The effects of thin and large media exposures in restrained and unrestrained eaters: Mechanisms of social comparison.

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THE EFFECTS OF THIN AND LARGE MEDIA EXPOSURES IN RESTRAINED
AND UNRESTRAINED EATERS: MECHANISMS OF SOCIAL COMPARISON

by

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B.A. (Hons) University of British Columbia, 2002

A Thesis
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ABSTRACT

Both Mills et al. (2002) and Joshi et al. (2004) reported enhancing effects of thin media exposures in restrained eaters, and detrimental effects in unrestrained eaters. The purpose of this study was to replicate these findings, and to account for them with the social comparison mechanisms of similarity and dissimilarity testing. It was hypothesized that upon thin exposures, restrained eaters would engage in similarity testing and thus experience self-enhancing effects, while unrestrained eaters would engage in dissimilarity testing and experience deflating effects. A total of 144 female undergraduate students were randomly assigned to view either thin, large, or product advertisements. Results indicated that unsuccessful restrained eaters engaged in marginally more similarity testing than did unrestrained eaters; however, no groups experienced any affective consequences of viewing either the thin or the large advertisements.
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INTRODUCTION

Overview

Body Dissatisfaction and Thin Media Images

In Western industrialized societies, an unrealistically thin body shape has become the epitome of female beauty (Heinberg, 2001). For example, a seminal study found that from 1959 to 1978, the physiques of both Playboy centerfolds and Miss America pageant contestants steadily progressed to a thinner standard (Garner, Garfinkel, Schwartz, & Thompson, 1980). Another study found that the bust-to-waist ratio of female models in mainstream magazines decreased from 1950 to 1981 (Silverstein, Perdue, Peterson, & Kelly, 1986). This trend of continually diminishing body ideals has been found to extend to recent years (Seifert, 2005; Wiseman, Gray, Mosimann, & Ahrens, 1992).

As a result of this overvaluation of the thin ideal, there has been increasing pressure for women to conform to this ideal, so much so that a moderate level of body dissatisfaction is now normative in our culture (Rodin, Silberstein, & Striegel-Moore, 1985). The sociocultural theory has been proposed to account for the role of society in contributing to body image disturbances and eating disorders (J. K. Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). According to this view, women are indoctrinated from a young age to believe that they must conform to an impossibly thin figure to attain the cultural standard of beauty (Anderson-Fye & Becker, 2004; Wertheim, Paxton, & Blaney, 2004). This thin beauty ideal is acquired from a variety of sources, such as parents and peers (Keery, van den Berg, & Thompson, 2004; Stice, 1994; Wertheim, Paxton, &
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Blaney, 2004). However, it is generally agreed upon that the most ubiquitous and influential disseminator of this message is the mass media (Heinberg, 2001; J. K. Thompson & Heinberg, 1999; Tiggemann & McGill, 2004). Through exposure to thinness-promoting magazines, television shows, and music videos, women are led to believe that slimness is a requisite for beauty, health, vitality, and success (Levine & Harrison, 2004; Nasser, 1988). However, given that the thin ideal is difficult, if not nearly impossible, for the majority of women to achieve, continual exposure to thin media images may lead to adverse psychological consequences such as body dissatisfaction, which may consequently increase the risk of the development of disordered eating behaviours (Stice, 1994). Indeed, much research, from correlational to experimental, has converged to provide “incontrovertible evidence” that thin media images play a significant role in the development and maintenance of body image as well as eating disturbances (Anderson-Fye & Becker, 2004).

Empirical Review

Correlational Research

Correlational research in this area generally involves examining the relationship between an individual’s exposure to various forms of thin media images in their everyday life, and their levels of eating and body image disturbances. Most studies in this area have found a small but significant relationship between thin media consumption and disordered eating symptomology. For example, exposures to magazines depicting ultra-thin supermodels is associated with an increased desire to be thin (Harrison & Cantor, 1997; Lokken, Worthy, & Trautman, 2004), greater internalization of the thin ideal
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(Lokken et al., 2004), anorexic and bulimic behaviours (Botta, 2003; Harrison, 2000b; Harrison & Cantor, 1997), and body dissatisfaction (Harrison & Cantor, 1997; Levine, Smolak, & Hayden, 1994). Exposures to television programs or music videos with a strong emphasis on thin female characters have been found to be related to increased appearance and weight concerns (Borzekowski, Robinson, & Killen, 2000), greater levels of body dissatisfaction (Harrison & Cantor, 1997), and bulimic symptoms (Harrison, 2000a). These relationships have been observed in children as young as seven (Harrison, 2000b), in adolescents (Botta, 2003; Levine et al., 1994), and in university undergraduate students (Harrison & Cantor, 1997; Lokken et al., 2004).

However, the negative effects of thin ideal media exposures have not been consistently observed, with some studies reporting no relationship between real-life exposures and eating disordered symptomology (Botta, 1999; Cusumano & Thompson, 1997). The incongruous results obtained with correlational research has been hypothesized to largely stem from the limitations of correlational designs (Anderson-Fye & Becker, 2004; Berel & Irving, 1998; Harrison & Cantor, 1997). In particular, it is impossible to ascertain the direction of causation by simply observing the relationship that may exist between thin media exposures and eating and body image disturbances. While the mass media has been widely criticized for its role in creating and fostering a culture of body discontentment, it is equally plausible that women who are particularly invested in their physical appearance actively seek out such images and react more negatively to them (Berel & Irving, 1998; Harrison & Cantor, 1997).
Experimental Research

To further explore these relationships while overcoming the limitations of correlational designs, many studies have employed procedures that permit experimental control of the images presented to participants. In these paradigms, participants are typically assigned to view one of two types of images: thin media images (the experimental condition) or neutral images (the control condition). The reactions of the experimental and control groups are then compared, which then allow for hypotheses regarding the impact of the thin ideal exposures on participants’ short-term psychological well-being.

In a recent meta-analysis of 25 such studies, it was concluded that exposures to thin ideal images generally result in negative effects, and that such effects constitute “a small but relatively consistent and significant effect size” (Groesz, Levine, & Murnen, 2002, p.11). Some of the short-term negative consequences that have been reported include decreased perceptions of self-attractiveness (Crouch & Degelman, 1998; E. Henderson-King & Henderson-King, 1997), greater negative mood such as depression, anger, and anxiety (Cattarin, Thompson, Thomas, & Williams, 2000; Durkin & Paxton, 2002; Pinhas, Toner, Ali, Garfinkel, & Stuckless, 1999; Stice & Shaw, 1994; Tiggemann & McGill, 2004), increased body and weight dissatisfaction (Irving, 1990; Ogden & Mundray, 1996; Richins, 1991; Shaw, 1995; Tiggemann & McGill, 2004; Tiggemann & Slater, 2003), greater anxiety and preoccupation with one’s own weight (Halliwell & Dittmar, 2004; Tiggemann & McGill, 2004), overestimations of current body size (Hamilton & Waller, 1993; Lavine, Sweeney, & Wagner, 1999; Ogden & Mundray,

These negative effects have been observed in girls as young as twelve (Durkin & Paxton, 2002) and in women as old as thirty-five (Halliwell & Dittmar, 2004), indicating that females from a broad range of ages are similarly affected by thin ideal exposures. The negative impact of such exposures have been obtained with as few as three images (Crouch & Degelman, 1998), and occur even when these exposures appear to be incidental to a study, such as when participants simply peruse fashion magazines while supposedly waiting for an experiment to begin (Turner, Hamilton, Jacobs, Angood, & Dwyer, 1997). These negative effects may not even be confined to the short-term, as a recent study reported that the negative mood following thin media exposures was detectable more than two hours after the experiment had ended (Hausenblas, Janelle, Gardner, & Focht, 2004).

