape of other women and felt that your own shape compared unfavorably?

___ 13. Has thinking about your shape interfered with your ability to concentrate (e.g., while watching television, reading, listening to conversations)?

___ 14. Has being naked, such as when taking a bath or shower, made you feel fat?

___ 15. Have you avoided wearing clothes that make you particularly aware of the shape of your body?
16. Have you imagined cutting off fleshy areas of your body?

17. Has eating sweets, cakes, or other high calorie food made you feel fat?

18. Have you not gone out to social occasions (e.g., parties) because you have felt bad about your shape?

19. Have you felt excessively large and rounded?

20. Have you felt ashamed of your body?

21. Has worry about your shape made you diet?

22. Have you felt happiest about your shape when your stomach has been empty (e.g., in the morning)?

23. Have you thought that you are the shape you are because you lack self-control?

24. Have you worried about other people seeing rolls of flesh around your waist or stomach?

25. Have you felt that it is not fair that other women are thinner than you?

26. Have you vomited in order to feel thinner?

27. When in company, have you worried about taking up too much room (e.g., sitting on a sofa or bus seat)?

28. Have you worried about your flesh being dimply?

29. Has seeing your reflection (e.g., in a mirror or shop window) made you feel bad about your shape?

30. Have you pinched areas of your body to see how much fat there is?

31. Have you avoided situations where people could see your body (e.g., communal changing rooms or swimming pools)?

32. Have you taken laxatives in order to feel thinner?

33. Have you been particularly self-conscious about your shape when in the company of other people?

34. Has worry about your shape made you feel you ought to exercise?
EATING DISORDER DIAGNOSTIC SCALE

Please carefully complete all of the following questions.

OVER THE PAST THREE MONTHS:

0 1 2 3 4 5 6
Not at all Slightly Moderately Extremely

___ 1. Have you felt fat?

___ 2. Have you had a definite fear that you might gain weight or become fat?

___ 3. Has your weight influenced how you think about (judge) yourself as a person?

___ 4. Has your shape influenced how you think about (judge) yourself as a person?

5. During the past 6 months, have there been times when you felt you have eaten what other people would regard as an unusually large amount of food (i.e., a quart of ice cream) given the circumstances? YES NO

6. During the times when you ate an unusually large amount of food, did you experience a loss of control (feel you couldn’t stop eating or control what or how much you were eating)? YES NO

7. How many DAYS per week on average over the past 6 MONTHS have you eaten an unusually large amount of food and experienced a loss of control?

0 1 2 3 4 5 6 7

8. How many TIMES per week on average over the past 3 MONTHS have you eaten an unusually large amount of food and experienced a loss of control?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

During these episodes of overeating and loss of control did you…

9. Eat much more rapidly than normal? YES NO

10. Eat until you felt uncomfortably full? YES NO

11. Eat large amounts of food when you didn’t feel physically hungry? YES NO
12. Eat alone because you were embarrassed by how much you were eating?  YES  NO
13. Feel disgusted with yourself, depressed, or very guilty after overeating? YES  NO
14. Feel very upset about your uncontrollable overeating or resulting weight gain? Y  N
15. How many times per week on average over the past 3 months have you made yourself vomit to prevent weight gain or counteract the effects of eating?

0  1  2  3  4  5  6  7  8  9 10 11 12 13 14

16. How many times per week on average over the past 3 months have you used laxatives or diuretics to prevent weight gain or counteract the effects of eating?

0  1  2  3  4  5  6  7  8  9 10 11 12 13 14

17. How many times per week on average over the past 3 months have you fasted (skipped at least 2 meals in a row) to prevent weight gain or counteract the effects of eating?

0  1  2  3  4  5  6  7  8  9 10 11 12 13 14

18. How many times per week on average over the past 3 months have you engaged in excessive exercise specifically to counteract the effects of overeating episodes?

