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# The Impact of Internet Social Networking on Young Women's Mood and Body Image Satisfaction: An Experimental Design

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Philadelphia College of Osteopathic Medicine

Department of Psychology

THE IMPACT OF INTERNET SOCIAL NETWORKING ON YOUNG  
WOMEN'S MOOD AND BODY IMAGE SATISFACTION:  
AN EXPERIMENTAL DESIGN

Tara Scirrotto Drames

Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Psychology

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PHILADELPHIA COLLEGE OF OSTEOPATHIC MEDICINE  
DEPARTMENT OF PSYCHOLOGY

**Dissertation Approval**

This is to certify that the thesis presented to us by \_\_\_\_\_  
on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, in partial fulfillment of the  
requirements for the degree of Doctor of Psychology, has been examined and is  
acceptable in both scholarship and literary quality.

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**Abstract**

In the present study, the impact of viewing various types of female images online was examined to approximate the potential impact of online photo viewing on social-networking sites. Two-hundred forty-one young women between the ages of 18 and 30 years were recruited on social-networking sites to participate. In this randomized-controlled, Internet-based study, participants were randomly assigned to one of the following groups of roughly 50 participants each: (a) very attractive-thin, (b) very attractive-not thin, (c) average-attractive-thin, (d) average attractive-not thin, and (e) control (landscapes). All participants viewed the corresponding images online via a “mock” social networking page created by the researchers. Trait drive for thinness was examined as a predictor, while mood and body image state satisfaction were assessed at both baseline and post exposure. Results provided partial support for the hypotheses, suggesting that participants exposed to very attractive-thin images had changes in the negative direction in mood and body image state satisfaction, while participants in the nonthin conditions had changes in the positive direction on these same variables. Taken together, this study expanded upon existing literature by suggesting that online photo viewing may be yet another potent sociocultural influence impacting young women’s mood and perceptions of their bodies, particularly through the processes of physical-appearance comparison. Future research should focus on developing, and then disseminating, feasible and effective prevention programs to “inoculate” vulnerable populations from the potentially detrimental effects of exposure to unrealistic body images on social media.

SOCIAL NETWORKING, MOOD, AND BODY IMAGE

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*Key words:* body dissatisfaction, social networking, Internet, weight, social comparison theory, thin-ideal internalization, drive for thinness

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## **Chapter One: Introduction**

### **Statement of the Problem**

The impact of mass media messages on women's perceptions of their appearance is a topic area that has been studied extensively in psychological and sociological literature over the past several decades (Bessenoff, 2006). The term *mass media* refers to various channels of communication or technologies by which messages are sent to large numbers of individuals (Wimmer & Dominick, 2006). Mass media, therefore, encompasses many forms of social communication, including magazines, newspapers, radio, television, film, and, perhaps one of the most popular among current and upcoming generations, the Internet. In an industrialized society like the United States, the reception of media messages is essentially unavoidable considering that individuals spend, on average, 11 hours per day consuming some form of the mass media (Short, 2013).

According to sociocultural theory (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), in addition to peers and parents, the various types of media are sources through which girls and women learn about beauty standards, including ideals for weight, shape, and overall physical attractiveness. However, learning about beauty standards is not necessarily a positive experience; a vast amount of empirical literature suggests that media messages regarding weight and appearance are among the most powerful social influences on women's body dissatisfaction and drive for thinness (e.g., Groesz, Levine, & Murnen, 2002). The salience and pervasiveness of body image concerns among women are believed to be derived from what is referred to as an *appearance culture* that values and reinforces models' cultural standards for attractiveness and beauty (Thompson et al., 1999). Supermodels, movie stars, and celebrities dominate the content of mass media images, depicting unrealistic beauty and

weight ideals that have consequently become normative and desirable to many women (Grabe, Hyde, & Ward, 2008). Continuous exposure to glamorized beauty undoubtedly exerts pressure upon individuals to conform; in fact, women have reported feeling such pressure from the media (Ata, Ludden, & Lally, 2007). A comprehensive meta-analytic review by Grabe et al. (2008) revealed data from both correlational and laboratory studies consistent with the sociocultural view that media exposure negatively impacts women's body image and appearance-related satisfaction. Research has suggested that while the ideal female body is getting thinner, American women are getting heavier, thereby widening the gap between the actual self and the ideal self (Sypeck, Gray, & Ahrens, 2004). As a result, many women are striving for ultra-thinness, even though such stringent standards are unattainable and even unhealthy for most (Grabe et al., 2008). Body dissatisfaction and drive for thinness have thus emerged as critical problems for women's mental and physical health. Body dissatisfaction has long been identified as a major risk factor for disordered eating (Stice, 2002) and has been linked to low self-esteem and higher levels of depression (Jones, 2004).

Compared to other types of media, relatively fewer studies to date have investigated the Internet as a potential source for viewing appearance- and weight-focused images.

Though the research in this area is scarce, recent studies (e.g., Tiggemann & Miller, 2010) have suggested that the Internet may be yet another potent sociocultural influence on young women's lives. One particularly popular form of Internet activity among young women and men is engagement in social-networking sites. Various kinds of social-networking sites (e.g., Facebook, Instagram, Twitter, and Snapchat) are available to and used frequently by young

Internet users today, which means that young women may now be exposed daily to photographs of peers, in addition to being exposed to various other kinds of media images.

Therefore, one could plausibly suggest that media sources for beauty ideals, as well as for social comparison, are not just exclusive to models and celebrities and may also be extended to peer groups. Further increasing the opportunity for exposure to other female images can become problematic, as this exposure arguably places even more of an emphasis on the existing appearance culture. Because young women have been identified as being considerably more vulnerable to media's effects on body image (Groesz et al., 2002), one could consider the potential negative impacts of social-networking-site exposure, given the information already known about other kinds of interactive media (i.e., television and magazines).

With regard to social comparison of appearance and thin-ideal internalization, few studies have examined these variables in relation to online use of social-networking sites. A recent study yielded results consistent with other media research, suggesting that Internet exposure to appearance (i.e., operationalized by the amount of time spent on websites that were predated on their appearance-focused content) is positively correlated with greater internalization of the thin ideal, weight dissatisfaction, and drive for thinness (Tiggemann & Miller, 2010). The researchers examined various types of online activities and found notable results related to social-networking sites in particular: Adolescent girls who spent more time on Facebook reported greater internalization of the thin ideal and were less satisfied with their weight than those who spent less time on this website. Furthermore, girls who spent more time on social-networking sites in general (i.e., MySpace and Facebook) reported higher scores on a drive-for-thinness measure. However, research in this area is in its

infancy, and since the aforementioned study was a cross-sectional design, no information about a potential cause-effect relationship between use of social-networking sites and negative outcomes was concluded. The data nonetheless suggest that the tendency for making social comparison of appearance and for internalizing attractiveness ideals becomes salient for individuals who actively engage in social networking.

### **Purpose of the Study**

Despite the overwhelming body of research on various types of media in recent decades (e.g., television, magazines), investigations of Internet media's potential role in influencing young women's appearance concerns are limited in scope. Previous researchers (e.g., Tiggemann & Miller, 2010) noted that their detailed analyses of Internet activities confirmed the importance of social-networking sites when examining media influences on women's development. However, the specific ways in which exposure to social-networking sites may impact women's perceptions of their appearance is still unclear. The present study sought to determine whether exposure to images via social-networking sites on the Internet is related to young women's tendency to be more dissatisfied with their bodies and/or impact their mood. As such, this study is an extension of the substantial body of research related to the influence of media exposure on young women. Specifically, this study examined the impact of exposure to social-networking sites by experimentally exposing young women to various kinds of female images via the Internet.

## Chapter Two: Literature Review

In many ways, mass media are the social agents through which various ideas, attitudes, and values are communicated to individuals across all age groups. Among the endless information delivered by the mass media on a daily basis, messages related to gender, sexuality, attractiveness, ideal body shapes, dieting, and weight management are prevailing. To that end, the salience of such messages is believed to have formed and maintained what is referred to as an appearance culture that values and reinforces cultural norms for attractiveness (Thompson et al., 1999). For women in particular, standards suggested by the media about weight, shape, and overall physical attractiveness are believed to be among the most powerful social influences on personal attitudes and behaviors (Groesz et al., 2002).

A substantial amount of empirical data has been accumulated in previous decades suggesting that Western sociocultural norms for feminine beauty are linked to negative self-evaluation in adolescent girls and young women (Grabe et al., 2008). Data from both correlational and laboratory studies are consistent with the contention that media exposure negatively impacts women's body image and appearance-related satisfaction (Grabe et al., 2008; Groesz et al., 2002; Want, 2009). Specifically, positive associations have been found between exposure to fashion magazines/television and levels of body dissatisfaction (e.g., Field et al., 1999; Jones, Vigfusdottir, & Lee, 2004). Moreover, similar effects were demonstrated in controlled experiments that exposed women to magazine advertisements (Halliwell & Dittmar, 2004), television commercials (Hargreaves & Tiggemann, 2004), and music videos (Tiggemann & Slater, 2003).

Despite the accumulating evidence suggesting these associations, some researchers have recently contended that the direct influence of the media has been overestimated and

that limitations of previous studies have too often been overlooked (Ferguson, 2013).

Furthermore, the issue of whether media exposure should be considered a *causal* risk factor for negative body image and disordered eating remains hotly debated (Levine & Murnen, 2009). That being said, one must acknowledge that some previous studies (e.g., Tiggemann & Pickering, 1996) have failed to find a relationship between variables of media exposure and weight and appearance concerns. Throughout the present literature review, cross-sectional and experimental studies will be explored and critiqued in an attempt to address the inconsistencies that have arisen in this evolving investigation. First, this paper will describe the underlying mechanisms related to media consumption and its impact on women, as well as the role of social comparison, to provide a theoretical framework for this research.

### **Underlying Variables and Theoretical Foundations**

How does exposure to the media account for self-directed consequences in certain individuals? While virtually all women are exposed to media messages about and images of being thin, individuals' susceptibility to their negative impacts vary considerably (Dittmar & Howard, 2004). Therefore, many variables and underlying processes have been investigated in attempts to precisely understand these phenomena. Among many proposed explanations, social comparison (i.e., particularly physical-appearance comparison) and internalization of the Western culture's thin ideal are two constructs that have been extensively studied over the years. Both thin-ideal internalization and social comparison have been statistically measured and identified as moderating and mediating variables in many studies on media consumption (e.g. Dittmar, Halliwell, & Stirling, 2009; Dittmar & Howard, 2004). The impact of social comparison and thin-ideal internalization has been examined primarily in studies focusing on female individuals' (i.e., mostly adolescents and young women) exposure



to television and print media. Therefore, these constructs were chosen as foci for the present study in order to ascertain whether they play a similar role for individuals exposed to Internet media and, more specifically, social-networking sites.

### **Social Comparison Theory**

Comparing oneself to others is arguably a fundamental aspect of human behavior. Festinger's social-comparison theory (1954), proposed decades ago, explains how individuals engage in social comparison in order to understand how they fit into the world. Festinger postulated that all humans have a drive to evaluate their abilities, mainly because their cognitions about a given situation and their beliefs about their abilities will together influence their behavior. Holding inaccurate opinions and/or mistaken appraisals about one's capabilities can be consequential for functioning in everyday life, as doing so may impede individuals' success and result in disappointments or failure. Individuals, therefore, have a need to determine whether their opinions are correct and will seek to ascertain ways that allow them to accurately evaluate their behavior across situations.

The theory posits that humans are prone to comparing themselves to others when measuring their own self-worth or evaluating themselves on various domains, particularly when objective standards are unavailable (Festinger, 1954). According to this theory, individuals use information from their environment to determine their own relative standing on some particular trait. Festinger (1954) distinguished between two types of social comparisons, namely, upward and downward. *Upward social comparison* involves comparing oneself to others perceived as superior, whereas *downward social comparison* entails comparing oneself to those deemed inferior. Upward social comparison processes are believed to contribute to individuals' motivation for self-improvement when a target attribute

is perceived to be within reach of the observer. That being said, this kind of comparison may be self-enhancing for the individual engaging in the comparison (Collins, 1996).

Yet for those who believe they are incapable of becoming more like their targets, negative affect and feelings of inadequacy may emerge (Collins, 1996). Festinger (1954) explained that when discrepancies exist, individuals will have a tendency to change themselves in some capacity in order to move closer to others. Thus, individuals may experience pressure to migrate toward uniformity in order to protect their superiority.

Festinger further cautioned that upward social comparisons may have harmful consequences when individuals perceive particularly large discrepancies between themselves and superior target(s). A review by Collins (1996) concluded that upward social comparisons may serve self-improvement functions but can be detrimental to one's ego if a comparer is led to conclude that he or she is part of an inferior group. If individuals believe a comparison target is similar to themselves, feelings of self-identification will be elicited and they may feel motivated to improve a particular trait or behavior.