However, the negative impact of thin media exposures has not been consistently reported, as many studies have failed to find any detrimental effects of such exposures (Cash, Cash, & Butters, 1983; Champion & Furnham, 1999; Frisby, 2004; Jung & Lennon, 2003; Lennon, Lilletun, & Buckland, 1999; Posavac, Posavac, & Posavac, 1998). Because of publication bias, there may in fact be additional unpublished studies which have also obtained null effects. Based on the findings of their early study, Cash and colleagues (1983) concluded that “thumbing through popular magazines filled with beautiful models may have little immediate effect on the self-images of most women” (p.355). However, the majority of researchers following Cash et al. have been wary to
assent to these authors' conclusion.

The Role of Individual Differences in Determining Reactions to Thin Media Images

Instead, an alternative explanation that has been offered is that the null effects reported by some studies were obtained because individual differences of the participants were not taken into account (D. Henderson-King, Henderson-King, & Hoffman, 2001). Therefore, any variation in how different women may have reacted to the thin images may have been obscured by treating the sample as one homogenous group. This is illustrated in one study, where no significant findings were initially obtained when examining how the overall sample responded to the thin ideal exposures (Posavac et al., 1998). However, in comparing women with high and low levels of trait body dissatisfaction, it was revealed that only women who were highly dissatisfied with their bodies reacted negatively to such exposures, and specifically evidenced more concerns about their weight. Similarly, other studies that have failed to find any consequences of thin exposures have in common a neglect to examine individual differences as potentially important moderating variables (Cash et al., 1983; Lennon et al., 1999).

Because it is unlikely that thin media exposures lead to eating and body image disturbances in all women (Stice, 1994), increasing attention has been paid to how individual differences may predispose certain women to be especially susceptible to negative reactions upon idealized media exposures (E. Henderson-King & Henderson-King, 1997; Tiggemann & McGill, 2004; Wertheim, Paxton, & Blaney, 2004). Some characteristics that have been found to act as potential risk factors include internalization of the thin ideal (Cattarin et al., 2000; Heinberg & Thompson, 1995; Stice, Schupak-
Neuberg, Shaw, & Stein, 1994), a tendency to make appearance comparisons with other people (Faith, Leone, & Allison, 1997), high trait levels of body dissatisfaction (King, Touyz, & Charles, 2000; Posavac et al., 1998), and high levels of investment in one’s physical appearance (Thornton & Maurice, 1999).

Restraint Status: An Important Individual Difference

One individual difference that has recently received increasing attention is restraint status. Restrained eating refers to the practice of restricting one’s food intake to achieve or maintain weight loss, while ignoring physiological cues of hunger (Ruderman, 1986). In the subsequent sections, restrained eaters or dieters will refer to individuals who exhibit this tendency, while unrestrained eaters or non-dieters will refer to individuals who do not.

Restraint status has emerged as an especially interesting moderator, as its influence on the relationship between thin media exposures and the consequences of such exposures does not accord with the pattern observed with other moderators. With other moderating variables, individuals who have greater eating and body image disturbances typically exhibit more adverse reactions to thin model presentations than individuals who have fewer of these disturbances. For example, compared to women who are satisfied with their bodies, women who have greater dissatisfaction exhibit increased weight concerns following thin media exposures (Posavac et al., 1998). As another example, women who believe that their self-worth is contingent on their physical appearance feel more depressed after viewing thin models than women who do not hold this belief (Patrick, Neighbors, & Knee, 2004). However, with restraint status, an opposite pattern
emerges, whereby restrained eaters have been found to feel better than unrestrained eaters following thin ideal exposures (Joshi, Herman, & Polivy, 2004; Mills, Polivy, Herman, & Tiggemann, 2002). In other words, restrained eaters, who are women with greater eating disturbances and who based on the findings of past research would be hypothesized to react negatively to thin ideal exposures, in reality seem to experience enhancing effects of these exposures. In contrast, unrestrained eaters, who are women with fewer eating pathologies and who are therefore expected to be more immune to thin images, actually seem to experience detrimental psychological reactions.

**Empirical research into the moderating role of restraint status.** In the first study to report this finding, Mills and colleagues (2002) presented a series of 12 advertisements to undergraduate females who had been classified as either restrained or unrestrained eaters. These advertisements depicted either: a) thin models, b) large\(^1\) models, or c) products only (the control condition). Following these exposures, participants' mood, self-esteem, and body size perception were assessed. It was reported that restrained eaters in the thin condition experienced a number of positive outcomes that were not observed in restrained eaters in the large or control conditions. For example, even though restrained eaters as a group endorsed lower levels of state self-esteem than unrestrained eaters, the appearance self-esteem of restrained eaters who had viewed the thin ads was significantly higher than that of the groups who had viewed the other two types of ads. In

\(^1\) In the present study, the terms large or plus-size will be employed interchangeably to refer to models who are of a larger body size than typical mainstream models. These terms do not imply that these models are overweight or obese; in fact, they are typically of the same size as an average woman (Peck & Loken, 2004).
The self-esteem of unrestrained eaters did not vary across advertisement type. Objectively, restrained eaters also had a higher body mass index (BMI) than unrestrained eaters, and the former group generally accurately estimated their larger body size. However, restrained eaters who had been exposed to images of thin models actually reported a smaller current body size than the groups who had viewed the large or the product ads. In unrestrained eaters, the opposite effect was found: the group who had viewed the thin images judged their current body size to be larger than the groups who had viewed the other two types of images. Thus, this study found that restrained eaters who had viewed images of thin models felt more confident about their appearance, possibly because they temporarily judged their current body size to be smaller.

Joshi et al. (2004) found similar self-enhancing effects among restrained eaters following exposures to thin model advertisements. Thirty advertisements depicting either no models or thin models were presented to a group of undergraduate women classified as either restrained or unrestrained eaters. Each ad was presented for either a duration of 30 seconds (long-exposure) or 150 milliseconds (short-exposure). Results indicated that restrained eaters in the thin condition (regardless of exposure time) reported higher levels of state social self-esteem than restrained eaters in the control condition. In contrast, unrestrained eaters in the long-exposure thin condition reported lower state appearance self-esteem than unrestrained eaters in the short-exposure or control conditions. Furthermore, restrained eaters who had viewed the thin images (regardless of exposure duration) reported a more positive self-image than restrained eaters who had viewed only the product ads. These results prompted the researchers to conclude that restrained eaters
experienced no negative effects of the thin ideal exposures, and in fact, derived some benefits. In contrast, unrestrained eaters experienced no positive effects but one negative effect in response to prolonged thin exposures.

From these two studies, it would thus appear that not all women who have eating disturbances become discouraged after viewing images of thin models. On the contrary, restrained eaters seem to derive at least temporary psychological benefits from these exposures, including feeling thinner and more confident about their appearance and social efficacy. However, it must be noted that both Mills et al. (2002) and Joshi et al. (2004) found that the self-perceptions of restrained eaters in the thin condition were comparable to that of unrestrained eaters in the control condition, indicating that restrained eaters do not engage in extreme levels of self-enhancement, but simply experience boosts in their self-image to levels that are comparable to those characteristically observed in unrestrained eaters.

However, not all studies have found that restraint status moderates the relationship between thin ideal exposures and subsequent reactions to such exposures. In an earlier study, Ogden and Mundray (1996) examined the effects of magazine advertisements depicting either thin, plus-size, or no models on undergraduate students of both sexes. It was found that in comparison to participants who had viewed advertisements portraying either no models or large models, participants who had viewed advertisements of thin models reported feeling more fat, and less attractive, fit, and sexy. In addition, participants who had viewed the thin images rated their current body size, as well as their hips and waist, as larger than participants in the other two ad conditions.
However, there were no differences in the reactions of restrained and unrestrained eaters.