0  1  2  3  4  5  6  7  8  9 10 11 12 13 14


20. How tall are you? _____ ft. _____ in.

21. Over the past 3 months, how many periods have you missed?  1  2  3  4  n/a

22. Have you been taking birth control pills during the past 3 months?  YES  NO
APPENDIX C

DIARY QUESTIONNAIRES
SOCIAL COMPARISON DIARY QUESTIONS

Questions on Palm Pilot Regarding Social Comparisons

1.) Since the last alarm, have you compared your body/shape to someone else?
   ___Yes
   ___No

2.) If yes, how many times?
   ___One
   ___Two
   ___Three
   ___Four or more
   ___I did not make a comparison.

3.) To whom did you compare your body/shape?
   ___A peer
   ___A person in the media
   ___I did not make a comparison.

4.) What did this comparison involve?
   ___ Print media source (magazine, billboard, etc.)
   ___ Live media source (television, movie, music video, etc.)
   ___I did not make a comparison to media.

5.) Compared to this person, I felt:

   Much less attractive                                      Much more attractive
   -----------------------------------------------------------
   1       2       3       4       5
   ___I did not make a comparison.

6.) Compared to this person, I felt:

   Much less competent                                      Much more competent
   -----------------------------------------------------------
   1       2       3       4       5
   ___I did not make a comparison.
7. Compared to this person, I felt:

<table>
<thead>
<tr>
<th>Much less likeable</th>
<th>Much more likeable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>1 2 3 4 5</td>
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___I did not make a comparison.

8.) Compared to this person, I felt:

<table>
<thead>
<tr>
<th>Much less confident</th>
<th>Much more confident</th>
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<tbody>
<tr>
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</table>

___I did not make a comparison.

9.) How much did you enjoy viewing the images of women in these media sources?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Some</th>
<th>Very much</th>
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<td>1 2 3 4 5</td>
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___I did not make a comparison.

10.) To what extent did making this comparison provide you with information about how to improve your appearance?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Some</th>
<th>Very much</th>
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<td>1 2 3 4 5</td>
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11.) Since the last alarm, to what extent did you actively seek out information about women’s appearance in media sources like magazines or on television?

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<tr>
<th>Not at all</th>
<th>Some</th>
<th>Very much</th>
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</table>

12.) Since making the comparison, have you thought about trying to restrict the amount of food you eat in order to influence your shape or weight?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Some</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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</tbody>
</table>
10.) Since making the comparison, have you thought about exercising as a means of controlling your weight, altering your shape or amount of fat, or burning off calories?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Some</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
STATE SELF-ESTEEM SCALE – APPEARANCE ITEMS

This is a questionnaire designed to measure what you are thinking at this moment. There is, of course, no right answer for any statement. The best answer is what you feel is true of yourself at this moment. Be sure to answer all of the items, even if you are not certain of the best answer. Again, answer these questions as they are true for you RIGHT NOW.

1 2 3 4 5
Not at all  A little  Somewhat  Very much  Extremely

___ 1. I feel satisfied with the way my body looks right now.

___ 2. I feel that others respect and admire me.

___ 3. I am dissatisfied with my weight.

___ 4. I feel good about myself.

___ 5. I am pleased with my appearance right now.

___ 6. I feel unattractive.
**BODY CHECKING QUESTIONNAIRE**

Circle the number which best describes how often you engage in these behaviors at the present time.