Festinger's (1954) theory provides a suitable framework for understanding the effects of the media on women's body image concerns, as it suggests that women will collect information from other women in order to rate their own physical attractiveness (Ridolfi, Myers, Crowther, & Ciesla, 2011). This theory lends itself well to the idea that women are likely to engage in either (or both) upward and downward appearance-focused comparisons, so that they may judge how they measure up to other women in their environment. In fact, research confirms that women frequently make physical-appearance social comparisons (Leahey, Crowther, & Mickelson, 2007). Compared to men, women have been found to describe their appearance more negatively and make more upward social comparisons about

their bodies (Strahan, Wilson, Cressman, & Buote, 2006). Consistent with social comparison theory, engaging in upward or downward appearance-focused comparisons would involve comparing oneself to those believed to be more or less attractive, respectively. Some documented evidence suggests that more than 80% of the comparisons made by women in the naturalistic environment are of the upward type (Leahey et al., 2007).

One should note that the targets for physical-appearance comparison may vary in the degree of similarity to the comparer, which means the outcomes of making different comparisons may also vary. Women are known to compare their appearance to that of media figures, as well as of peers (Strahan et al., 2006). Media images often depict unrealistically thin models whose weight and appearance differ substantially from those of the average woman (Strahan et al., 2006). An upward social comparison for an average woman would therefore involve comparing herself to an ultra-thin and attractive media model or celebrity (Cattarin, Thompson, Carmen, & Robyn, 2000). Such comparisons often result in negative consequences; for example, young women reported an increase in negative mood and body dissatisfaction after being exposed to thin models in magazine advertisements, and this effect was partially mediated by upward social comparison (Tiggemann & McGill, 2004). This study demonstrated that the amount of social comparison predicted women's likelihood to report a more negative mood and greater body dissatisfaction after a brief exposure to still images of thin-ideal models.

These effects have been confirmed in other studies. A meta-analysis of 156 studies concluded that appearance-focused social comparisons are significantly associated with body dissatisfaction (Myers & Crowther, 2009). Thus, comparing oneself to others unfavorably in terms of appearance may lead to dissatisfaction with one's own appearance. This meta-

analysis produced a large effect size (Cohen's  $d = 0.77$ ), although the researchers concluded that this effect was stronger when social comparison was directly measured in studies, as opposed to being inferred. One must consider that directly measuring social comparison in studies can result in heightened sensitivity to the comparison process and ultimately produce greater body dissatisfaction. In fact, a study by Mills, Polivy, Herman, and Tiggemann (2002) revealed that the negative impact of social comparison was increased by implicit-demand characteristics.

On the other hand, when social comparison was assumed in studies that experimentally manipulated participants' exposure to thin-ideal media, the social comparison-body dissatisfaction relationship was less clear. Therefore, researchers have difficulty determining whether social-comparison processes occur in the ways in which they surmise. Measuring social comparison (i.e., whether directly or indirectly) has, therefore, posed limitations for researchers within this subject area.

While much research regarding media and weight/appearance concerns has focused on social comparisons to supermodels and celebrities as targets, considerably less has investigated the impact of peer social comparisons (Jones, 2004). In the aforementioned meta-analysis (Myers & Crowther, 2009), which yielded 140 effect sizes, only 10% investigated peers as targets for appearance comparisons. Festinger's (1954) original theory contended that individuals typically prefer to engage in social comparison using "relevant or similar others" as targets. Festinger asserted that, given a range of potential persons for comparison, individuals "closest to one's own capacity" will be selected. Thus, peers might be considered more relevant targets than unknown media figures for the purposes of social comparison. Everyday social comparisons are likely to involve peers, as these are the

individuals to whom young women typically have the most frequent exposure (Lin & Kulik, 2002). Indeed, some young women perceive their peers to be more relevant than models as comparison targets for measuring physical attractiveness (Strahan et al., 2006).

Yet some findings have suggested that appearance comparisons to media figures may be associated with more negative outcomes than those to peers (Leahey & Crowther, 2008).

With regard to what constitutes a “relevant target,” perceived relevance is likely to be based on an individual’s particular motives. Thus, researchers have argued that since many young women believe they will be held to the sociocultural norms and standards for thinness, they may not dismiss models and celebrities as irrelevant for the purposes of appearance comparison. Therefore, both models and peers apparently can be considered relevant targets, depending on the argument made for one’s motivation for engaging in the comparison processes. Additionally, given the tools that are available on the Internet for young women to change, edit, and enhance their photos, what constitutes a “model” photo and a photo of an average layperson becomes ambiguous.

Young women, particularly of college age, lend themselves well to the topic of appearance-focused social comparison, as women are typically surrounded by other women with whom they interact either directly or indirectly (Lindner, Hughes, & Fahy, 2008).

College-aged women in particular have been found to engage in upward social comparisons more often than downward (e.g., Cattarin, Thompson, Thomas, & Williams, 2000; Leahey et al., 2007). While research has shown that college-aged women compare themselves to thin-ideal media figures just as often as they compare themselves to peers (Engeln-Maddox, 2005), significantly fewer studies have examined the impact of peer comparison. Therefore, one could argue that the degree to which this population may be vulnerable to negative

effects of peer comparison is not fully understood, as most studies have focused on the impact of media images of thin subjects.

Though the research is less abundant, some studies have investigated the impact of peer comparison specifically on young women's self-evaluation (e.g., Krones, Stice, Batres, & Orjada, 2005; Lin & Kulik, 2002). When participants were asked to interact with a peer confederate who conformed to the thin ideal versus a peer confederate of "average" body dimensions, those exposed to a thin-ideal peer reported greater body dissatisfaction (Krones et al., 2005). In a similar experiment exposing young women to images of thin or overweight peers, participants who were led to believe they were competing with a thin peer in a mock dating game reported decreased confidence and body satisfaction (Lin & Kulik, 2002). For those who were led to believe they were competing with an overweight peer, no significant influences were found. One should remember, as it is relevant to this study, that the process of social comparison is often assumed in the literature and presents a limitation to these research findings.

Another study (Leahey & Crowther, 2008) sought to examine the influence of comparison targets (i.e., peers and media images) and asked body-satisfied and body-dissatisfied women to record their reactions to comparison information during daily activities. Results suggested that for body-satisfied women, upward social comparisons using peers as targets were associated with greater positive affect and appearance esteem, as well as less guilt, relative to upward social comparisons with media images. However, for body-dissatisfied women, upward social comparisons with peers were correlated with more diet thoughts and more guilt than were downward social comparisons with media images. That being said, research suggests that women with preexisting body dissatisfaction are

more likely to be vulnerable to the negative effects of upward social comparison when peers are the target.

In summary, results of studies investigating the source of comparison for evaluating one's physical appearance tend to be mixed and ultimately, comparisons using either/both targets (i.e., peers and/or models) may pose threats to young women's self-evaluation, namely, their appearance-related satisfaction. One can reasonably suggest that the perceived relevance of a particular target will be based on an individual's motives. Some research suggests that peer pressure to be thin acts as a catalyst to reinforce the sociocultural thin ideal (Krones et al., 2005); thus, these forces may work together to cause negative consequences. The present study contends that exposure to and engagement in social networking may influence more frequent viewing of both peers and media figures and may in turn influence the emphasis on internalization of the thin ideal and social comparison within the young female population.

### **Internalization of Thin Ideal, Body Dissatisfaction, and Drive for Thinness**

The thin ideal of feminine physique and beauty has received significant attention in psychological and sociological research for quite some time, particularly because of its ubiquitous influence on women in Western cultures. The thin ideal as a cultural standard has been documented for at least the last 4 decades, with media content analyses suggesting the ideal woman has become increasingly thinner over the years (Grabe et al., 2008). After the 1950s, the appeal of Marilyn Monroe's curvaceous physique greatly diminished, and media models since have become gradually thinner, to the extent that a typical model is now nearly as much as 20% underweight (Dittmar & Howard, 2004). Considered in light of the previous criteria for Anorexia Nervosa, which required an individual to be 15% underweight to

receive a diagnosis (American Psychiatric Association [APA], 2013), one can grasp a sense of just how unhealthy the sociocultural standards for weight have become.

Although media figures are getting thinner, the average weight of women has increased in the past 40 years; while the average American woman is 5'3" and weighs 166 pounds (Centers for Disease Control & Prevention, 2012), the average model is 5'11" and weighs 117 pounds (National Eating Disorders Association, 2009). The widening gap between the average woman and the ideal woman has resulted in significant mental and physical problems as women strive to reach unrealistic and unhealthy weight standards.

Therefore, not surprisingly, incidence rates of eating disorders have doubled since the 1960s (National Eating Disorders Association). Eating disorders are related to a number of detrimental consequences for individuals' health; in fact, anorexia nervosa has the highest mortality rate (i.e., as high as 20%) of any psychiatric disorder (APA, 2013), which speaks to how serious the drive for thinness can become.

Internalization of the thin ideal as it is depicted in the mass media is a critical factor for understanding how exposure to media images and messages results in negative self-directed consequences, including but not limited to body dissatisfaction and drive for thinness (Thompson & Stice, 2001). Researchers have brought attention to the distinction between simply being aware of the Western thin ideal and embedding its meaning into one's personal beliefs and goals (Dittmar & Howard, 2004). It has been concluded that exposure to thin-ideal media itself is not harmful; the internalization, rather than just awareness of sociocultural norms for thinness, is strongly linked to body image concerns and pathological eating behavior. Put simply, women need to "buy into" the sociocultural standards for weight and attractiveness in order to feel pressured by them and be subsequently influenced.



What does buying into or internalizing these standards mean? Essentially, it means accepting these standards as normative and desirable for one's personal goals. One reason that the thin ideal is appealing is its common association with success, power, and rewards in society. Media models and celebrities are equated with happiness and professional achievement solely because of their body shapes (Thompson et al., 1999). Communications theorists have asserted that repeated exposure to media content results in the acceptance of media portrayals as reality, hence leading women to see the thin ideal as normal and expected (Gerbner, Gross, & Morgan, 2002). Many women, therefore, strive to conform, and unsuccessful attempts often result in body dissatisfaction (Brown & Dittmar, 2005).

Several experiments identified thin-ideal internalization as moderating the relationship between media consumption and body dissatisfaction (e.g., Brown & Dittmar, 2005; Durkin & Paxton, 2002). Specifically, they found that exposure to thin models resulted in greater body-focused anxiety than did exposure to average-sized models (i.e., or none). However, one should note that this effect occurred only among women who reported thin-ideal internalization (Dittmar & Howard, 2004). Similarly, for women who scored high on thin-ideal internalization, significantly increased depression, anxiety, anger, and appearance dissatisfaction occurred after exposure to thin and attractive media models (Cattarin et al., 2000). Therefore, it was argued that exposure to thin media images is likely to result in negative self-evaluation primarily when individuals internalize these weight, shape, and beauty standards and subsequently use them as the means to which they compare themselves. Hence, internalization of the thin ideal portrayed in the media and the tendency for women to make appearance-related social comparisons seem to work together to influence negative outcomes, one of which is body dissatisfaction.

Body dissatisfaction among adolescent girls and young women has been salient and pervasive for so long that the term *normative discontent* has been applied to the issue, suggesting that women's dissatisfaction with their body physique is essentially normal (Rodin, Silberstein, & Striegel-Moore, 1984). Body dissatisfaction involves maladaptive, negative beliefs and emotions regarding one's weight and body shape (Garner, 2004).

Estimates reveal that more than 80% of women in college settings have reported body dissatisfaction (Spitzer, Henderson, & Zivian, 1999). Individuals with body dissatisfaction are believed to be focused on weight- and shape-related stimuli in their environment and are therefore likely to process such information in a maladaptive way that serves to maintain their discontent with their bodies (Leahey et al., 2007). Body dissatisfaction can be tied to social comparison in precisely this way. Upward social comparisons have been positively associated with body dissatisfaction, negative affect, and thoughts of dieting and exercise, particularly for body-dissatisfied women (Leahey et al., 2007). As previously mentioned, one of the main sources through which appearance comparisons occur and ultimately produce body dissatisfaction is exposure to the mass media. A discussion of the research in this area is therefore necessary.

### **The Effects of Mass Media on Girls and Young Women**

Research efforts aimed at understanding the impacts of thin-ideal media on women's body dissatisfaction, drives for thinness, and potential for disordered eating patterns have generally taken the form of either correlational studies (e.g., Borzekowski, Robinson, & Killen, 2000) or controlled experiments (e.g., Bell & Dittmar, 2011). For the most part, correlational studies have focused on participants' consumption of television and print media

(Murnen, Levine, Groesz, & Smith, 2007), while experiments have typically involved brief exposures to still images from fashion magazines (Groesz et al., 2002).

### **Television and Print Media**

Correlational studies focused on naturally occurring television exposure have suggested that the amount of time women spend watching television and music videos correlates with body dissatisfaction (Borzekowski et al., 2000; Tiggemann & Pickering, 1996). Studies on the particular influence of the thin ideal represented on television have suggested that women experienced increased body image state dissatisfaction and negative mood after being exposed to television commercials portraying the thin ideal (Cattarin et al., 2000; Hargreaves & Tiggemann, 2004). Such studies investigating the potential impact of exposure to music television have found that women who viewed “appearance music videos” featuring primarily thin women experienced increased social comparison and body dissatisfaction following the exposure.

Fashion magazines, which tend to be particularly targeted at adolescent girls and young female audiences, often display many images of very thin women and also include reading material focused on how to lose weight, become “fit,” and enhance one’s physical attractiveness. While the images typically shown in these magazines reflect standards of beauty and sexuality that are extremely difficult to attain for most women, they often are seen and experienced as “real” and “normative” (Levine & Harrison, 2009).