From the conflicting results discussed, it may initially seem debatable as to whether there are genuine differences in the reactions of restrained and unrestrained eaters to thin media images. However, on closer examination, it is plausible that these disparate results stem primarily from methodological variations between the different studies. One important variation is the gender of the sample employed. While both Mills et al. (2002) and Joshi et al. (2004) employed an exclusively female sample, Ogden and Mundray (1996) employed a sample consisting of both sexes, and failed to analyse their results by gender. Given that the majority of restrained eaters are female (Wardle & Beales, 1986; Wiedel & Dodd, 1982-1983), and that males and females differ in their reactions to idealized female images (Lavine et al., 1999), it is theoretically unsound to include both male and female participants in the same analyses. Consequently, gender differences in the Ogden and Mundray study may have obscured any dissimilarities that may have been present in the reactions of female restrained and unrestrained eaters. This is a serious limitation of the study, as Thompson (2004) asserts that, of the errors made by researchers and clinicians, “perhaps the most egregious example over the years was the decision to pool data from males and females” (p. 12).

Another methodological difference between the studies is the measure employed to classify restrained and unrestrained eaters. While both Mills et al. (2002) and Joshi et al. (2004) employed the Restraint Scale (RS; Herman & Polivy, 1980), Ogden and Mundray (1996) employed the Dutch Eating Behavior Questionnaire (DEBQ; van Strien, Frijters, Bergers, & Defares, 1986). However, it has been reported that these two
measures typically identify different groups of restrained eaters (Heatherton, Herman, Polivy, King, & McGree, 1988; Laessle, Tuschl, Kotthaus, & Prike, 1989). The RS primarily contains items assessing an individual’s attitudes towards eating and weight, and is therefore a cognitive measure of restraint. It typically identifies unsuccessful restrained eaters, that is, individuals who are highly motivated to lose weight by restricting their food intake, but who behaviourally vacillate between periods of restriction and disinhibited overeating, resulting in little actual weight loss (Heatherton et al., 1988; Laessle et al., 1989). In contrast, the DEBQ contains primarily behavioural items, and therefore identifies restrained eaters who have successfully implemented food restriction regimens to achieve weight loss (Heatherton et al., 1988). Because research in other areas have reported different patterns of results depending on whether the RS or the DEBQ had been used (e.g., Ouwens, van Strien, & van der Staak, 2003), it is plausible that the contrast in results between the two studies reporting the self-enhancement effect, and the one that obtained null effects, may also be due to differences in the measure employed to identify restrained and unrestrained eaters.

Because the conflicting results obtained by previous studies may have been primarily due to methodological differences, the potential disparate reactions displayed by restrained and unrestrained eaters to thin media images merits further investigation. To account for their results, Mills et al. (2002) provided an explanation based on the cognitive processes hypothesized to occur in upward social comparisons. The process of social comparison has been increasingly recognized as an important mechanism in influencing the impact of thin ideal exposures (J. K. Thompson, Coovert, & Stormer,
Thin Media Exposures and Social Comparison

1999; Tiggemann & McGill, 2004), and has in fact been identified as a “critically important area for further research on media effects” (Levine & Harrison, 2004, p.700). However, as will be discussed shortly, the explanation proposed by Mills et al. cannot account for some facets of comparison to thin media images. Therefore, the goal of the present study was to test an alternative theory of social comparison processes to explain the potential contrasting reactions of restrained and unrestrained eaters to thin ideal images. The following discussion will first briefly review the history of social comparison research, before exploring these concepts as they pertain to thin media research.

A Brief History of Social Comparison Theory

In his seminal article, Festinger (1954) defined social comparison as a process in which individuals compare themselves to others to evaluate their own skills, attributes, or any other personal characteristic for which an objective standard for evaluation is lacking. For example, in order to judge her own level of attractiveness, a woman has no objective criteria to consult. Instead, information must be obtained by comparing the self to other women. These comparisons may then yield information as to whether the self is aesthetically superior or inferior to others.

Social comparisons can occur in one of two directions—either upwards to a superior individual, or downwards to an inferior individual. The direction of a comparison is an important determinant of the impact of the comparison itself (Suls & Wheeler, 2000). In his original conceptualization, Festinger (1954) hypothesized that there was a “unidirectional drive upward” (p.124), such that individuals usually prefer to
compare themselves to targets\(^2\) slightly superior to the self, with such upward comparisons providing motivation and direction for self-improvement. However, based on the influential work of theorists such as Wills (1981), a shift occurred in the early 1980s, in which it became widely believed that social comparisons resulted in contrast effects (Suls & Wheeler, 2000). In other words, it was assumed that the consequences of a comparison would be in opposition to the direction of comparison, so that upward comparisons would lead to diminished feelings about the self, while downward comparisons would yield improved self-evaluations.

The contrast theory of social comparisons has received some empirical support (J. D. Brown, Novick, Lord, & Richards, 1992; Cash et al., 1983; Crouch & Degelman, 1998; Ogden & Mundray, 1996). For example, in one study, participants who had viewed a photograph of an unattractive woman rated their own degree of attractiveness more favourably than participants who had viewed a photograph of an attractive woman (J. D. Brown et al., 1992). In other words, it was found that downward comparisons to a less attractive standard resulted in more positive evaluations of one’s beauty, while upward comparisons to a more desirable standard resulted in less favourable evaluations.

However, many researchers have questioned the overly simplistic predictions of the contrast theory of social comparison consequences, as research emerged in the late 1980s that demonstrated that both positive and negative effects could result from either

\(^2\) In accordance with the literature, the terms standard, target, and comparison target will be used interchangeably to refer to the individual that is being compared to. The term judge will be used to denote the individual making the social comparison.
direction of comparison (Buunk, Collins, Taylor, VanYperen, & Dakof, 1990). For example, Taylor and Lobel (1989) reported that cancer patients who learned of an individual who had successfully combatted the disease did not feel increased hopelessness and discouragement (the predicted outcome of an upward social comparison), but instead felt inspired and reassured about their own prognosis. Similarly, downward comparisons do not inevitably yield positive outcomes; for example, work with chronically ill patients has indicated that some individuals prefer to avoid contact with patients who are worse off than them, as such exposures may make more salient their own tenuous situation (Dakof & Mendelsohn, 1986).

To summarize, a greater understanding of the impact of social comparisons has painted a more complex picture of this process than was initially proposed, as the direction of comparison does not always appear to be an accurate predictor of the consequences of the comparison. Similarly, although it was once believed that social comparison contrast effects could account for the affective outcomes of thin media exposures (Berel & Irving, 1998; Tiggemann, 2002), recent work has shown that the consequences of these exposures are more complex than the predictions based on contrast effects would have yielded. In fact, the validity of the overly simplistic contrast theory in accounting for the effects of thin media exposures is increasingly being questioned by researchers (Levine & Harrison, 2004).

Social Comparison Processes During Thin Media Exposures

There is much empirical research indicating that the majority of women engage in social comparisons with idealized images they encounter in the mass media (Milkie,
Furthermore, social comparisons have been found to play an integral role in determining the outcome of thin media exposures. For example, Tiggemann and McGill (2004) reported that the process of making social comparisons perfectly mediated the relationship between thin exposures in the laboratory and resulting increases in negative mood and body dissatisfaction. In addition, it has been found that women who tend to compare their appearance and physique to those of others' have greater body image disturbances than women who do not exhibit this tendency (Botta, 2003; Faith et al., 1997; Heinberg, Thompson, & Stormer, 1995). It has in fact been hypothesized that vulnerable individuals (i.e., those who are high in body dissatisfaction and internalization of the thin ideal) may be at an increased risk of developing eating pathologies because they are more prone to making social comparisons (Stice, Spangler, & Agras, 2001).