<p>| | | | | | |</p>
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<tbody>
<tr>
<td>1</td>
<td>Never</td>
<td>2</td>
<td>Rarely</td>
<td>3</td>
<td>Sometimes</td>
</tr>
</tbody>
</table>

1. I check to see if my thighs spread when I’m sitting down.  
   1 2 3 4 5

2. I pinch my stomach to measure fatness.  
   1 2 3 4 5

3. I check my reflection in glass doors or car windows to see how I look.  
   1 2 3 4 5

4. I pinch my upper arms to measure fatness.  
   1 2 3 4 5

5. I touch underneath my chin to make sure I don’t have a “double chin.”  
   1 2 3 4 5

6. I check to see how my bottom looks in the mirror.  
   1 2 3 4 5

7. I check to see if my thighs rub together.  
   1 2 3 4 5

8. I check to see if my fat jiggles.  
   1 2 3 4 5

9. I suck in my gut to see what it is like when my stomach is completely flat.  
   1 2 3 4 5

10. I pull my clothes as tightly as possible around myself to see how I look.  
    1 2 3 4 5
WORD STEM TASK

1. PRE
   a. PRESS
   b. PRETEND
   c. PRETTY
   d. PREVENT
   e. OTHER

2. CAL
   a. CALORIE
   b. CALENDAR
   c. CALCULUS
   d. CALCIUM
   e. OTHER

3. FLA
   a. FLAP
   b. FLAG
   c. FLAW
   d. FLAT
   e. OTHER

4. BOO
   a. BOOB
   b. BOOT
   c. BOOK
   d. BOOM
   e. OTHER

5. IDE
   a. IDEAL
   b. IDENTICAL
   c. IDENTIFY
   d. IDEA
   e. OTHER

6. BIN
   a. BINDER
   b. BINGO
   c. BINGE
   d. BINS
   e. OTHER

7. SCA
   a. SCAR
   b. SCALE
   c. SCARE
   d. SCAN
   e. OTHER

8. GLA
   a. GLAMOUROUS
   b. GLADIATOR
   c. GLAD
   d. GLASS
   e. OTHER

9. TRI
   a. TRIP
   b. TRICK
   c. TRIAL
   d. TRIM
   e. OTHER

10. MOU
    a. MOUND
    b. MOUNTAIN
    c. MOUTH
    d. MOUSE
    e. OTHER
<p>| | | | | |</p>
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<td>a. SCRUB</td>
<td>a. PLACE</td>
<td>a. TUMBLE</td>
<td>a. HEAVY</td>
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<td>b. FRESH</td>
<td>b. SCRAWNY</td>
<td>b. PLAN</td>
<td>b. TUMOR</td>
<td>b. HEARD</td>
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<tr>
<td>c. FREEZE</td>
<td>c. SCREAM</td>
<td>c. PLAY</td>
<td>c. TUMULT</td>
<td>c. HEALTH</td>
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<td>d. FREAK</td>
<td>d. SCRAPE</td>
<td>d. PLAIN</td>
<td>d. TUMMY</td>
<td>d. HEART</td>
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<td>e. OTHER</td>
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<td>a. FIGURE</td>
<td>a. FLESH</td>
<td>a. GORILLA</td>
<td>a. THIN</td>
<td>a. DIED</td>
<td>a. SLEDDING</td>
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<td>b. FIGHT</td>
<td>b. FLEA</td>
<td>b. GORE</td>
<td>b. THINK</td>
<td>b. DIES</td>
<td>b. SLEEP</td>
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<tr>
<td>c. FIGMENT</td>
<td>c. FLEX</td>
<td>c. GORGE</td>
<td>c. THING</td>
<td>c. DIET</td>
<td>c. SLEAZE</td>
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<tr>
<td>d. FIGHTER</td>
<td>d. FLECK</td>
<td>d. GORGEOUS</td>
<td>d. THIGH</td>
<td>d. DIE</td>
<td>d. SLENDOR</td>
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### 23. CUR
- a. CURATOR
- b. CURVY
- c. CURSE
- d. CURSIVE
- e. OTHER