Meta-analytic data based on experimental research have led to the conclusion that young women who were exposed to thin models consistently reported negative outcomes post experiment, relative to young women who were exposed to average-weight models, plus-sized models, or neutral images (Groesz et al., 2002). The effects found were overall

considered small to moderate, yet nonetheless consistent. Among the negative effects reported included heightened body dissatisfaction, negative mood, and disturbed self-perception of one's physical attractiveness. A large proportion of the studies included in this meta-analysis (i.e., 21 of 25) involved exposure to fashion magazine images. Some of these exposures lasted as few as 10 minutes, suggesting that prolonged exposure may result in more negative effects for female recipients of the mass media. Furthermore, one should note that effect sizes were greater for women who had already internalized the thin beauty ideal.

Yet, critics of media exposure experiments suggested that publication bias and demand characteristics have served to inflate these effects. In the most recent, thorough meta-analysis of 204 studies, Ferguson (2013) suggested that, in general, effect sizes were minimal for most women, although some data suggested that women with preexisting body dissatisfaction could be more at risk. However, even though the effects of the media may be more pronounced and dangerous for individuals with preexisting body dissatisfaction (Groesz et al., 2002), the widespread prevalence of body dissatisfaction among young women makes matters confusing. One could argue that this "subset" of predissatisfied women may be greater than one may believe, given what is known about normative discontent. If such a large proportion of the female population remains dissatisfied with their bodies, one could plausibly suggest that the media will negatively impact many women. Despite the controversy surrounding previous studies, the impact of Internet media remains widely misunderstood because it has not been researched as thoroughly as other forms of media.

**Internet Media**

The mass media is often viewed as a unified entity composed of various parts, yet each type of media may differ in the way it presents the thin beauty ideal (Jordan, Kramer-Golinkoff, & Strasburger, 2008). While the negative effects of media exposure have been found to emerge (i.e., to some degree) despite the kind of medium studied, research specifically investigating this phenomenon with Internet media is scarce (see Tiggemann & Miller, 2010). Therefore, the potential for Internet exposure to impact women's weight and body image concerns is unclear. Nonetheless, the Internet should be considered as another influential source of appearance and attractiveness standards for numerous reasons.

First, the Internet is currently recognized as the most commonly used form of media today, particularly for young women in Western societies (Bair, Kelly, Serdar, & Mazzeo, 2012). Newer media like the Internet are recognized to be dramatically changing the lives and experiences of youth and young adults, and some individuals may be at risk for negative consequences (Brown & Bobkowski, 2011). For example, the Internet is more interactive than previous forms of media, and may pose a threat to body satisfaction if increased virtual interaction results in increased imitation (Funk, Baldacci, Pasold, & Baumgardner, 2004; Ziegler, 2007). Moreover, undergraduate women reported spending significantly more time viewing online appearance-focused media as opposed to reading image-focused magazines, the latter having been found to be associated with eating pathology (Bair et al., 2012).

Second, the Internet encompasses all of the older forms of media (i.e., radio, television, movies, and magazines now transmit their information electronically), in addition to bringing newer forms of social media to modern culture (i.e., social-networking sites, blogs, forums). The Internet, therefore, offers additional opportunities for individuals to share

and consume media messages and images. As the Internet has grown to be the primary media source used by young adults (Jones & Fox, 2009), an investigation of specific aspects of the Internet and their influence on users is worthwhile.

### **Social-Networking Sites**

Social-networking sites in particular are undoubtedly modifying the landscape for human interaction among younger and upcoming generations. These particular sites were found to be used more often than any other websites (Tiggemann & Slater, 2013). Several years ago, Facebook surpassed Google in the ranks for the most widely visited website in the United States (Dougherty, 2010). With its 10-year anniversary in January 2014, the Facebook social-networking site reached greater than 1 billion active users around the world (Facebook, 2014). As of December 2013, an estimated 757 million Facebook users visited the site in some capacity on a daily basis. Further, at least 945 million visitors used Facebook's mobile platform, meaning the site is often launched conveniently via mobile devices (Facebook, 2014). Data has suggested that roughly 83% of individuals aged 18-29 in the United States hold a Facebook account (Duggan & Brenner, 2013), and surveys revealed that as many as 95% of college students hold a social-networking profile of some type (Profile of the American College Student, 2007). College students in particular are believed to spend at least 100 minutes on the Facebook site daily, interacting with peers mainly by posting and viewing photos (Junco, 2012).

Considering the widespread use of Facebook, the number of interpersonal evaluations and comparisons available on social networks is endless. Although women's concerns about weight and appearance are certainly not new to modern culture, online social networks are yet another platform for presenting photos, hence providing another source through which

women may compare themselves to others. The pervasive use of these sites, and particularly the trend of sharing and viewing photos, can arguably exacerbate the current culture's so-called "obsession" with appearance, attractiveness, and weight. Roughly 10 million new photographs are uploaded to the Facebook site alone, every hour (Mayer-Schonberger & Cukier, 2013). Along with involvement in social networking comes the publicizing of one's image, as well as constant exposure to appearance-focused stimuli. Therefore, social-networking sites are a likely additional avenue through which young women may experience heightened self-consciousness. Ultimately, social networking sites may render them more vulnerable to critical self-evaluation and may motivate them to want to change themselves in order to conform with others.

Though research is in its infancy, some correlational data are available suggesting significant associations between the use of social-networking sites and thin-ideal internalization, body dissatisfaction, and disordered eating (Tiggemann & Slater, 2013).

Among adolescent girls, maintaining a Facebook account was found to be associated with greater internalization of the thin ideal, drive for thinness, and body surveillance.

Furthermore, time spent on the Facebook site, as well as participants' number of "friends," was significantly associated with increased body dissatisfaction (Tiggemann & Slater, 2013).

In a comparative investigation of television, magazines, and the Internet, Internet appearance exposure was the only medium type negatively correlated with weight satisfaction, such that the more frequently young girls were exposed to appearance-focused content over the Internet, the less likely they were to report satisfaction with their current weight (Tiggemann & Miller, 2010). Preliminary data also link girls' Facebook use to eating pathology, urge to diet, and bulimic and anorexic symptomatology (University of Haifa, 2011). However, these

studies are limited in that they fail to account for the particular Facebook patterns of users and, thus, do not account for the various Facebook activities available. Because different social-networking sites offer various features, such as messaging, posting statuses, checking in, viewing photos, and sharing photos, one must understand the specific aspects of Facebook use that are problematic. Moreover, the aforementioned studies were also limited to adolescent samples.

Data are also becoming increasingly available on adult populations. The Center for Eating Disorders (2012) conducted a public survey of 600 Facebook users between the ages of 16 and 40 years that yielded some disconcerting results. The goal of this research was to ascertain the number of users who perceived the Facebook site to have an impact on their body and weight concerns. Of the total sample, 80% reported logging onto the Facebook site at least once per day, and at least 50% reported logging on several times per day. Results revealed that 51% of the total participants reported that viewing photos of themselves on Facebook made them feel more self-conscious about their own body and weight.

Additionally, 44% of the sample admitted to spending time wishing they had the same body or weight as a friend when viewing Facebook photos. Furthermore, 37% felt they needed to change specific parts of their body when comparing their bodies to a friend's in Facebook photos, and 32% endorsed feelings of sadness from comparing photos of themselves to those of their friends. Researchers at the Center for Eating Disorders argued that the accessibility (i.e., computers, laptops, iPads, Smartphones) and immediacy (i.e., messages/photos received within seconds) of social-networking behavior are likely factors that will affect the relationships individuals have with their bodies. They also suggested that body comparisons via Facebook are taking on a novel meaning as individuals are seeing "real" people, rather



than superficial media figures. The argument holds that photos of Facebook friends may offer a more realistic comparison than photos of models/celebrities on television and in magazines, and therefore, these photos may have a greater impact on those engaging in the comparison processes.

Facebook is now integrated with greater than 6 million other websites and applications, and the Facebook company has bought out another social-networking site named Instagram, which is an image-dominant network with photo sharing and viewing as its sole focus (Facebook, 2014). That being said, avoiding images and other triggers that may be detrimental to Internet users' body image is becoming increasingly difficult.

Given the prevalent use of these social-networking sites, the tendency for making appearance comparisons is arguably increasing as the accessibility and immediacy of posting/viewing photos are rising. Many users of social-networking sites have persistent, daily exposure to images that offer proximal comparison targets to individuals. Data from the Facebook site alone suggest that users share greater than 2 billion photos monthly (i.e., sometimes 250 million daily) and 14 million videos weekly on this social medium (Facebook, 2014). Tiggemann and Miller (2010) proposed that social-networking sites can potentially be a more dangerous type of social medium than others because users are able to actively control and share information, which is different from their being passive recipients of other media, such as television and magazines.

Online social media clearly involves self-disclosure and transparency. Therefore, investigating the potential consequences such transparency may have is imperative, especially considering what is already known about the impact of other kinds of media on young women (Stefanone, Lackaff, & Rosen, 2011). Women on social-networking sites

reported spending many hours managing the information and images on their profiles and aimed to present idealized versions of themselves (Hinduja & Patchin, 2008; Manago, Graham, Greenfield, & Salimkhan, 2008). Moreover, they reported spending a considerable amount of time viewing others' profiles and commenting specifically on appearance-related aspects of others' photos (Manago et al., 2008). The ubiquity of photo sharing and viewing on social networks possibly can further complicate the cultural fascination with idealized beauty standards and further threaten young women's self-worth.

Furthermore, researchers have noted that tools used by celebrities to present flawless images are now available to individuals with computers (e.g., the Photoshop program, which allows images to be modified and/or "corrected") and that photo-sharing websites may heighten self-consciousness and affect self-presentation (Stefanone et al., 2011). Some female college students who are more emotionally invested in the Facebook site have been found to be more oriented toward their appearance (Rutledge, Gillmor, & Gillen, 2013). When individuals' self-worth becomes contingent upon external sources, they may consistently seek validation from others and ultimately place themselves at risk for negative outcomes (Crocker, 2002). The relationship between contingencies of self-worth and Facebook photo-sharing activity was recently investigated, and appearance contingencies for self-worth were found to be strongly related to the intensity of photo sharing on this site (Stefanone et al., 2011). More specifically, college women who reported sharing higher amounts of Facebook photos also reported higher appearance-based contingencies of self-worth.

Few studies have examined the impact of social-networking sites experimentally. Haferkamp and Kramer (2011) recently conducted an experiment to test the impact of

viewing photographs on adolescent female users of social-networking sites on subsequent reports of mood and body image. Consistent with Festinger's (1954) theory, subjects who viewed "attractive" users' photographs had fewer positive emotions than those who viewed "unattractive" users' photographs. Additionally, main effects were found, suggesting that individuals who viewed "attractive" photographs were less satisfied with their own body than those who viewed "unattractive" users. Hence, engaging in upward social comparisons via social-networking sites may have negative consequences on women's satisfaction with their bodies (Haferkamp & Kramer, 2011). However, one should note that this particular study focused on adolescent girls.

Maladaptive Facebook usage (i.e., as defined by the proclivity to seek negative social evaluation and/or engage in social comparison via Facebook) and its relation to body dissatisfaction and bulimic symptoms was recently examined in college women (Smith, Hames, & Joiner, 2013). Data suggested that maladaptive Facebook usage was a significant predictor of increased bulimic symptoms and episodes of "overeating" over a 4-week period. More specifically, body dissatisfaction fully mediated the relationship between maladaptive Facebook usage and increased overeating. These results suggested that efforts to reduce individuals' maladaptive Facebook tendencies can be helpful when offering interventions for decreasing body dissatisfactions and symptoms of disordered eating. To that end, while only a limited number of studies exist that investigate social networking and the variables of interest for the present study, results to date nonetheless suggest relationships among many of these variables that are worth further exploration.

### **Conclusions and Implications for the Present Study**

Though debated, a substantial body of research supports the contention that the media exerts pressure upon women to conform with and strive toward the Western thin-ideal standard of beauty (Grabe et al., 2008). Given what is currently known about the use of social-networking sites and its impact on users (i.e., particularly young women), it is suggested here that Facebook and other social networks alike represent a merging domain whereby two sociocultural influences come together to influence women's risk for body dissatisfaction, namely, media and peers. Through further reinforcement of the thin ideal and amplified exposure to appearance-focused content, exposure to social-networking sites can arguably pose a problem for young women.

Though studies investigating the tendency of college women to compare their appearance to that of "peers" versus "media models" yielded mixed results, one conclusion that can be drawn is that the perceived relevance of a comparison target is based on the motive of the individual making the comparisons. Additionally, whether a woman is a "model" or not is irrelevant given the tools available to young women to alter, edit, and enhance their photos for viewing on the Internet. The underlying fact remains that appearance-related comparisons made by women have the potential to have detrimental impacts.

Researchers have proposed a model contending that Facebook use is motivated by (a) the need to belong and (b) the need for self-presentation (Nadkarni & Hofmann, 2012). Therefore, the need to belong for young women would suggest particular focus on and significance of peer groups. With that in mind, along with Festinger's (1954) initial claim that individuals are likely to compare themselves to similar others, engaging in appearance

comparison with a peer as a target may pose just as much of a threat to a college woman as would a model/celebrity target in the present-day culture. Social-networking sites offer the opportunity to compare oneself to peers on a daily basis.