Comparisons to thin models represent an upward comparison for the majority of women (J. K. Thompson, Cooveret et al., 1999; Tiggemann & McGill, 2004). This is because the typical model portrayed in the media is exceptionally thin and attractive, and thus represents a superior standard to the average woman both in terms of physique and current conceptions of beauty (Botta, 1999; Hausenblas et al., 2004). Based on the contrast theory of social comparisons, it would thus be predicted that upward comparisons to these models would result in mainly negative effects, and this has in fact been reported in the majority of research (Groesz et al., 2002).

However, some research has revealed that not all women feel discouraged after thin exposures (Heinberg & Thompson, 1995; D. Henderson-King et al., 2001; E.
Henderson-King & Henderson-King, 1997; Myers & Biocca, 1992), indicating that the contrast theory of social comparisons may not be able to account for all outcomes of thin media comparisons (E. Henderson-King & Henderson-King, 1997). Instead, a number of moderators to this relationship have been identified (D. Henderson-King et al., 2001; E. Henderson-King & Henderson-King, 1997; Wilcox & Laird, 2000). The present study will focus on the moderating role of restraint status: as discussed above, although both restrained and unrestrained eaters may make upward comparisons to thin models, only unrestrained eaters appear to experience the expected negative contrast effects. Thus, upward social comparisons to thin media images may lead to either enhancing outcomes (in restrained eaters) or negative outcomes (in unrestrained eaters). It is therefore important to understand what processes may be at work to explain how restrained and unrestrained eaters experience such contrasting reactions as a result of upward comparisons to the thin ideal.

An Initial Social Comparison Theory for Restrained and Unrestrained Eaters

To account for the moderating effects of restraint status on women's reactions to thin media images, Mills et al. (2002) based their explanation on the work of Lockwood and Kunda (1997). In a series of studies, Lockwood and Kunda sought to explain why upward social comparisons can on some occasions result in assimilation and thus inspiration, while on other occasions can lead to the contrast effects of discouragement and deflation. In particular, they hypothesized that judges' relevance and attainability assessments may moderate the relationship between upward comparisons and their resultant consequences.
To test their theory, Lockwood and Kunda (1997) first had undergraduate students read vignettes describing 'academic superstars', and rate themselves on a variety of academic dimensions in relation to these superstars. In the first study, relevance perceptions were manipulated by presenting students with a comparison target who was either in the same or different faculty. Results indicated that if the superstar was regarded as irrelevant (e.g., having an education student compare herself to an exceptional accounting student), judges failed to engage in comparisons with the standard. However, if the superstar student was relevant, judges rated their own skills and attributes more positively, indicating a self-enhancement effect.

In a subsequent study, the moderating effects of attainability perceptions were assessed by contrasting individuals who believed that intelligence could be improved (high attainability) with individuals who believed that intelligence was a fixed trait (low attainability). It was found that individuals with high attainability beliefs felt better about their own abilities following comparisons with a superstar student than individuals with low attainability beliefs, presumably because the former group felt that a high level of achievement was realistically possible, and therefore became inspired. From these series of studies, support was therefore garnered for the importance of relevance and attainability assessments in upward comparisons, as inspiration occurred only when the standard was perceived as either relevant or attainable by the judge.

To account for their findings, Mills et al. (2002) similarly emphasized the importance of the perceived relevance and attainability of the thin models. In particular, they accounted for the self-enhancement effect in restrained eaters by hypothesizing that
these women perceived the thin images as both relevant and attainable. Restrained eaters may have perceived the models as relevant, as the thin physique portrayed by the models embodies their ultimate weight loss goals. Furthermore, because they invest much of their efforts in dieting, they may believe that this technique is effective in achieving weight loss and a slimmer physique. Thus, because restrained eaters may have perceived the slimness portrayed by the thin models as both relevant and attainable, they may have become more optimistic about their physical appearance following comparisons with these models.

To support their hypotheses, Mills et al. (2002) subsequently investigated attainability beliefs as a moderator to restrained eaters’ reactions to thin media exposures. Only restrained eaters were included in this second study to ensure that the idealized presentations would be relevant to most of the participants. Attainability beliefs regarding weight loss were manipulated by having participants read one of three articles—high attainability (hard work and dieting can lead to weight loss), low attainability (weight loss is impossible as body size is genetically determined), and a neutral article about wolves. After reading these articles, participants were presented with either a series of thin model ads or product only ads. As expected, it was found that restrained eaters who were led to believe that a thin body size was unattainable felt significantly more anxious and depressed following the thin media presentations than restrained eaters who believed that thinness was attainable. In other words, when attainability beliefs were low, restrained eaters failed to experience any self-enhancing effects of the thin exposures, and in fact, felt affectively worse.
Thin Media Exposures and Social Comparison 20

However, it must be noted that this study found limited self-enhancement effects of thin exposures even among restrained eaters with high attainability beliefs: although high attainability restrained eaters in the thin condition had significantly lower depression scores than those assigned to the product condition, findings in terms of anxiety, negative affect, and appearance self-esteem were only marginally significant, and contrary to the results of Study 1, no effects were found in perceptions of current body size. However, if relevance and attainability assessments are highly influential in comparison judgments, as was hypothesized by the researchers, restrained eaters with presumably high relevance beliefs and manipulated high attainability beliefs should have evidenced strong self-enhancement effects following thin exposures, especially in valued domains such as physical appearance and body size perception. Because these domains were not greatly affected, there is the possibility that relevance and attainability perceptions may not be the strongest determinants of social comparison outcomes during upward comparisons.

Limitations of relevance and attainability. Although the role of relevance and attainability appraisals may be important in some comparison situations, these two moderators alone are unable to provide a comprehensive account of the outcomes of comparisons to thin media images. In fact, Mills et al. (2002) only partially explained their findings with these two cognitive mechanisms. In particular, they only empirically tested the role of attainability perceptions in explaining the self-enhancement effect in restrained eaters, having simply assumed that thin images must be relevant to all restrained eaters. However, it is plausible that not all individuals are dieting to emulate the ultra-thin physique portrayed by thin media images; some may be motivated to diet
for other reasons, such as health, and may therefore perceive little relevance of these images. It is uncertain whether restrained eaters who do not perceive idealized thin images to be relevant will still experience enhancing effects of exposures to these images.

Similarly, although a truly comprehensive account of restrained and unrestrained eaters' reactions to thin media images should be able to explain the latter groups' demoralization following exposures to such images, Mills et al. (2002) provided no such explanation. Upon closer examination, although the majority of unrestrained eaters are hypothesized to have low attainability beliefs (they may not be currently dieting because they lack faith in the attainability of the thin ideal), relevance perceptions in this group may be more complex. Some unrestrained eaters may not perceive thinness as a self-relevant goal, and thus have little motivation to pursue weight-loss strategies. However, other unrestrained eaters may have internalized sociocultural pressures to be thin, and thus may be as likely as some restrained eaters to hold the attainment of an ultra-thin physique as a relevant goal. They may not be currently dieting for a number of other reasons, such as past failures and subsequent disillusionment with weight loss strategies.