### 24. STY
- a. STYLUS
- b. STYLISH
- c. STYLE
- d. STYMIE
- e. OTHER

### 25. PLU
- a. PLUS
- b. PLUM
- c. PLUSH
- d. PLUMP
- e. OTHER

### 26. CHI
- a. CHILD
- b. CHIEF
- c. CHIN
- d. CHIP
- e. OTHER

### 27. REA
- a. REACH
- b. READ
- c. REAL
- d. REAR
- e. OTHER

### 28. SLI
- a. SLICK
- b. SLIP
- c. SLIM
- d. SLIDE
- e. OTHER

### 29. TIN
- a. TINY
- b. TINSEL
- c. TINGLE
- d. TINT
- e. OTHER

### 30. SKI
- a. SKIING
- b. SKIM
- c. SKINNY
- d. SKIP
- e. OTHER

### 31. HAN
- a. HANDSOME
- b. HANDKERCHIEF
- c. HAND
- d. HANDLE
- e. OTHER

### 32. LEA
- a. LEAD
- b. LEAK
- c. LEAF
- d. LEAN
- e. OTHER

### 33. MOD
- a. MODERN
- b. MODERATE
- c. MODEL
- d. MODIFY
- e. OTHER

### 34. STU
- a. STUDY
- b. STUBBY
- c. STUPID
- d. STUFF
- e. OTHER
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<tr>
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<td>c. ROUGH</td>
<td>c. LANCE</td>
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<td>d. LAND</td>
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<td>c. GROOM</td>
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<td>b. OBESE</td>
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<td>c. ATTEMPT</td>
<td>c. OBEY</td>
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<td>d. ATTENTION</td>
<td>d. OBEDIENT</td>
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<td>b. BLOATED</td>
<td>b. PETS</td>
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<tr>
<td>c. BLONDE</td>
<td>c. PETTY</td>
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<td>d. BLOUSE</td>
<td>d. PETAL</td>
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<td>a. TONER</td>
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<td>b. CHUNKY</td>
<td>b. TONGUE</td>
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<td>c. CHUMP</td>
<td>c. TONSIL</td>
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<td>d. CHURCH</td>
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<td>e. OTHER</td>
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47. SLE
   a. SLENDER
   b. SLEEP
   c. SLEEK
   d. SLEDDING
   e. OTHER

48. HUS
   a. HUSSY
   b. HUSTLE
   c. HUSKY
   d. HUSBAND
   e. OTHER

49. ATH
   a. ATHEOUS
   b. ATHLETIC
   c. ATHEIST
   d. ATHENS
   e. OTHER

50. CHE
   a. CHERRY
   b. CHEEK
   c. CHEESE
   d. CHEST
   e. OTHER

51. TAL
   a. TALL
   b. TALK
   c. TALENT
   d. TALCUM
   e. OTHER

52. MUS
   a. MUSTY
   b. MUSIC
   c. MUSCLE
   d. MUSEUM
   e. OTHER

53. ADO
   a. ADORN
   b. ADORABLE
   c. ADORATION
   d. ADOPT
   e. OTHER

54. TIG
   a. TIGHT
   b. TIGER
   c. TIGHTEN
   d. TIGRESS
   e. OTHER

55. ABD
   a. ABDUCTED
   b. ABDICATE
   c. ABDUCT
   d. ABDOMEN
   e. OTHER

56. CEL
   a. CELEBRATE
   b. CELLULITE
   c. CELERY
   d. CELLULOR
   e. OTHER

57. WAI
   a. WAIST
   b. WAIT
   c. WAIL
   d. WAITER
   e. OTHER

58. PER
   a. PERCEIVE
   b. PERIOD
   c. PERSON
   d. PERFECT
   e. OTHER
59. SMA
   a. SMACK
   b. SMART
   c. SMALL
   d. SMASH
   e. OTHER

60. TRI
   a. TRIM
   b. TRIP
   c. TRICK
   d. TRIED
   e. OTHER
APPENDIX D

POST-STUDY REACTIVITY MEASURE
POST STUDY REACTIVITY MEASURE

Do you believe that recording comparisons of your shape to others’ made you more aware of how often you engaged in making comparisons (circle one below)?

1  Not at all  
2  Somewhat  
3  Moderately  
4  Definitely