As previously discussed, prior studies have examined the differential effects of comparing oneself to a peer versus a media model, although these labels tend to be confusing and results therefore open to interpretation. For example, if a study involved “peers” who are unknown to the participant, should these individuals be considered peers? If a peer, whether known or unknown, is considered highly attractive, how does is this individual inherently different from a media model? As peer pressure to be thin may act as a catalyst to reinforce the sociocultural thin ideal regardless (Krones et al., 2005), focusing on labels is less important and understanding the mechanisms by which body dissatisfaction and drive for thinness can occur is more important.

The present study contends that the female images to which young women are exposed online may be of varying levels of attractiveness and body weight, and thus research should focus on teasing apart these specific aspects, particularly in the context of social networking. This study therefore aims to examine the impact of particular aspects of images (i.e., both thinness and overall perceived attractiveness) via a newer popular form of media, social-networking sites. The hope is to tease out the aspects of image exposure that may or may not be detrimental to a population already vulnerable to appearance comparisons. Based on previous research cited earlier, thinness alone, whether in a peer or a “model” (i.e., whether someone is of average attractiveness or high attractiveness), is likely to negatively impact young women. The varying levels of attractiveness in photos used in this study were

included mainly to test the impact of photos of thin subjects regardless of overall perceived attractiveness.

### **Hypotheses**

Note that participants were randomly assigned to one of five independent conditions: very attractive-thin (VA-T), very attractive-not thin (VA-NT), average attractive-thin (AA-T), average attractive-not thin (AA-NT), and control. These group assignments are further described in Chapter Three.

H1: It is hypothesized that, following the exposure, participants in the VA-T and AA-T conditions will report significantly lower mood scores following the exposure relative to those in the VA-NT, AA-NT, and control conditions.

H2: It is hypothesized that, following the exposure (at T2), participants in the VA-T and AA-T conditions will report significantly lower body image state satisfaction than individuals in the VA-NT, AA-NT, and control groups.

H3: It is hypothesized that drive for thinness across conditions will predict degree of post-exposure body image state satisfaction and mood. (i.e., the higher the drive for thinness before exposure, the lower body image state satisfaction and the lower the mood after the exposure).

## **Chapter Three: Methodology**

### **General Overview**

The present study was an online experiment designed to examine how exposure to images of thin versus nonthin women of average or greater attractiveness via the Internet may influence participants' self-report of body satisfaction and mood. Baseline and outcome measures included (a) body image state satisfaction, (b) mood, and (c) drive for thinness. To assess baseline and outcome variables, the following measures were used: (a) The Body Image States Scale (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002); (b) a Likert mood scale; and (c) Drive for Thinness subscale of the Eating Disorders Inventory, Third Edition (EDI-3; Garner, 2004). Additionally, such information as age, sex, and race/ethnicity was gathered via questions on a demographic questionnaire developed using Survey Monkey. A brief questionnaire related to social-media activities, created by the researcher, was also administered prior to the experimental exposure, as described later. Before designing the study on Survey Monkey, photos for use in the study were selected and prerated on degrees of thinness and attractiveness within focus groups led by the researcher.

This study used a longitudinal repeated-measures design with two assessment periods. Similar to the design employed by Hankin et al. (2004), the first assessment (Time 1) took place on the first day of class, which was assumed to be a lower stress time; the second assessment (Time 2) occurred immediately after an academic stressor (i.e., a midterm or final exam), which was considered a higher stress time (e.g., O'Connor & O'Connor, 2003). Subjects were administered each measure on both assessment periods to evaluate changes thoroughly.

### **Focus Groups**

Two focus groups were held at the Philadelphia College of Osteopathic Medicine using graduate students in both the Clinical Psy.D program and the Physician's Assistant program. Upon approval from classroom professors, female graduate students were recruited in the classrooms and asked to partake in a focus group during an evening class on campus. Their participation was completely voluntary, and the focus groups conducted lasted 25 minutes in total. In order to choose photos for each condition (very attractive-thin, very attractive-not thin, average attractive-thin, average attractive-not thin), students evaluated the photos of female images and rated their physical attractiveness for each condition. Photos used in the focus group included an assortment of online stock photos (i.e., free to the public domain for use in research) downloaded from various websites, including [www.dreamstime.com](http://www.dreamstime.com), [www.istockphoto.com](http://www.istockphoto.com), and [www.stockfreeimages.com](http://www.stockfreeimages.com). These photos varied in terms of race/ethnicity, but the targeted age range was similar to the age range of participants to be recruited in the study (i.e., 18-30 years).

Additionally, personal photos volunteered by women known to the researcher were included in the focus group. Those who volunteered photos of themselves agreed to refrain from taking the survey as a participant. Approximately 40 photos were presented in each focus group. During the focus groups, students were shown photos on a projector screen via a PowerPoint presentation in the classroom. The visual presentation via a computer maximized external validity for the study, as the participants in the main study also viewed the photos on a computer screen. Students in the focus group were asked to rate the degree of attractiveness by checking one of the following two boxes: "highly attractive" or "average attractiveness." For each photo, participants were also asked to rate the degree of thinness by



checking a box that stated either “thin” or “not thin.” Students were told not to “overthink” the task and were given roughly 10 seconds per photo to provide ratings. Given that some photos were volunteered by PCOM students and colleagues of PCOM students, participants in the focus groups were told not to provide ratings for a photo if they happened to recognize or know any woman in any of the displayed photos. Participants also checked a box agreeing not to participate in the study given their involvement in the focus group.

Following the focus groups, data were reviewed by the investigator. Apparently, agreement for photos was considerable in terms of thin/not thin and average attractiveness, but responses for “highly attractive” were very low, regardless of whether thin or not thin. Specifically, the degree of consensus was much higher for images considered “thin,” “not thin,” and of “average attractiveness” (i.e., interrater agreement ranging from 45 to 75%) than for the degree of consensus for images constituting “highly attractive,” which was quite low (i.e., interrater agreement ranging from 7 to 28%). Therefore, a decision was made by the investigator and chairperson to alter the wording from “highly attractive” to “very attractive.” The change in wording appeared successful in the second focus group that was held, as there was much more variability in ratings. Photos with the highest interrater agreement (>70%, moderate to substantial agreement) for each category were selected for use in the online study in all conditions with the exception of the control condition. Overall, eight photos were chosen (two for each female photo condition with the highest interrater agreement for the associated category). Photos for the control condition consisted of landscapes and were selected by the researcher.

### **Design and Conditions**

The design was a mixed repeated-measures experimental design aimed at examining both within-group effects and between-group effects. Participants were randomly assigned to exposure of female images in the following conditions: very attractive-thin (VA-T), very attractive-not thin (VA-NT), average attractive-thin (AA-T), average attractive-not thin (AA-NT), and control. An experimental design was chosen in order to examine a potential cause-effect relationship between exposure to Internet images and self-evaluation. The self-reported dependent measures described as follows were compared across subjects across the five condition groups previously listed to assess for potential experimental effects. An Internet-based study was deemed to offer the greatest possible external validity given the nature of the inquiry (i.e., particular interest in Internet media and social-networking sites).

#### **Exposure to Very Attractive Thin/Not Thin Women (VA-T/VA-NT)**

In the VA-T condition, participants were exposed to a collage consisting of two photos of thin, very attractive women, and in the VA-NT condition, participants viewed a collage consisting of two images of very attractive, nonthin women (i.e., rated as such in the focus group). For the purposes of this study, “very attractive” was representative of a female fashion model, given the likelihood for upward social comparison.

#### **Exposure to Average-Attractive Thin/Thin Women (AA-T/AA-NT)**

In the AA-T condition, participants were exposed to a collage consisting of two photos of thin women as rated in the focus group to be of average attractiveness (i.e., “peers”). In the AA-NT condition, participants were exposed to a collage consisting of two photos of women who were considered not thin and deemed to be of average attractiveness (i.e., again, “peers”). Using photos of peers actually known to each participant was not a

feasible option; therefore, photos of individuals rated to be of average attractiveness were used to represent peers in this study.

### **Control Condition**

In the control condition, participants were exposed to a collage consisting of two landscapes. This group served as the control group.

## **Participants**

### **Inclusion Criteria**

The only inclusion criteria for the study were to be of female gender and between the ages of 18 and 30 years.

### **Exclusion Criteria**

Individuals younger than the age of 18 years and older than the age of 30 years were not permitted to participate in this study. Considering the basis of the investigation, male participants also were not recruited for this study. Note that individuals who took part in the focus groups (i.e., who rated the relative attractiveness of the images that were used in the study) were also excluded from the study sample. They were required to check a box on their rating form agreeing not to participate in the study.

### **Screening Procedures**

A screening page asking a participant to confirm that she was a woman between the ages 18 to 30 years was included as the first page presented after the hyperlink to the survey was launched. If participants met the criteria, they proceeded to the consent page; if they did not, they received a disqualification message that ended the survey and prevented them from continuing.

**Demographics**

A total of 328 individuals launched the hyperlink to participate in this study; however, 29 participants were disqualified from the study at the initial screening page and 55 participants did not fully complete the study. A total of 87 participants were therefore not included in the analyses. The sample consisted of only women ( $N = 244$ ) ranging from 18 to 30 years of age. Three participants were excluded after an analysis of specific responses (described later in Chapter Four), reducing the overall final sample size ( $N = 241$ ).

Approximately 38% of the female participants were between the ages of 18 to 21 years ( $n = 92$ ); 24% were between the ages of 22 to 25 years ( $n = 57$ ); and the remaining 38% were between the ages of 26 to 30 years ( $n = 92$ ). The racial/ethnic composition of the sample was largely White/Caucasian. The demographic statistics are outlined in Table 1.

Table 1

*Demographic Statistics*

Variable	Frequency	Percent
Gender		100.00
Female	241	0
Male	0	
Age (years)		38.17
18-21	92	23.65
22-25	57	8.10
26-30	13	
Ethnicity		92.12
Caucasian/Non-Hispanic	222	1.24
African American	3	2.90
Hispanic American	7	3.73
Asian American/Pacific Islander	9	

**Measures****Demographic Questionnaire**

A brief questionnaire developed by the researcher was first presented to the participant in order to obtain basic demographic information, including age, gender, height, weight, and race/ethnicity. Height and weight data were collected so that the examiner had the option to compute body mass index (BMI) scores for participants to potentially be used as control variables in future statistical analyses. On this questionnaire, participants were asked via a yes/no response if they were currently dieting. They were also asked if they would like to lose weight, stay the same weight, or gain weight.

**Social-Networking-Site Questionnaire**

In a very brief social-networking-site questionnaire (SNS-Q) developed by the examiner, participants were asked in the format of “check all that apply” to indicate which social-networking sites they were actively using. Their approximate number of hours spent daily on social-networking sites (i.e., an estimated total across all sites) was assessed by ranges of time (i.e., fewer than 30 minutes per day, 30-60 minutes per day, 1-2 hours per day, 2-5 hours per day, or more than 5 hours per day). Data from this questionnaire will be useful in future analyses and will also help to support the “cover story” described later.

**Body Image States Scale**

In order to assess body image state dissatisfaction before and after the experimental exposure, the Body Image States Scale (BISS; Cash et al., 2002) was administered to participants. The BISS is a six-item scale designed to measure the following domains of one’s current body experience: (a) dissatisfaction-satisfaction with one’s general appearance; (b) dissatisfaction-satisfaction with one’s weight; (c) dissatisfaction-satisfaction with one’s body size/shape; (d) feelings of physical attractiveness-unattractiveness; (e) current feelings about one’s looks relative to how one typically feels; and (f) evaluation of one’s appearance compared to how the average person looks. Responses to the six items are rated on a 9-point Likert scale ranging from 1 (*extremely dissatisfied*) to 9 (*extremely satisfied*). Low scores on this measure reflect more negative body image states, while higher scores reflect more positive body image states (Cash et al., 2002).

This scale was deemed appropriate for the present study’s sample because it was previously validated on college-aged female samples and found to be both internally consistent and moderately stable (e.g., Cash et al., 2002). Furthermore, it was found to

demonstrate both construct and convergent validity. This scale was chosen also because it measures the momentary evaluative/affective experiences of one's physical appearance and is therefore able to detect change (Cash et al., 2002). To strengthen the internal validity of this experiment, a state rather than trait measure was preferred so that the examiner could potentially suggest a temporal relationship between the experimental exposure and participants' subsequent report of their body satisfaction.

### **Likert Mood Scale - Modified VAMS Adapted for Survey Monkey**

The Visual Analogue Mood Scale (VAMS) is a unique and widely used tool designed to assess changes in mood states (Stern, 1997). The use of a single line, as opposed to using items on a Likert scale for assessing mood, is often preferred because of its short completion time and decreased likelihood of repeated responses from pre to post (McFarlane, Polivy, & Herman, 1998; Mills & Miller, 2007; Thompson, 2004).