Based on their differences in relevance perceptions, it is possible that these two groups of unrestrained eaters may exhibit different reactions to thin media exposures. For example, only unrestrained eaters who perceive thinness as a relevant but unattainable goal may become more discouraged following thin ideal exposures. In contrast, unrestrained eaters who have low relevance perceptions may be unaffected by the thin exposures, as Lockwood and Kunda (1997) found that individuals fail to make social comparisons to irrelevant targets.
Another limitation of these two cognitive mechanisms is that Lockwood and Kunda (1997) theorized that relevance and attainability assessments would be most influential in situations where substantial information is provided about the comparison target, as a multidimensional portrait of the target would clarify the goals and achievements that judges should aspire to. To this end, Lockwood and Kunda provided all their participants with “detailed, richly portrayed descriptions of a person of outstanding accomplishment” (p. 94). However, an abundance of information about the comparison target may not characterize the majority of naturally occurring thin media comparisons. In contrast to the rich portraits that were provided in the study by Lockwood and Kunda, when women typically view images of thin models, little personal information is given about the models to portray them as multidimensional individuals. Instead, little is known about the model aside from aspects of her physical appearance, and comparisons are often made only in terms of these superficial features. Because Lockwood and Kunda found relevance and attainability assessments to be moderators only in comparisons to detailed targets, these two factors may have only limited influence on the outcomes of everyday comparisons. This limitation may especially apply to comparisons with media images, which are often presented as unidimensional comparison targets.

From the previous discussion, it is clear that in order for relevance and attainability to be a viable explanation for the reactions of restrained and unrestrained eaters to thin media images, it must be further developed to account for other factors, such as relevance perceptions. Furthermore, relevance and attainability appraisals may
not always impact the consequences of social comparisons, but only when sufficient information is provided about the comparison target. Given these limitations, an alternative theory that can apply to a greater diversity of situations and circumstances is required.

The Selective Accessibility Model

One theory that is able to account for a wider range of social comparison consequences was recently proposed by Mussweiler (2003a). The goals of Mussweiler's theory, termed the Selective Accessibility (SA) model, was to (a) account for the cognitive mechanisms that occur during social comparisons, and (b) with this mechanism, account for how a variety of moderators can influence the consequences of a comparison. For example, this study focussed on the moderator of restraint status.

The crux of Mussweiler’s theory is that the consequences of a social comparison will largely depend on whether judges look for similarities or differences between themselves and the comparison target (Mussweiler, 2003a, 2003b). This process, termed similarity or dissimilarity hypothesis testing, will determine what type of self-knowledge is subsequently made accessible, which will in turn determine the comparison outcome. The actual process of hypothesis testing is theorized to occur in two stages (Mussweiler, 2003a). In the first stage, judges make a quick holistic judgment as to whether they are either primarily similar to or different from the standard. This judgment, although too brief to access all the information required to make a thorough comparison, will nevertheless determine whether a similarity or dissimilarity hypothesis is entertained (Mussweiler, 2003a). Evidence to support this hypothesis is obtained in the second stage
of hypothesis testing, where additional information is made accessible from the rich and available stores of self-knowledge (Mussweiler, 2003b). Because of the wealth of self-knowledge that each individual possesses, it is likely that information supporting the original hypothesis will be made accessible (Mussweiler, 2001).

By default, judges will entertain a similarity hypothesis, which means that most individuals will initially attempt to find similarities between themselves and a presented target (Mussweiler, 2003c). If a similarity hypothesis is regarded as tenable in the first phase of the evaluation, in the second phase, judges engage in a more thorough search of self-knowledge to uncover additional ways in which the self is similar to the standard (Mussweiler, 2003a). Armed with the initial hypothesis that the self and the standard are similar, and subsequently finding additional evidence to support this hypothesis, judges in this situation will typically conclude that they are indeed similar to the standard.

Feelings of similarity to the standard result in assimilation, where judges feel more affiliated with the comparison target than they originally had been before the comparison (Mussweiler, 2003a). Assimilation to a standard is in itself affectively neutral. Either positive or negative feelings can result, depending on whether an upward or downward social comparison has taken place (Mussweiler, 2003a). If an upward comparison has been made, greater feelings of affiliation with a desirable standard may result in more positive feelings about the self. Alternatively, in a downward comparison, feeling closer to an inferior target may be experienced as deflating. In other words, the direction of the comparison interacts with perceived similarity to produce the consequences of a social comparison. Similarity testing in the context of upward
comparisons usually results in enhanced feelings, while in the context of downward comparisons usually results in self-deflation.

So far, the discussion has focussed only on situations in which similarities between the self and the standard are perceived. Although by default judges will look for similarities, there will be instances when the standard is perceived as so disparate from the self that a similarity hypothesis can no longer be entertained (Mussweiler, Rüter, & Epstude, 2004). Many factors may predispose a dissimilarity focus; Mussweiler (2003a) notes a common factor to be category membership. In many instances, a standard from a different category, such as an individual of the opposite sex, will be initially perceived as dissimilar from the judge (Mussweiler, 2003a). If a dissimilarity hypothesis is entertained during the initial holistic judgment, in the subsequent search of self-knowledge, the judge will search for personal information that will provide additional evidence that the self and the standard are different. Again, given the extensive nature of self-knowledge, this information will usually be made accessible. Thus, the dissimilarity hypothesis is likely to be supported, and contrast away from the standard is likely.

Similar to assimilation, contrast from a comparison target may yield either positive or negative effects, depending on the direction of comparison (Mussweiler, 2003a). Contrast in an upward comparison may be experienced as detrimental, as feeling less similar to a superior standard may highlight the inadequacies of the self. Alternatively, contrast away from a downward comparison may be enhancing, in that judges may consequently feel less affiliated with a demoralizing standard.
Similarity and Dissimilarity Testing in Restrained and Unrestrained Eaters

The mechanisms of similarity and dissimilarity testing can provide an alternative account of restrained and unrestrained eaters' disparate reactions to idealized female images (Joshi et al., 2004; Mills et al., 2002). It is firstly hypothesized that restrained eaters entertain a similarity hypothesis when viewing thin images. A similarity hypothesis may be more easily tenable for this group not only because it is the default direction of comparison (Mussweiler, 2003c), but also because restrained eaters may perceive many commonalities between themselves and ultra-thin models, such as an emphasis on the importance of thinness. Additional similarities between themselves and the models may therefore become more accessible during the search phase of the comparison process, thereby increasing the probability that assimilation to the thin model standard may result. Greater feelings of affiliation with thin idealized models may lead to a number of enhancing effects previously reported in the literature, including more positive perceptions of one's body and physical appearance (Joshi et al., 2004; Mills et al., 2002).

In contrast, because there was evidence that unrestrained eaters felt worse after comparisons to thin ideal images (Joshi et al., 2004; Mills et al., 2002), it is possible that these individuals may find it difficult to initially perceive similarities between themselves and the ideal standards. Reasons for this difficulty may include disillusionment with the sociocultural ideal of beauty, or previous failures with dieting, leading this group to believe that the thin ideal is impossible to achieve, and therefore underlining a fundamental difference between supermodels and regular women. For these and other
reasons, unrestrained eaters may be more likely to entertain a dissimilarity hypothesis, and additional differences between themselves and the thin models may become more accessible during a search of self-knowledge. By obtaining additional evidence that they differ from the sociocultural ideal of beauty, this group may consequently feel less confident about their own bodies, resulting in negative contrast effects (Joshi et al., 2004; Mills et al., 2002).