The VAMS is a single 100-mm horizontal line representing mood from 0 (*very unhappy*) to 100 (*very happy*). The use of horizontal line scales instead of vertical line scales is often preferred, as research suggests the former yields increased sensitivity and more standardized allocation of scores (Wewers & Lowe, 1990). Modifications of the VAMS have been developed and used in other weight-related studies in the past, and test-retest reliability in studies have ranged from 0.55 to 0.87 (House, Arruda, Andrasik, & Grazi, 2012; Stern, 1997).

Unfortunately, because the VAMS line could not be generated into the Survey Monkey site, a modified version was adapted for Survey Monkey: A Likert scale ranging to the maximum allowance in Survey Monkey (i.e., 1-15) was used to allow for as many

options as possible for individuals to report their mood on a scale, ranging from 0 (*Very Unpleasant*) to 15 (*Very Pleasant*).

### **Drive for Thinness Measure**

Drive for thinness was measured by the Drive for Thinness subscale of the Eating Disorder Inventory-3 (DT-EDI-3; Garner, 2004). It was designed to measure the extent to which one desires to strive for thinness, as well as the extent to which an individual fears being fat. The subscale is composed of seven items rated on a 6-point Likert scale, from 1 (*never*) to 6 (*always*), with higher scores reflecting a greater drive for thinness. In previous research, this scale demonstrated adequate to high internal consistency (Garner et al. 1983; Tiggemann & Miller, 2010). This particular scale was chosen because its reliability and validity have been well established in both clinical and nonclinical female populations (Cumella, 2006; Garner et al., 1983).

### **Recruitment Strategy**

When participants accessed the study via a hyperlink, they were presented first with a screening page (described later) and then with a consent statement, a page of information that described the purpose of the study, potential risks, and the inclusionary and exclusionary criteria. A “hard” copy consent form was not used, as the study was executed via the Internet. If an individual chose to proceed with the study, she agreed to participate electronically by checking a box and clicking the submit button on the page. Before doing so, she had to understand that upon endorsing the consent statement she would be providing her consent to participate in the study. At that time, she also was made aware that she reserved the right to withdraw from the study by ending her participation at any time and for any reason. No identifying information was collected from the participants, with the



exception of their e-mail address for raffle entry, which was linked to a completely separate survey and completely voluntary.

### **Survey Procedures**

Following approval from the Institutional Review Board (IRB) of the Philadelphia College of Osteopathic Medicine, an invitation for the study was posted on Facebook by the principal investigator. The post included a link to the survey, as well as the IRB-approved message.

Prospective participants were told that the purpose of the study was to “better understand the frequency of social media use as well as to gain information regarding other issues common to college women.” Once an individual clicked on the hyperlink to participate, she was presented with the first page of the online experiment. On this page, the participant was asked to confirm that she was a woman between the ages of 18 and 30 years. If the participant did not select *yes*, she was presented with a disqualification page indicating that she was not able to participate. If the participant selected *yes*, she was then directed to another page that provided the IRB-approved consent form outlining the purpose of the study, estimated duration for completion, reference to the IRB-approved protocol, inclusion criteria, anonymity of participants, opportunity to withdraw participation at any time, and raffle prize information. Participants were told to select *submit* if they were interested in participating. After choosing to participate by submitting the form, the participant was directed to a page with the demographics questionnaire and SNS-Q.

Following completion of the demographics questionnaire and SNS-Q, participants then completed the DT-EDI-3 (Garner, 2004), BISS (Cash et al., 2002), and Likert mood scale. After that point, they viewed a collage consisting of two photos (specific to their

experimental condition) and were told to examine the images in the collage as they would be asked questions about them later. The purpose was to ensure that the participants viewed the photo for at least 5 to 10 seconds, since Survey Monkey does not have a timing feature; specifically, there is no way to time a stimulus exposure when a participant is logged into the survey. Only the total time spent on the entire survey itself is recorded by Survey Monkey. At the conclusion of each participant's experimental phase, she was redirected to a page where she was asked to complete the postexposure questionnaires (i.e., BISS for body image state satisfaction and a Likert mood scale for mood).

After the participants completed all questionnaires, they were asked not to go back to the previous pages and to answer the following questions about the images: "What color was woman #1 (at the top of the image) wearing?" and "What color was woman #2 (at the bottom of the image) wearing?" On the last and final page of the survey, they were asked to comment on what they believed the purpose of the study was to probe for hypothesis guessing. They were also prompted to click on a link to a separate survey where they could provide their e-mail address to be entered into the raffle to win a \$100 Amazon gift card.

Following the conclusion of data collection, a winner for the raffle was chosen by having the researcher's chairperson pick a number between 1 and 112 (total number of entries provided). The number selected corresponded to an individual's e-mail, which was deemed the raffle winner. This winner was contacted via e-mail, and the gift card was sent electronically. An e-mail feature allowed for confirmation that the gift card was received.

### **Procedures for Maintaining Confidentiality**

Protecting confidentiality of the participants was of utmost importance; therefore, none of the measures used in this study contained any identifying information. Participants

had the option of offering their e-mail address to be entered in a raffle for a gift card incentive. If participants chose to provide an e-mail address, it was in no way linked to the demographic or survey data they provided, and their e-mail address was not used in any way except for notifying the raffle winner.

## **Chapter Four: Results**

### **Exclusion of Cases**

Prior to computing any statistical analyses, individual responses to “test” questions about the images used in the experiment were examined to determine their accuracy. The examination revealed that several participants who took a significant amount of time to complete the study (e.g., 6-7 days) provided inaccurate answers to the test questions at the end of the survey (e.g., “What color was woman #1 wearing?”). As the study was meant to be completed in roughly 10 to 15 minutes, the researchers considered that extended duration for completing the survey could have interfered with the exposure for participants who provided inaccurate responses to these questions. With that said, the associated responses by these participants might not have been valid. Based on this examination of responses, three participants were removed from the sample. This decision was not made solely for reasons related to timing, but rather their responses suggested that the study might not have been taken seriously. However, an analysis of further responses suggested a clear relationship did not exist between extended duration and inaccurate open-ended answers to questions regarding the images; such was evidenced by accurate answers provided by some participants who took an extended amount of time to complete the survey. Therefore, a cutoff for duration was not deemed necessary. Therefore, the total sample was reduced to 241 participants.

### **Analyses of Baseline Data**

#### **Group Assignment**

Participants were randomized to one of the five experimental conditions via Survey Monkey. As some participants were ultimately disqualified or failed to complete the study in

its entirety, the groups were not completely equivalent and therefore varied slightly in size.

Refer to Table 2 for a breakdown of the group assignment.

Table 2

*Random Assignment Groups (N = 241)*

Group	<i>n</i>	Percentage
Very Attractive-Thin (VA-T)	49	20.33
Very Attractive-Not Thin (VA-NT)	52	21.58
Average Attractive-Thin (AA-T)	50	20.75
Average Attractive-Not Thin (AA-NT)	48	19.92
Control (Landscapes)	42	17.43

In order to determine if the random assignment was effective, multiple one-way analyses of variance (ANOVAs) were computed to compare baseline data for weight, height, self-reported mood, self-reported body image state satisfaction (BISS), and self-reported drive for thinness (DT-EDI-3). Results from five separate ANOVAs yielded no significant differences at baseline between the five experimental groups on the following factors: weight,  $F(4, 235) = 1.98, p = .09$ ; height,  $F(4, 235) = 2.12, p = 0.08$ ; mood,  $F(4, 235) = 0.37, p = 0.83$ ; body image state satisfaction (BISS),  $F(4, 235) = 1.10, p = 0.36$ ; or drive for thinness (DT-EDI-3),  $F(4, 235) = 0.46, p = 0.77$ .

### **Duration**

Duration (i.e., operationalized as total time spent on entire survey) was calculated by Survey Monkey. Descriptive statistics were calculated in minutes and are listed in Table 3. A very wide range of time was spent on the survey; some participants spent as few as 3 minutes on the survey as a whole, while others spent as many as 7 days. An ANOVA was conducted to determine if there were any significant differences between groups on average

duration; results revealed no significant differences across groups,  $F(4, 236) = 2.02, p = .09$ .

These results might be somewhat surprising, as the means appear different; however, the lack of significant differences is instead the result of the large standard deviation in each group.

Table 3

*Exposure Duration in Minutes (N = 241)*

Group	<i>M</i>	<i>SD</i>
Very Attractive-Thin (VA-T)	596.32	1433.57
Very Attractive-Not Thin (VA-NT)	779.65	1946.32
Average Attractive- Thin (AA-T)	1692.0	3041.67
Average Attractive-Not Thin (AA-NT)	1472.16	2641.07
Control (Landscapes)	1017.75	1984.62

As the expected amount of time to take the study was estimated by the researcher to be 15 minutes, descriptive statistics were computed only for individuals whose duration was fewer than 15 minutes in each group. An ANOVA was then conducted to determine if there were any group differences among these participants and again did not yield any significant differences,  $F(4, 121) = 0.66, p = .6214$ .

### **Baseline Participant Characteristics**

Additionally, 10 chi-square analyses were run to determine whether groups differed on the categorical variables measured at baseline. There were no significant between-group differences found for the following variables: age,  $\chi^2(8) = 7.15, p = .52$ ; race,  $\chi^2(12) = .81, p = .80$ ; status of dieting,  $\chi^2(4) = 3.16, p = .53$ ; status of wanting to gain/lose/remain at the same weight,  $\chi^2(8) = 8.16, p = .42$ ; Facebook membership,  $\chi^2(4) = 5.83, p = .21$ ; Instagram membership,  $\chi^2(4) = 6.23, p = .18$ ; Twitter membership,  $\chi^2(4) = 2.37, p = .67$ ; Pinterest membership,  $\chi^2(4) = 2.84, p = .58$ ; total social media accounts,  $\chi^2(16) = 17.57, p = .35$ ; or

time spent on social media per day,  $\chi^2(12) = 9.55, p = .66$ . Taken together, results yielded no significant differences between the experimental groups on any of the demographic or social-media variables. These results suggested that randomization by Survey Monkey was effective and that groups were overall comparable on the measures of interest.

### **Social-Media Use**

The overall sample's reported social-media use is outlined in Table 4. With regard to social-media-site membership, 37% of the sample reported having three active social-media accounts ( $n = 90$ ); 32% of the sample reported having four social-media accounts ( $n = 76$ ); 20% of the sample reported having two social-media accounts ( $n = 48$ ); 8% of the sample reported having one social-media account ( $n = 18$ ); and 4% reported having five social-media accounts ( $n = 9$ ). The majority of the sample (53%;  $n = 129$ ) estimated spending between 1 to 3 hours per day on social-media sites; 24% estimated spending 30 to 60 minutes per day on social-media sites ( $n = 59$ ); 19% estimated spending 4 or more hours per day ( $n = 47$ ); and the lowest percentage (i.e., 4%) estimated spending fewer than 30 minutes per day across social-media sites ( $n = 8$ ). Refer to Table 4 for a breakdown of social-media use for the sample.

Table 4

*Social-Media Use*

Variable	Frequency	Percentage
Social-media accounts		
One	18	7.46
Two	48	19.92
Three	90	37.34
Four	76	31.54
Five	9	3.73
Type of social-media account		
Facebook	227	94.19
Instagram	217	90.04
Twitter	107	44.40
Pinterest	147	61.00
Other	35	14.52
Time Spent on social Media		
< 30 minutes per day	9	3.73
30-60 minutes per day	58	24.07
1-3 hours per day	128	53.11
4 or more hours per day	46	19.09

### Height, Weight, and Dieting Behavior

The average weight of the sample was calculated in pounds ( $M = 141.99$ ,  $SD = 28.67$ ) and height in inches ( $M = 64.17$ ,  $SD = 3.55$ ). At the time of participation in the study, roughly 32% of participants were actively dieting ( $n = 78$ ), while the other 68% were not ( $n = 163$ ). Asked about current weight satisfaction, 78% of the sample reported they would like to lose weight ( $n = 188$ ); 0.8% of the sample reported wanting to gain weight ( $n = 2$ ); and the final 21% of the sample reported wanting to remain at their current weight ( $n = 51$ ).



### Body Mass Index

The mean BMI of the overall sample ( $N = 241$ ) was calculated based on participants' reports of their height and weight ( $M = 24.55$ ,  $SD = 7.53$ ), suggesting that, on average, the sample as a whole was within a normal weight range. One participant did not provide data about her height and weight, so BMI was unable to be calculated for this individual. One-way ANOVA suggested significant differences between groups on BMI,  $F(4, 234) = 2.63$ ,  $p = .03$ , and posthoc Tukey's tests revealed the significant difference was between the VA-T and VA-NT groups. However, the difference in BMI between these groups appeared to be caused by one individual in the VA-T group, whose BMI was reported as 46, a number that is possible, though unlikely. When this individual's BMI was removed from the data, the group means were no longer significantly different,  $F(4, 233) = 2.05$ ,  $p = 0.09$ . Refer to Table 5 for a breakdown of BMI across groups (i.e., after removal of outlier).