The SA model can also account for the moderating influence of attainability appraisals observed in restrained eaters following thin media exposures (Mills et al., 2002). As discussed above, it was found that following thin exposures, restrained eaters who were led to believe that thinness is attainable felt less anxious and depressed than restrained eaters who believed that thinness is unattainable (Mills et al., 2002). Learning that thinness can be realistically achieved may have highlighted similarities between the self and the thin ideal (e.g. if I continue to diet, I can look like her in the future), resulting in similarity testing and consequent assimilation to the model standard. However, learning that thinness is unattainable may have made differences between the self and the supermodel more salient (e.g. I can never look like her, no matter what I do), resulting in dissimilarity testing, contrast from the model standard, and negative affect. In other words, restrained eaters who were informed of the unattainability of the thin ideal may have become more aware of the differences between themselves and this ideal during social comparison, consequently experiencing negative emotions such as anxiety and depression.
Advantages of the SA Model

It is hypothesized that relevance and attainability assessments alone are inadequate in accounting for the multifaceted nature of social comparison consequences. Therefore, the present study forwards the SA model as an alternative explanation of the effects of social comparisons, and specifically as an explanation for the reactions of restrained and unrestrained eaters to thin media exposures. Unlike relevance and attainability perceptions, which cannot or have yet to be applied to account for many possible comparison situations involving thin media images, the SA model, being a "unified account of comparison consequences" (Mussweiler et al., 2004, p.833) is able to account for more comparison outcomes, while also avoiding some limitations of explanations based on relevance and attainability.

For example, as discussed above, the relevance appraisals of restrained and unrestrained eaters were not accounted for by Mills et al. (2002), and in fact, a closer examination of relevance perceptions reveals that these perceptions can vary widely across individuals, which can lead to overly complex predictions of thin ideal comparison outcomes. In contrast, the SA model avoids the convoluted construct of relevance, and instead focuses on similarity and dissimilarity testing, cognitive mechanisms that yield simple predictions of comparison consequences, and which can also be objectively assessed (as will be subsequently discussed).

It was also discussed above that Lockwood and Kunda (1997) found support for the role of relevance and attainability in upward comparisons only when a rich and detailed portrait of the comparison target was provided. It is therefore uncertain whether
relevance and attainability perceptions may play a role in comparisons with less defined
targets, such as those typically found in the mass media. However, similarity and
dissimilarity testing can occur even when little information is known about the
comparison target. It has been noted that assessments of similarity are basic cognitive
processes, and similarities between two objects or concepts are usually easily recognized
(Gentner & Markman, 1997). In addition, it has been found that perceptions of
similarities and the activation of accessible self-knowledge can occur even in situations
where little information is provided about the comparison target (Mussweiler, 2003a), or
when the target is irrelevant to the judge (Mussweiler & Strack, 2000). In the extreme,
similarity assessments can arise simply from learning about a single piece of seemingly
trivial information about the target, such as a common birth date (J. D. Brown et al.,
1992). Therefore, unlike relevance and attainability assessments, similarity and
dissimilarity testing can occur in situations when in-depth knowledge about the
comparison target is lacking.

Therefore, the SA model and the processes of similarity and dissimilarity testing
are able to provide a viable and parsimonious explanation of social comparison
consequences, while also overcoming some of the limitations of relevance and
attainability accounts. However, it is not suggested that similarity and dissimilarity
testing are the sole processes at work during social comparisons. In fact, some theorists
have argued that similarity, relevance, and attainability assessments may all play a role in
impacting the consequences of social comparisons (Major, Testa, & Bylsma, 1991).
While Mills et al. (2002) emphasized the deliberate evaluations of relevance and
attainability to account for their findings, this study focussed on the more automatic processes of similarity and dissimilarity testing. However, the relevance and attainability perceptions of participants were still assessed and explored as potential correlates of social comparison consequences.

**Empirical Research into Similarity Testing in Restrained and Unrestrained Eaters**

No study has formally assessed the processes of similarity and dissimilarity testing during thin media exposures in restrained and unrestrained eaters. In the only study to assess similarity perceptions following comparisons to either thin or large models, the obtained evidence did not support the predictions of the SA theory (Mills et al., 2002). Mills et al. reported that restrained eaters felt better about themselves following exposures to thin models (as opposed to exposures to large models or a control condition), whereas unrestrained eaters felt worse. According to the predictions of the SA model, restrained eaters should feel more positively following thin exposures only if they engage in similarity testing, as this should result in assimilation to the superior standard. In contrast, unrestrained eaters should feel worse only if they engage in dissimilarity testing, as this should lead to contrast away from the idealized standard. However, both predictions were unsubstantiated, as it was reported that restrained eaters felt more similar to the large models than to the thin models, while the similarity ratings of unrestrained eaters did not differ between the two model conditions.

The results obtained by Mills and colleagues (2002) do not accord with the predictions of the SA model in a number of ways. Firstly, if restrained eaters had indeed felt more similar to the large models than to the thin models, the SA theory would predict
that deflating effects of the large media exposures should have been observed. Greater feelings of similarity to plus-size females who deviate from the sociocultural ideal, and assimilating to this presumably undesirable standard, should have resulted in negative shifts in mood and body satisfaction in women whose priority it is to achieve and maintain thinness. However, restrained eaters who had viewed the large media images did not feel significantly worse than the control group, indicating that for these women, being exposed to plus-sized models may be affectively equivalent to viewing ads portraying no models.

In addition, although unrestrained eaters reported feeling as similar to the thin models as they did to the large models, they nevertheless did experience some negative effects of the thin media exposures. This again does not accord with the predictions of the SA model. According to this model, negative effects from comparisons to thin models should result only if feelings of dissimilarity exist between the self and the thin ideal, resulting in contrast away from the desirable target. Negative consequences should not stem from comparable feelings of similarity to both the large and thin models, as this indicates no discernable dissimilarity perception. Thus, at first glance, the evidence obtained by Mills and et al. (2002) appears to fail to support the SA model.

In spite of this initial failure, the SA model and the mechanisms of similarity and dissimilarity testing remains a potentially useful explanatory framework to account for the disparate effects of thin media exposures on restrained and unrestrained eaters. Although the findings by Mills and colleagues (2002) did not support this model, their methodology
was not specifically intended to test the SA theory, and therefore, the applicability of their findings to this discussion is limited.

One limitation of their methodology is that participants were asked to explicitly indicate “the extent to which they see themselves as being similar to the model in the ad” (Mills et al., 2002, p.1690). Restrained eaters may not have felt comfortable explicitly claiming that they were similar to the thin models when there was readily observable physical evidence to the contrary. Instead, they may have felt more comfortable endorsing feelings of similarity to the large models, who were objectively more similar to their body size. In fact, restrained eaters as a group accurately estimated their larger current body size; therefore, it is reasonable to assume that they would also objectively judge themselves to be more similar to the large models than to the thin models.

Similarly, even though unrestrained eaters may have engaged in dissimilarity testing to the thin models, they may nevertheless have been reluctant to explicitly admit that they differed from this ideal, as most individuals have a tendency to maintain a positive self-view even when faced with disconfirming evidence (Taylor & Brown, 1988).

In addition, the explicit measure of similarity employed by Mills et al. (2002) may not have been valid in assessing social comparison processes that usually occur quickly, automatically, and unintentionally (Frisby, 2004; Goethals, 1986; Mussweiler & Rüter, 2003). Social comparisons may occur largely beyond conscious awareness because comparisons are often engaged in, and therefore well rehearsed (Botta, 1999; D. Henderson-King et al., 2001; Lennon et al., 1999). Because of the automatic nature of social comparison processes, an attempt to assess these processes using an explicit
measure may have yielded inaccurate and misleading findings. In other words, the results of Mills et al. may not have supported the SA model because their similarity measure was too reactive.