Table 5

*Average Body Mass Index Across Experimental Groups*

Group	<i>M</i>	<i>SD</i>
Very Attractive-Thin (VA-T)	25.55	6.05
Very Attractive-Not Thin (VA-NT)	23.13	3.65
Average Attractive-Thin (AA-T)	23.71	4.16
Average Attractive-Not Thin (AA-NT)	23.60	3.58
Control (Landscapes)	24.63	5.61

### Analyses by Hypothesis

#### Hypotheses 1 and 2

To test Hypotheses 1 and 2, which predicted that those exposed to the thin conditions would report significantly lower mood/state body satisfaction scores (i.e., respectively) than those in the nonthin and control groups, a one-way ANOVA was conducted for both

dependent variables. Results revealed no significant postexposure differences between any of the groups on the mood variable,  $F(4, 236) = 0.77, p = 0.54$ . However, there were significant postexposure differences between groups on the body image state satisfaction measure,  $F(4, 236) = 3.88, p < .001$ . Posthoc comparisons using Tukey's HSD tests showed that the groups that were significantly different from one another were the VA-NT group and the VA-T group, with participants in the VA-T group having significantly lower body satisfaction scores than participants in the VA-NT group following the exposure. No other statistically significant pairwise differences were revealed from these analyses.

The difference-in-differences approach was then employed. The purpose of employing this approach was to be able to account for baseline scores and examine experimental effects in light of pre-post change scores. For each individual, the pre-post difference on mood and body image state satisfaction was calculated by subtracting preexposure scores from the postexposure scores. One-way ANOVA tests were then used to determine whether the pre-post changes were significantly different across groups. For example, for the VA-T group, the average mood score decreased by 0.59 and the average body image state satisfaction score decreased by 0.30. Table 6 displays the average change (pre-post) scores across groups on both dependent variables.

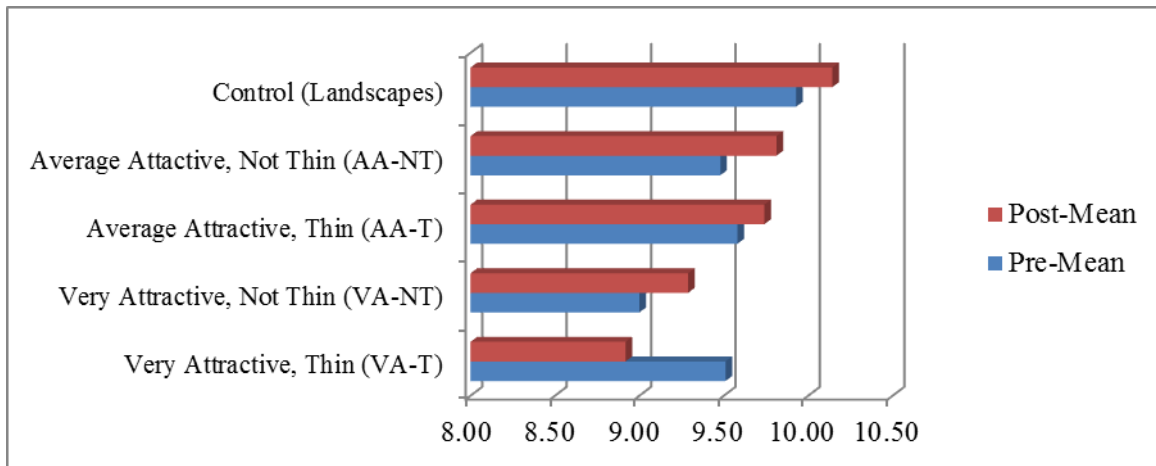
Table 6

*Change Scores (Pre-Post) ANOVAs by Group*

Group	Variable	<i>N</i>	Mean	<i>SD</i>
VA-T	Mood	49	-0.59	1.54
	BISS	49	-0.30	0.79
VA-NT	Mood	52	0.29	1.36
	BISS	52	0.31	0.64
AA-T	Mood	50	0.16	1.81
	BISS	50	-0.09	0.60
AA-NT	Mood	48	0.33	1.79
	BISS	48	0.14	0.58
Control		42	0.21	1.35
		42	0.08	0.46

Refer to Figure 1 for a general display of mean pre-post change across the experimental groups on the mood variable.

Figure 1

*Pre-Post Change Mood by Experimental Group*

For the mood variable, mean pre-post change scores were significantly different across groups,  $F(4, 236) = 2.84, p < .05$ . Posthoc comparisons using the Tukey's tests suggested that there were significant differences in the expected direction in the over-time changes in mood between the AA-NT ( $M = 0.33, SD = 1.78$ ) and VA-T ( $M = -0.59, SD = 1.54$ ) groups; this difference, 0.93, was significant ( $p < .05$ ). Therefore, in the AA-NT group, self-reported mood increased over time, whereas in the VA-T group, mood decreased over time.

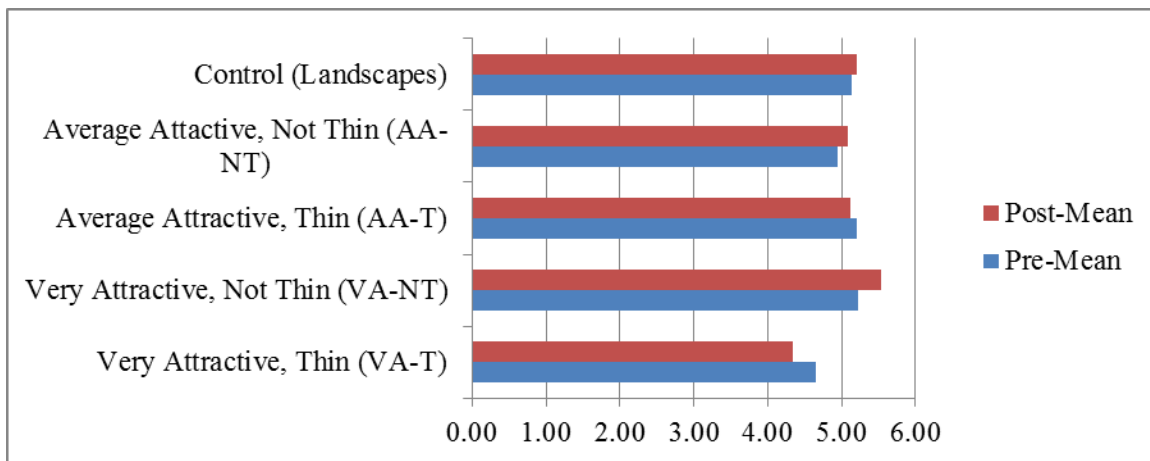
Additionally, there were also significant differences found in the expected direction in the over-time changes in mood between the VA-NT group ( $M = 0.29, SD = 1.36$ ) and VA-T groups ( $M = 0.59, SD = 1.54$ ). This difference, 0.88, was also significant ( $p < .05$ ). Therefore, in the VA-NT group, mood increased, while in the VA-T group, mood decreased over time. These groups differed significantly in terms of their over-time changes (i.e., mean change scores).

For the body image state satisfaction variable (BISS), the pre-post changes were also significantly different across groups,  $F(4, 236) = 6.89, p < .001$ . Posthoc Tukey's tests

revealed significant differences in the over-time changes in body image state satisfaction between the VA-T group ( $M = 0.59$ ,  $SD = 1.54$ ) and the following groups: the AA-NT group ( $M = 0.13$ ,  $SD = 0.58$ ; difference = 0.44,  $p < .05$ ); the VA-NT group ( $M = 0.31$ ,  $SD = 0.64$ ; difference = 0.61,  $p < .05$ ), and the control group ( $M = 0.06$ ,  $SD = 0.46$ ; difference = 0.38,  $p < .05$ ). In other words, while body image state satisfaction decreased over time for the VA-T group, it increased over time in the AA-NT group, VA-NT group, and the control group. A significant difference in change scores between the VA-NT group and the AA-T group was also found (difference = 0.39,  $p < .05$ ), showing an increase in body image state satisfaction over time for the VA-NT group and a decrease over time for the AA-T group. Figure 2 displays pre-post change scores across groups on body image state satisfaction over time.

Figure 2

*Pre-Post Body-Image Satisfaction by Experimental Group*



### Hypothesis 3

To test Hypothesis 3, which predicted that drive for thinness across conditions would predict degree of postexposure body image state satisfaction and mood, two simple regressions were run. The goal was to examine whether preexposure self-reported drive for thinness was predictive of postexposure mood and postexposure BISS. Results revealed that

drive for thinness is negatively (i.e., inversely) associated with postexposure mood,  $\beta = -0.18$ ,  $t(239) = -6.07$ ,  $p < .0001$ . Therefore, higher drive for thinness pre exposure was a significant predictor of lower mood post exposure. The percentage of variance in mood that is explained by the drive for thinness is  $R^2 = 0.13$ .

Additionally, drive for thinness was also negatively (inversely) associated with postexposure body image state satisfaction,  $\beta = -0.10$ ,  $t(239) = -8.23$ ,  $p < .0001$ . The percentage of variance in BISS that is explained by drive for thinness is  $R^2 = 0.22$ .

## **Chapter Five: Discussion**

### **General Discussion**

In the present study, the researchers sought to examine whether the Internet, like television and print media, plays a role in negatively affecting young women's mood and body satisfaction. Although previous studies (e.g., Tiggemann & Miller, 2010) have suggested that the Internet is likely another potent sociocultural influence affecting women's perceptions of their body, the ways in which female images featured on social-networking sites might impact females' self-perceptions of their appearance and their overall mood remained unclear. This study was unique in that it sought to disentangle the degree to which images of female thinness and attractiveness, both separately and in combination, could impact young women's body image state satisfaction and mood. No study to date had specified this number of various conditions before (i.e., looking at both varying levels of attractiveness and thinness). Additionally, drive for thinness was examined as a predictor variable. Images in this study were also cropped into a social-media frame to appear as if the user was viewing the images on the social-networking site Instagram. No study to date had incorporated this feature into their methodology.

### **Summary of Results**

#### **Impact on Participants' Mood**

With regard to support for the hypotheses, each will be reviewed in light of the two approaches taken in analyzing different aspects of the data (i.e., comparison of postexposure scores vs. comparison of prepost change scores). Overall, results herein did not provide support for the first hypothesis, which predicted that participants exposed to the thin groups would report significantly lower mood scores than those exposed to the nonthin and control

groups. At the post time point, no significant differences emerged between groups on average self-reported mood score. However, when the difference-within-differences approach was employed, there were significant differences in the expected direction in the over-time changes in mood between the average attractive- not thin (AA-NT) and very attractive-thin (VA-T) groups. Therefore, in the AA-NT group, self-reported mood increased over time, whereas in the VA-T group, mood decreased over time. While mood seemed to improve slightly for those who viewed images of AA-NT women, it appeared to slightly suffer for those who viewed images of VA-T women.

### **Impact on Participants' Body Image State Satisfaction**

Similarly, there was also no direct support for the second hypothesis, which predicted that participants in thin conditions would report significantly lower body image state satisfaction scores than individuals in the nonthin and control groups. At the post time period, the only groups that significantly differed from one another were the VA-T and very attractive-not thin (VA-NT) groups, with the VA-T group reporting significantly worse body image state satisfaction than the VA-NT group. Following these analyses, the difference-within-differences approach was again employed in the same manner it had been employed for the mood variable; interestingly, analyses yielded quite similar findings for the body image state satisfaction variable. Pre-post change scores were significantly different across groups; specifically, there were differences in the over-time changes in body image state satisfaction between the VA-T group and the following groups: VA-NT, AA-NT, and the control group. In other words, while body image state satisfaction decreased over time for participants viewing images of VA-T women, it increased over time for those in both of the nonthin conditions and the control condition.



### **Drive for Thinness as a Predictor Variable**

Hypothesis 3 predicted that drive for thinness prior to exposure would predict lower body image state satisfaction and mood at the postexposure time point. This hypothesis was supported by the results; data from the analyses suggested that the higher the participants' drive for thinness pre exposure, the lower their mood and body image state satisfaction post exposure. Therefore, higher drive for thinness pre exposure was a significant predictor of lower mood post exposure. The higher drive for thinness pre exposure was also a significant predictor of lower body image state satisfaction post exposure.

### **Interpretation of Findings**

The lack of differences among groups on average self-reported mood and body image state satisfaction at post exposure in this study was unexpected; however, numerous factors could have impacted these findings. First, participant duration is an especially critical factor to be considered within the context of these results. A significant limitation of this study, which was unforeseen, involved the absence of a timing feature on the Survey Monkey program. The inability to be able to time participants' exposure limited the investigator's ability to control for the amount of time participants spent viewing the images and completing the measures. Therefore, exposure duration could not be controlled. Some subjects were found to have spent as few as 3 minutes on the survey as a whole, while others spent as many as 7 days on the study. The time stamp on Survey Monkey measures the duration from start to finish for participants who completed the study and is not representative of the duration of exposure to the images themselves.

As a result, exposure duration emerged as a problematic variable in this research. In particular, the study duration of a substantial proportion of women in the sample seemed to

be a few days, which could mean either that they began the survey, took time off, and later continued or that some glitch affected the way that the time was reported in the survey tool. The former could have potentially created difficulty for mood measurement, as mood change or lack thereof could have been caused by something very different from the images. The latter could have provided inaccurate data regarding duration. Nonetheless, in light of the data available, there were no significant differences among between groups on average duration. These data justified including the majority of individuals in data analyses.