This line of reasoning is analogous to the work of Greenwald, Banaji, and their colleagues in contending that the Implicit Attitudes Test (IAT) is an effective technique to assess the underlying prejudices that individuals may hold toward other ethnic groups. These researchers argue that the IAT is preferable and even superior to methods of direct inquiry, as explicit responding may not provide an accurate representation of the core beliefs held by an individual. For example, responses may be influenced by social desirability, and even if this pressure for positive self-presentation did not exist, longstanding and fundamental beliefs may be so ingrained that their activation is not consciously accessible and their contents cannot be easily articulated (Dasgupta, McGhee, Greenwald, & Banaji, 2000). Therefore, these researchers argue that explicit measures are inadequate in the assessment of attitudes held outside of consciousness and activated rather automatically; instead, implicit, less reactive techniques are more accurate assessment tools (Greenwald & Banaji, 1995). Following this line of reasoning, it can be argued that the best method of assessing similarity and dissimilarity testing, which are social comparison processes that occur automatically and outside of conscious awareness, is too with implicit measures.

Implicit Assessment of Similarity Testing: A New Approach

One such implicit technique was recently developed and employed in a study by Mussweiler, Rüter, and Epstude (2004). These authors based their paradigm on
procedural priming logic, and therefore hypothesized that the focus individuals assume during hypothesis testing (similarity or dissimilarity) will transfer to a subsequent task, even if this task were unrelated to the process of social comparison. For example, if an individual entertained a similarity hypothesis while engaging in comparisons with a thin model, and additional similarities between herself and the target were consequently made more accessible, this focus on similarities may be transferred to a subsequent unrelated task.

To test these predictions, Mussweiler et al. (2004) had participants engage in social comparisons, followed by a seemingly unrelated activity. Participants were first required to assess their own levels of athleticism by comparing themselves to a comparison target. The targets were manipulated so that one group would be likely to engage in similarity testing, while another group would be likely to engage in dissimilarity testing. After completing this task, participants compared two computer-generated sketches, and rated their degree of similarity (the Sketch Comparison Task). It was expected that participants who were encouraged to engage in similarity testing during the social comparison would perceive the two sketches as more similar, as the focus on similarities during the comparison phase may transfer over to the sketch evaluation task. In contrast, it was expected that participants who were encouraged to engage in dissimilarity testing during the social comparison would rate the two sketches as being less similar, as the focus on dissimilarities may transfer to the sketch task. Both of these hypotheses were supported. Therefore, this study provided preliminary support for the validity and sensitivity of an implicit method intended to ascertain the nature of
hypothesis testing during social comparisons.

Similarity/Dissimilarity Testing Assessment in the Present Study

The present study also made use of the implicit technique employed by Mussweiler et al. (2004) to determine the degree of similarity or dissimilarity testing that restrained and unrestrained eaters engaged in during the model exposures. In accordance with the findings of past research (Joshi et al., 2004; Mills et al., 2002), it was expected that restrained eaters would feel more positively following thin exposures, and this would occur because of similarity testing during the social comparison. In addition, the focus on similarities was hypothesized to transfer to performance on the subsequent Sketch Comparison Task, so that restrained eaters would perceive the sketches as being more similar than would unrestrained eaters. In contrast, it was expected that unrestrained eaters would feel deflated after exposures to the thin images, with this due to dissimilarity testing during the comparison. Therefore, the focus on dissimilarities was hypothesized to transfer to performance on the Sketch Comparison Task, so that compared to restrained eaters, unrestrained eaters would rate the two sketches as being less similar.

However, it must be cautioned that because the implicit method to assess similarity and dissimilarity testing has only been employed in one study, additional evidence supporting the validity of this novel technique is warranted. Thus, although the previous discussion argued that an implicit assessment of hypothesis testing may provide a more accurate reflection of social comparison processes, at this early stage, more explicit measures are still required to provide evidence of the validity of this implicit technique. Therefore, the present study also employed a measure that explicitly inquires
about the degree of similarity participants perceived between themselves and the portrayed models. However, this measure improved on the one employed by Mills et al. (2002), such that instead of a single question assessing similarity, eight questions that tap into a variety of domains were employed. For example, instead of simply asking participants to indicate their general level of similarity to the portrayed models, specific questions that assess perceived similarity in a variety of areas, such as eating and exercise habits, were included. While it was noted above that restrained eaters may not feel comfortable claiming that they currently look like thin models, feelings of similarity may nevertheless exist in other areas. Therefore, assimilation to the models may occur because feelings of similarity exist in other domains aside from physical appearance, such as eating and exercise habits. It was hoped that this explicit measure would help in supporting the convergent validity of the Sketch Comparison Task.

Purpose and Hypotheses of the Present Research

Purpose and Rationale

To date, no study has examined the role of hypothesis testing in explaining the outcomes of social comparisons to thin ideal presentations. Therefore, the purpose of the present study was to firstly replicate the self-enhancement effect in restrained eaters and the deflation effect in unrestrained eaters following thin media exposures, as reported by Mills et al. (2002) and Joshi et al. (2004). If these results are replicated, a second goal was to test the mechanisms of similarity and dissimilarity testing in accounting for the differences in the reactions of restrained and unrestrained eaters.
The definition of restraint status was of instrumental importance to this study. It is of interest that previous studies examining the impact of thin media images have obtained contrasting results depending on whether the DEBQ (Ogden & Mundray, 1996) or the RS (Joshi et al., 2004; Mills et al., 2002) was employed to identify restrained and unrestrained eaters. Because the RS primarily identifies unsuccessful dieters while the DEBQ primarily identifies successful dieters, it is an interesting exploratory question to determine how the results of this study may be affected by the measure employed to identify restrained and unrestrained eaters. The current study therefore used both measures to define restraint status, with the goal to examine any discrepancies in results that may consequently occur.

Hypotheses

It has been previously reported that restrained eaters experience some positive effects following thin ideal exposures, while unrestrained eaters experience some negative effects following these exposures (Joshi et al., 2004; Mills et al., 2002). Based on this prior research, the following hypotheses were proposed:

**Hypothesis 1.** Upon exposures to images of thin models, restrained eaters will:
1a. Engage in similarity testing with the models.
1b. Consequently experience self-enhancing effects.

**Hypothesis 2.** Upon exposures to images of thin models, unrestrained eaters will:
2a. Engage in dissimilarity testing with the models.
2b. Consequently experience negative contrast effects.
Although much less research has examined how individuals feel after viewing plus-size models, the present study included a large model condition to replicate the study of Mills et al. (2002) as closely as possible. Although these authors did note that restrained eaters felt more positive after viewing thin models as opposed to large models, a discussion on the effects of large media exposures was not provided. Therefore, no hypotheses were formulated to predict the reactions of restrained and unrestrained eaters to large media images.

**Hypothesis 3.** Based on the previous work and conceptualization by Mills et al. (2002), it was expected that restrained eaters will perceive the thin models as more relevant and their physique as more attainable than will unrestrained eaters.

An additional hypothesis regarding the validity of the Sketch Comparison Task in assessing similarity and dissimilarity testing was:

**Hypothesis 4.** The Sketch Comparison Task, which is an implicit measure of similarity testing, will be significantly positively correlated with an explicit measure of similarity testing, providing support for the convergent validity of the implicit measure.

Chapter II

METHOD

Participants

One hundred forty-four females were recruited from the University of Windsor Department of Psychology participant pool. Inclusion criteria were gender and the presence of eating pathology; specifically, only females who have never been or currently diagnosed with an eating disorder were invited to participate in the study.
The mean age of participants was 20.98 years ($SD = 4.15$), with ages ranging from 17 to 45 years. The self-reported ethnicity of the participants was as follows: 74.3% were Caucasian, 9.1% were Asian, 6.9% were European, 3.5% were Middle Eastern, 2.1% were Native-Canadian, 2.1% were African-Canadian, and 2.1% reported “other” ethnicity.