Furthermore, the exposure itself was limited in that only two photos of women were viewed in each “collage.” This number is far different from the number of photos young women are exposed to on social-networking sites and therefore far different from the extent to which young women spend time viewing photos on a daily basis. Therefore, equating the exposure in this study and the subsequent effects with the everyday, constant exposure young women have with these sites is difficult. Results certainly cannot speak to the potential long-term impact of extended duration. These results also cannot speak to the effect on young women when they are actually browsing their own social-networking-site profiles. Note that in previous studies (e.g., Fardouly, Diedrichs, Vartanian, & Halliwell, 2014) when participants were asked to spend time browsing their actual Facebook profile in real time, significant effects were documented for a negative impact on mood. As the current study did not yield results suggesting a significant impact on mood, the exposure might have been too limited in stimuli and duration to invoke such an effect.

One must also consider the way in which the dependent variables were operationalized and measured. In this study, the initial aim was to use a visual analog mood scale (VAMS); however, technical limitations prevented the use of the VAMS through the

online Survey Monkey portal. As a result, a basic Likert mood scale, which was not previously validated in studies, was utilized as a substitute. Previous research has found that the use of a single line, as opposed to items on a Likert scale, for assessing mood is often preferred because of its decreased likelihood of repeated responses from pre to post time points (McFarlane et al., 1998; Mills & Miller, 2007; Thompson, 2004). With that said, one should consider that the failure to detect greater changes in mood in this study between groups at the post time period may also be in part caused by the method in which mood was assessed.

The BISS measure used in this study (Cash et al., 2002) was deemed appropriate for the sample particularly because it was previously validated on college-aged female samples and found to be both internally consistent and moderately stable. This scale was also chosen because it measures the momentary evaluative/affective experiences of one's physical appearance and is therefore able to detect change (Cash et al., 2002). To strengthen the internal validity of this experiment, a state rather than trait measure was preferred so that the examiner could potentially suggest a temporal relationship between the experimental exposure and participants' subsequent report of their body satisfaction. However, despite seeming most appropriate and fit for use in this study, duration of its administration became problematic. Administering this same measure twice within such a close span of time for some participants made this tool's ability to detect change questionable (e.g., for a participant who spent a total of 3 minutes on the entire survey, this measure was completed twice within a 3-minute time period).

Yet despite a lack of direct support for the first hypothesis, other findings regarding change scores from Time 1 to Time 2 were telling. Attempts were made to consider baseline

data and change in mood from pre to post exposure; when this difference-within-differences approach was employed, mean pre-post change scores were significantly different on the mood variable, meaning that group means differed in the degree to which their mood changed from pre to post exposure to the images. Specifically, for participants in the AA-NT group, self-reported mood increased over time, whereas in the VA-T group, mood decreased over time. Additionally, there were also significant differences found in the expected direction in the over-time changes in mood between the VA-NT group and VA-T groups. Therefore mood increased for the VA-NT group while mood decreased for the VA-T group over time.

Essentially, the average amount of change from pre to post exposure was significantly different between these groups; participants' mood and body image state satisfaction changed in a way that was partially consistent with the first two hypotheses (i.e., being negatively impacted for one of the thin groups, but not both). While the hypotheses were not directly supported, results nonetheless suggested a slightly negative change in mood and body image state satisfaction for participants exposed to photos of very attractive, thin women and a slightly positive change in mood for participants exposed to photos of nonthin women, whether very attractive or considered of average attractiveness. If social comparisons were made in the upward and downward direction, these changes would be consistent with social comparison theory (Festinger, 1954), which posits that upward social comparisons may have harmful consequences when individuals compare themselves to a superior target(s) and that downward social comparisons may have the opposite effects with inferior targets. In other words, for those comparing themselves to a superior target (i.e., very attractive, thin women), mood and body satisfaction appeared to suffer, but for those comparing themselves to an

inferior target, mood and body satisfaction appeared to improve. These results would be expected if physical-appearance social comparisons were actually made and if the participants were those individuals who, in fact, internalize the thin ideal. However, these processes were not directly measured in this study.

Another interesting finding that emerged from the present study was that thinness alone did not appear to have a negative impact on mood. Participants in the AA-T group did not experience the same negative impacts as those in the VA-T group. Why no significant changes in the AA-T group were found is unclear, as is whether these findings are specific to this sample or whether suboptimal consensus about what constituted varying levels of attractiveness in the focus group impacted the findings.

### **Trends in the Findings**

These results may suggest that negative consequences are likely to emerge when a target is both highly attractive and thin and may suggest that thinness alone will not lead to negative consequences if a social comparison is made to an individual deemed to be of average attractiveness (i.e., a thin peer). Given that the VA-T group represented female fashion models in this study, results appear consistent with previous research, which has found that young women's mood may be negatively impacted when exposed to highly attractive female fashion models in the media. Given this study's focus on social networking and peer comparison, however, one should note that there may very well be peers present on social-networking sites that will be considered both thin and highly attractive to a viewer. Attention to physical attributes of peers on Internet social media may be comparable to attention paid to attributes of figures in other types of media, as women are known to present their "ideal selves" on these sites (Gonzales & Hancock, 2011). Peer images may be just

as unrealistic as media images, given the editing/retouching tools now available to laypersons. As a result, these modified images of everyday individuals could, in fact, be far from reality. Additionally, social-networking sites are also now becoming polluted with typical mass media advertisements. With the preceding being acknowledged, the potential for making upward social comparisons and experiencing negative impacts on mood remains very likely in the context of social networking.

The combination of thinness and high attractiveness appeared to yield negative changes in both mood and body image state satisfaction. In thinking about the similarity between findings between group change scores on both dependent variables, one could suggest that the experience of viewing nonthin women, regardless of attractiveness level, may in fact serve as a buffer and yield a potentially positive effect on young women viewing photos on social-networking sites. This also may suggest positive influence of plus-sized models in the media. If social comparisons of the downward type are made when images include women who do not fit the thin ideal, these findings would, in fact, be consistent with social comparison theory. Specifically, they would suggest that positive feelings may emerge when downward social comparisons are made, as this involves making comparisons to inferior targets. The negative impact on body image state satisfaction for the VA-T group in this study is consistent with previous studies that have found negative impacts on mood and body satisfaction for women viewing thin-ideal television and print media.

### **Strengths and Limitations of the Study**

As previously mentioned, this novel study was the first of its kind to attempt to simulate a mock social-networking experience by experimentally exposing young women to various kinds of images online. Because this study was experimental in nature, the study

results extend beyond the data currently available for this topic area. This study also has a number of limitations worth noting. The primary limitation of this investigation is common to all online research, in that one cannot know how representative the sample is of its intended population. Attempts were made to reach young women, and screening procedures were put into place to disqualify individuals who did not meet inclusion criteria.

Perhaps one of the biggest limitations of the present study was the failure to recruit a diverse sample. The vast majority of the sample was Caucasian, and therefore, results from this study cannot speak to potential impacts on young women of different races/ethnicities. Additionally, although photos of women of various backgrounds were included in the focus group, the photos selected based on highest interrater agreement for this study were composed of predominantly Caucasian women also. Thus, while attempts were made to make both the photos and the sample representative of the general population, the makeup of this sample remains a major limitation of the study.

The results of this study were intended to approximate how much exposure to certain types of images on social-networking sites might result in changes in mood and body image state satisfaction. The “exposure” in this study served only as a proxy for a true social-networking experience and therefore did not fully reflect the various stimuli encountered on these sites. For example, although the photos were cropped to fit into an “Instagram frame” on the computer screen, the participants had no access to other types of social-networking features, such as viewing/posting verbal content (i.e., comments, statuses, likes). Social-networking sites also now have a wide variety of advertisements shown throughout their newsfeeds, thereby increasing the likelihood of a user viewing other media content. The full social networking experience was simply not possible in this study.

Additionally, the women presented in the images were individuals unknown to the participants who took this study; consequently, conclusions cannot be drawn as to how young women are impacted when exposed to photos of individuals with whom they are familiar. While using “strangers” in the images for this experiment removed potential biases that could have contributed to prior familiarity with specific social-networking users, this method also removed any other factor that could enhance or diminish the social-comparison effects and, ultimately, effects on mood and body image state satisfaction.

Perhaps both a strength and limitation of this study, social comparison and thin-ideal internalization were not directly measured and instead were inferred. This decision was purposeful and was made in order to reduce demand characteristics, particularly because previous research suggested that directly measuring these processes has resulted in heightened sensitivity (Mills et al., 2002). One should consider that directly measuring social comparison in studies can result in heightened sensitivity to the comparison process and ultimately produce greater body dissatisfaction. Therefore, participants were not directly asked if they had compared themselves to the women in the images they viewed. Thus, concluding that physical-appearance comparisons yielded changes in mood and body image state satisfaction is difficult. Nonetheless, given some clear trends in the data with regard to levels of attractiveness and thinness, at least partial reason exists to believe that social comparisons were, in fact, made and contributed to the changes over time.

A final issue on which to comment is the potential for hypotheses guessing by participants and the impact this guessing may have had on their responses. A review of participants’ responses to the question probing for hypothesis guessing revealed themes, including body image, weight, and social media. These responses suggest that some



participants were quite aware of the nature of the inquiry, which is likely to have had some impact on participants' responses and, ultimately, on the overall results.

### **Future Research and Clinical Implications**

Future research should seek to replicate this study in this population, but also within the “tween” populations and among adolescent populations, who may be especially vulnerable given their developmental level. Future studies might also explore potential effects of social comparison on male populations. Efforts should be made in all future studies to recruit racially and ethnically diverse samples as often as possible to be able to draw conclusions about the potentially differential effects across individuals from diverse backgrounds.

Additionally, while the present study focused on being the recipient of social networking (i.e., viewing photos), much is likely to be learned about how women construct their social-networking profiles, what they share with others, and the activities/stimuli they seek on these sites (e.g., What types of pages do they choose to follow? Whom do they prefer to “friend?”) Furthermore, exploring whether some individuals are more likely than others to focus on certain types of content online would be interesting. Researchers might seek to understand potential body-checking behavior, as well as the role of self-presentation and self-consciousness where photo sharing is concerned. Beyond body image and appearance, social-networking sites also provide individuals with a means for comparing themselves across a broad range of domains, such as life experiences, vocational status, and social status. These avenues will also be important to pursue in research related to social-networking. Perhaps most importantly, future research should also focus on developing, and then disseminating, feasible and effective prevention programs to “inoculate” vulnerable

populations from the potentially detrimental effects of exposure to unrealistic body images on social media.

### **Concluding Remarks**

This study was the first of its kind to examine differential effects of thinness and attractiveness as they pertain to exposure to images via Internet social-networking sites. Although not all hypotheses were supported by the results in this study, evidence emerged to suggest that detrimental effects on mood and body satisfaction can result from exposure to photos of thin women on the Internet and social-networking sites. Additionally, evidence suggested that drive for thinness may be a predictor variable putting particular young women at risk for these detrimental consequences. This study proposed that physical-appearance comparisons among young women have likely extended into the realm of social networking and have become more relevant than before given its high usage and current trends. Social networking can further focus women's attention toward their bodies, as well as their general appearance, by emphasizing appearance-focused stimuli (i.e., photos). Given the increasing use of these sites and the heavy online presence of young adults, particularly women, studies of the ways in which social media can influence perceptions of body image, mood, and their associated consequences must continue. Making physical-appearance comparisons on social-networking sites can possibly have a profound impact, as they are proximal and arguably more relevant, hitting closer to home.

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Ata, R.N., Ludden, A. B., & Lally, M. M. (2007). The effects of gender and family, friend, and media influences on eating behaviors and body image during adolescence. *Journal of Youth and Adolescence, 36*, 1024-1037.
- Bair, C. E., Kelly, N. R., Serdar, K. L., & Mazzeo, S. E. (2012). Does the Internet function like magazines? An exploration of image-focused media, eating pathology, and body dissatisfaction. *Eating Behaviors, 13*, 398-401.
- Bell, B. R., & Dittmar, H. (2011). Does media type matter? The role of identification in adolescent girls' media consumption and the impact of different thin-ideal media on body image. *Sex Roles, 65*, 478-490.
- Bessenoff, G. R. (2006). Can the media affect us? Social comparison, self-discrepancy, and the thin ideal. *Psychology of Women Quarterly, 30*, 239-251.
- Borzekowski, D. L. G., Robinson, T. N., & Killen, J. D. (2000). Does the camera add ten pounds? Media use, perceived importance of appearance, and weight concerns among teenage girls. *The Journal of Adolescent Health, 26*, 36-41.
- Brown, A., & Dittmar, H. (2005). Think "thin" and feel bad: The role of appearance schema activation, attention level, and thin-ideal internalization for young women's responses to ultra-thin media ideals. *Journal of Social and Clinical Psychology, 24*, 1088-1113.
- Brown, J. D., & Bobkowski, P. S. (2011). Older and newer media: Patterns of use and effects on adolescents' health and well being. *Journal of Research on Adolescence, 21*(1), 95-113.

- Cash, T. F., Fleming, E. C., Alindogan, J., Steadman, L., & Whitehead, A. (2002). Beyond body image as a trait: The development and validation of the Body Image States Scale. *Eating Disorders, 10*, 103-113.
- Cattarin, J., Thompson, J. K., Carmen, T., & Robyn, W. (2000). Body image, mood, and televised images of attractiveness: The role of social comparison. *Journal of Social and Clinical Psychology, 19*, 220-239.
- Centers for Disease Control and Prevention. (2012). Anthropometric reference data for children and adults: United States, 2007-2010. *Vital and Health Statistics, 11*(252), 1-40. Retrieved from [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_252.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_252.pdf)
- Collins, R. L. (1996). For better or worse: The impact of upward social comparison on self-evaluation. *Psychological Bulletin, 19*, 51-69.
- Crocker, J. (2002). Contingencies of self-worth: Implications for self-regulation and psychological vulnerability. *Self and Identity, 1*, 143-149.
- Cumella, E. J. (2006). Review of the Eating Disorder Inventory-3. *Journal of Personality Assessment, 87*, 116-117.
- Dittmar, H., Halliwell, E., & Stirling, E. (2009). Understanding the impact of thin media models on women's body-focused affect: The roles of thin-ideal internalization and weight-related self-discrepancy activation in experimental exposure effects. *Journal of Social and Clinical Psychology, 28*, 43-72.
- Dittmar, H., & Howard, S. (2004). Thin-ideal internalization and social comparison tendency as moderators of media models' impact on women's body-focused anxiety. *Journal of Social and Clinical Psychology, 23*, 768-791.

- Dougherty, H. (2010, Mar 5). *Facebook reaches top U.S. ranking*. Retrieved from <http://www.experian.com/blogs/marketing-forward/2010/03/05/facebook-reaches-top-ranking-in-us/>
- Duggan, M., & Brenner, J. (2013, Feb 13). *The demographics of social media users – 2012*. Retrieved from <http://www.pewinternet.org/2013/02/14/the-demographics-of-social-media-users-2012/>
- Durkin, S. J., & Paxton, P. J. (2002). Predictors of vulnerability to reduced body image satisfaction and psychological well-being in response to idealized female media images in adolescent girls. *Journal of Psychosomatic Research, 53*, 995-1005.
- Eating Disorders Coalition. (2008). *Facts about eating disorders*. Retrieved from <http://eatingdisorderscoalition.org/documents/TalkingpointsEatingDisordersFactSheetUpdated5-20-09.pdf>
- Engeln-Maddox, R. (2005). Cognitive responses to idealized media images of women: The relationship of social comparison and critical processing to body image disturbance in college women. *Journal of Social and Clinical Psychology, 24*(8), 1114-1138.
- Facebook. (2014). *Key facts*. Retrieved January 14, 2014, from <https://newsroom.fb.com/Key-Facts>
- Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2014). Social comparisons on social media: The impact of Facebook on young women's body concerns and mood. *Body Image, 13*, 38-45.
- Ferguson, C. J. (2013). In the eye of the beholder: Thin ideal media affects some, but not most, viewers in a meta-analytic review of body dissatisfaction in women and men. *Psychology of Popular Media Culture, 2*, 20-37.

- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 1*, 117-140.
- Field, A. E., Cheung, L., Wolf, A. M., Herzog, D. B., Gortmaker, S. L., & Colditz, G. A. (1999). Exposure to the mass media and weight concerns among girls. *Pediatrics, 103*, 36.
- Funk, J. B., Baldacci, H. B., Pasold, T., & Baumgardner, J. (2004). Violence exposure in real life, video games, television, movies & the Internet: Is there desensitization? *Journal of Adolescence, 27*, 23-29.
- Garner, D. M. (2004). *Eating Disorder Inventory-3 (EDI-3)*. Odessa, FL: Psychological Assessment Resources.
- Gerbner, G., Gross, L., & Morgan, M. (2002). Growing up with television: Cultivation processes. In J. Bryant & D. Zillman (Eds.), *Media effects: Advances in theory and research* (2<sup>nd</sup> ed., pp. 43-67). Mahwah, NJ: Erlbaum.
- Grabe, S., Hyde, J. S., & Ward, M. L. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin, 134*(4), 460-476.
- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *The International Journal of Eating Disorders, 31*, 1-16.
- Haferkamp, N., & Kramer, N. C. (2011). Social comparison 2.0: Examining the effects of online profiles on social networking sites. *Cyberpsychology, Behavior, and Social Networking, 14*, 309-314. doi: 10.1098/cyber.2010.0120

- Halliwell, E., & Dittmar, H. (2004). Does size matter? The impact of models' body size on women's body-focused anxiety and advertising effectiveness. *Journal of Social and Clinical Psychology, 23*, 104-122.
- Hargreaves, D. A., & Tiggemann, M. (2004). Idealized media images and adolescent body image: 'Comparing' body and girls. *Body Image, 1*, 351-361.
- Hinduja, S., & Patchin, J. W. (2008). Personal information of adolescents on the Internet: A quantitative content analysis of MySpace. *Journal of Adolescence, 31*, 125-146.
- House, E. D., Arruda, J. E., Andrasik, F., & Grazzi, L. (2012). The reliability and validity of the Visual Analog Mood Scales in non-English-speaking pain patients. *Pain Practice, 12*(8), 626-632. doi: 10.1111/j.1533-2500.2012.00544.x
- Jones, D. C. (2004). Social comparison and body image: Attractiveness comparisons to models and peers among adolescent girls and boys. *Sex Roles, 45*, 645-664.
- Jones, S. & Fox, S. (2009). *Generations online in 2009: Pew Internet & American Life Project*. Retrieved from <http://www.pewinternet.org/2009/01/28/generations-online-in-2009/>
- Jones, D. C., Vigfusdottir, T. H., & Lee, Y. (2004). Body image and the appearance culture among adolescent girls and boys: An examination of friend conversations, peer criticism, appearance magazines, and the internalization of appearance ideals. *Journal of Adolescent Research, 19*, 323-339.
- Jordan, A. B., Kramer-Golinkoff, E. K., & Strasburger, V. C. (2008). Does adolescent media use cause obesity and eating disorders? *Adolescent Medicine, 19*, 431-449.
- Junco, R. (2012). The relationship between frequency of Facebook use, participation in Facebook activities and student engagement. *Computers & Education, 58*, 162-171.

- Krones, P. G., Stice, E., Batres, C., & Orjada, K. (2005). In vivo social comparison to a thin-ideal peer promotes body dissatisfaction: A randomized experiment. *International Journal of Eating Disorders*, 38(2), 134-142.
- Leahey, T. M., & Crowther, J. H. (2008). An ecological momentary assessment of comparison target as a moderator of the effects of appearance-focused social comparisons. *Body Image*, 5(3), 307-311.
- Leahey, T. M., Crowther, J. H., & Mickelson, K. D. (2007). The frequency, nature, and effects of naturally occurring appearance-focused social comparisons. *Behavior Therapy*, 38, 132-143.
- Levine, M. P., & Harrison, K. (2004). Media's role in the perpetuation and prevention of negative body image and disordered eating. In J. K. Thompson (Ed.), *Handbook of eating disorders and obesity* (pp. 695– 717). Hoboken, NJ: Wiley.
- Levine, M. P., & Murnen, S. K. (2009). Everybody knows that mass media are/are not [pick one] a cause of eating disorders: A critical review of evidence for a causal link between media, negative body image, and disordered eating in females. *Journal of Social and Clinical Psychology*. 28, 9-42.
- Lin, L. F., & Kulik, J. A. (2002). Social comparison and women's body satisfaction. *Basic and Applied Social Psychology*, 24, 115-123.
- Lindner, D., Hughes, A., & Fahy, R. (2008). Eating pathology and social comparison in college females. *North American Journal of Psychology*, 10, 445-462.
- Manago, A. M., Graham, M. B., Greenfield, P. M., & Salimkhan, G. (2008). Self-presentation and gender on MySpace. *Journal of Applied Developmental Psychology*, 29, 446-458.



- Mayer-Schonberger, V., & Cukier, K. (2013). *Big data: A revolution that will transform how we live, work and think*. New York, NY: Houghton Mifflin Harcourt.
- McFarlane, T., Polivy, J., & Herman, P. C. (1998). Effects of false weight feedback on mood, self-evaluation, and food intake in restrained and unrestrained eaters. *Journal of Abnormal Psychology, 107*, 312-318.
- Mills, J. S., & Miller, J. L. (2007). Experimental effects of receiving negative weight-related feedback: A weight guessing study. *Body Image, 4*, 309-316.
- Mills, J. S., Polivy, J., Herman, C. P., & Tiggemann, M. (2002). Effects of exposure to thin media images: Evidence of self-enhancement among restrained eaters. *Personality and Social Psychology Bulletin, 28*, 1687-1699.
- Myers, T. A., & Crowther, J. H. (2009). Social comparison as a predictor of body dissatisfaction: A meta-analytic review. *Journal of Abnormal Psychology, 118*(4), 683-698.
- Nadkarni, A., & Hofmann, S. G. (2012). Why do people use Facebook? *Personality and Individual Differences, 52*, 243-249.
- National Eating Disorders Association. (2009). *National Eating Disorder Association unveils powerful and provocative ad campaign*. Retrieved from <https://www.nationaleatingdisorders.org/press-rom/press-releases/2009-press-releases/national-eating-disorder-association-unveils-powerful-provocative-ad-campaign>.
- Ridolfi, D. R., Myers, T. A., Crowther, J. H., & Ciesla, J. A. (2011). Do appearance focused cognitive distortions moderate the relationship between social comparisons to peers and media images and body image disturbance? *Sex Roles, 65*, 491-505.

- Rodin, J., Silberstein, L., & Striegel-Moore, R. (1984). Women and weight: A normative discontent. *Nebraska Symposium on Motivation, 32*, 267-307.
- Rutledge, C. M., Gillmor, K. L., & Gillen, M. M. (2013). Does this profile picture make me look fat? Facebook and body image in college students. *Psychology of Popular Media Culture, 4*, 251-258.
- Short, J. E. (2013). *How much media? 2013 report on American consumers*. Retrieved from <http://classic.marshall.usc.edu/assets/161/25995.pdf>
- Smith, A. R., Hames, J. L., & Joiner, T. E. (2013). Status update: Maladaptive Facebook usage predicts increases in body dissatisfaction and bulimic symptoms. *Journal of Affective Disorders, 149*, 235-240.
- Stefanone, M. A., Lackaff, D., & Rosen, D. (2011). Contingencies of self-worth and social-networking-site behavior. *Cyberpsychology, Behavior, and Social Networking, 14*, 41-49.
- Stern, R. A. (1997). *Visual Analog Mood Scales*. Odessa, FL: Psychological Assessment Resources.
- Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128*, 825-848.
- Strahan, E. J., Wilson, A. E., Cressman, K. E., & Buote, V. M. (2006). Comparing to perfection: How cultural norms for appearance affect social comparisons and self-image. *Body Image, 3*, 211-227.
- Sypeck, M. F., Gray, J. J., & Ahrens, A. H. (2004). No longer just a pretty face: Fashion magazines' depictions of ideal female beauty from 1959 to 1999. *International Journal of Eating Disorders, 36*(3), 342-347.

- Thompson, J. K. (2004). The (mis)measurement of body image. *Body Image: An International Journal of Research, 1*, 7-14.
- Thompson, J. K., Heinberg, L. J., Altabe, M. N., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment and treatment of body image disturbance*. Washington DC: American Psychological Association.
- Thompson, J. K., & Stice, E. (2001). Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science, 10*, 181-183.
- Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of magazine advertisements on women's mood and body dissatisfaction. *Journal of Social and Clinical Psychology, 23*, 23-44.
- Tiggemann, M., & Miller, J. (2010). The Internet and adolescent girls' weight satisfaction and drive for thinness. *Sex Roles, 63*, 79-90.
- Tiggemann, M., & Pickering, A. S. (1996). Role of television in adolescent women's body dissatisfaction and drive for thinness. *International Journal of Eating Disorders, 20*, 199-203.
- Tiggemann, M., & Slater, A. (2003). Thin ideals in music television: A source of social comparison and body dissatisfaction. *International Journal of Eating Disorders, 35*, 48-58.
- Tiggemann, M., & Slater, A. (2013). NetGirls: The Internet, Facebook, and body image concern in adolescent girls. *International Journal of Eating Disorders, 46*, 630-633.

University of Haifa. (2011, Feb 11). *Facebook users more prone to developing eating disorders*. Retrieved from

<http://www.sciencedaily.com/releases/2011/02/110207091754.htm>

University of Missouri-Columbia. (2007). *Profile of the American College Student Survey*.

Retrieved from <http://ir.missouri.edu/reports-presentations.html>

Want, S. C. (2009). Meta-analytic moderators of experimental exposure to media portrayals of women on female appearance satisfaction: Social comparisons as automatic processes. *Body Image, 6*, 257-269.

Wewers, M. E., & Lowe, N. K. (1990). A critical review of visual analog scales in the measurement of clinical phenomena. *Research in Nursing and Health, 13*(4), 227-236.

Wimmer, R. D., & Dominick, J.R. (2006). *Mass media research: An introduction*. (10<sup>th</sup> ed.). Boston, MA: Wadsworth.

Ziegler, S. G. (2007). The (mis)education of generation M. *Learning, Media, and Technology, 32*, 69-81.