Participants’ mean number of years of completed education was 15.03 years ($SD = 2.44$). In terms of years of university education, 35.4% of participants were in their first year, 15.3% were in their second year, 35.4% were in their third year, 11.8% were in their fourth year, and 2.1% had been enrolled longer than four years. In terms of university major, the majority of participants were psychology majors (34.1%), followed by 10.4% business majors, 7.6% social work majors, 6.9% family studies majors, 6.3% human kinetics majors, and 4.2% criminology majors. The remainder of majors endorsed included 16.1% in the arts, 8.4% in science, 0.7% in education, 0.7% in computer science, and 4.9% who did not specify.

Design

The study employed a 2 X 3 factorial design, with ad type (thin model, large model, or control) and restraint status (restrained or unrestrained eaters) as between-subjects factors.

Materials

The images of models presented to participants were taken from beauty and fashion magazines, as it has been noted by many researchers that these types of magazines are the most powerful transmitters of the thin ideal (Lokken et al., 2004;
Tiggemann, 2002). The selection criteria of the models were similar to those employed by Mills and colleagues (2002), in that only advertisements depicting the entire body of a model were selected. However, unlike Mills et al. who attempted to select models of diverse races, hair colours, and complexions, the present study limited the models employed to Caucasian females. This practice is in accordance with past studies that have also used exclusively Caucasian models in order to accurately reflect the limited ethnic diversity portrayed in the mainstream media (Jung & Lennon, 2003).

The advertisements depicting thin models were selected from two mainstream magazines that predominantly feature thin supermodels—Harper’s Bazaar and Vogue. The ads with plus-size models were selected from the magazines Figure and Mode, two publications that aim to depict more realistic portrayals of women. All model ads portrayed a female model accompanied by a fictitious brand name of a product. Fictitious brand names were employed so as not to bias participants toward ads containing product names they were already familiar with. For ads displaying an existing product name, these names were electronically altered. For ads with no product name displayed, a fictitious brand name was inserted. All ad alterations were made with Adobe PhotoShop software.

Ten thin model ads and nine3 plus-size model ads were initially selected. To narrow down this initial pool to seven models in each condition, twelve female raters assessed each advertisement on a 9-point Likert scale based on three dimensions: (a) The

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Initially, ten plus-size models were selected; however, one of these models was subsequently deemed to be inappropriate due to an overexposure of the breast area.
attractiveness of the model portrayed, (b) The thinness of the model, and (c) The overall attractiveness of the advertisement (see Appendix A). All statements were rated from 1 ("Strongly Disagree") to 9 ("Strongly Agree"). The raters consisted of one clinical psychologist/research advisor, eight graduate students, and two senior undergraduate students.

The ratings were performed to equate the models on attractiveness, so that the thin and large models would differ only in their body size. It has been noted that this step is vitally important to avoid confounding thinness with attractiveness (Halliwell & Dittmar, 2004). For example, if it were found that individuals react more negatively to the thin models than to the large models, and the two types of models had not been equated on attractiveness, it would be unclear as to whether the negative effects associated with viewing the thin images were primarily due to the thinness or attractiveness of the models portrayed. However, with both the thin and the large models judged as equally attractive, any effects associated with viewing the thin models and not the large models can be more confidently attributed to the degree of thinness portrayed by the former group.

Initially, the group of thin models were rated as significantly more attractive than the group of plus-size models, \( t(10) = 3.36, p = 0.005 \). To equate the attractiveness of the models and also to select only seven models from each group, the following steps were performed. For the thin model ads, the two advertisements depicting the two lowest rated models in terms of attractiveness were eliminated. The advertisement with the most attractive model was also eliminated, in order to slightly lower the mean attractiveness ratings of the thin condition. For the large model ads, the two ads depicting the two least
attractive models were eliminated. Following this procedure, the ads portraying the thin 
\(M = 6.34\) or plus-size models \(M = 6.03\) did not significantly differ in their level of 
perceived attractiveness, \(t(10) = 1.39, p = 0.194\). The general appeal of the final set of 
thin \(M = 5.34\) or large \(M = 5.69\) model advertisements also did not significantly differ 
from each other, \(t(10) = 1.32, p = 0.218\). As expected however, the thin models \(M = 
7.79\) were rated as significantly slimmer than the large models \(M = 2.97\), \(t(10) = 13.87,
p < 0.001\).

All product advertisements were selected from the four magazines listed above. 
The product ads contained no male or female models, and the majority of the products 
advertised were jewellery, shoes, and makeup. Fictitious brand names were inserted into 
the product ads as well.

In accordance with the procedure employed by Mills et al. (2002), the two model 
conditions also contained some product ads to minimize demand characteristics. In these 
two conditions, seven of the ads depicted a model, while five of the ads depicted only 
products. The control condition contained 12 ads depicting only products. The order of 
presentation of the advertisements was randomly determined.

Measures

Revised Restraint Scale (RS)

The RS (Appendix B) is a 10-item self-report measure designed to assess 
instances of both restrained and disinhibited eating (Herman & Polivy, 1980), and is thus 
able to identify unsuccessful dieters (Heatherton et al., 1988; Laessle et al., 1989). It was 
scored by calculating the sum of the 10 questions. Scores can range from 0 to 35, with
higher scores indicative of greater cognitive restraint. In accordance with previous research and recommendations (Heatherton et al., 1988; Mills et al., 2002), individuals with a total score below 15 were classified as unrestrained eaters, while individuals with a total score 15 and above were classified as restrained eaters.

The psychometric properties of the RS have been reported to be generally sound if employed in a "normal" population, and not with obese individuals (Heatherton et al., 1988; Ruderman, 1986). Internal consistency has been reported to range from 0.78 (Laessle et al., 1989) to 0.86 (Ruderman, 1983). Test-retest reliability has been reported to range from 0.74 at two and a half years (Klesges, Klem, Epkins, & Klesges, 1991) to 0.95 at two weeks (Allison, Kalinsky, & Gorman, 1992). Convergent validity has been demonstrated, as the RS has been found to correlate highly with other measures of restrained eating, such as the DEBQ ($r = 0.80$) and the Three-Factor Eating Questionnaire (Stunkard & Messick, 1985; $r = 0.74$; Allison et al., 1992).

Dutch Eating Behavior Questionnaire (DEBQ)

The DEBQ (Appendix C) is a 33-item self-report measure designed to assess different aspects of eating behaviours (van Strien et al., 1986). It includes three subscales: Restrained Eating, Emotional Eating, and External Eating. Only the Restrained Eating subscale will be employed in the present study. Unlike the RS, the DEBQ Restrained Eating subscale typically identifies individuals who have successfully limited their daily caloric intake (Heatherton et al., 1988; Laessle et al., 1989), and who can therefore be classified as successful dieters. Responses are given from 1 ("never") to 5 ("very often"), with higher scores indicative of greater eating pathology. In addition,
participants can indicate when an item is not applicable to them by endorsing a 0. The DEBQ Restrained Eating subscale was computed by calculating the mean of the 10 items of this subscale (van Strien, 1997). Restrained and unrestrained eaters were classified through a median split of the mean scores (van Strien, 1997).

Of the three questionnaires most widely used to assess restraint status, the DEBQ has been reported to be the most psychometrically sound (Allison et al., 1992). Internal consistency has been found to be good, with Cronbach's alphas ranging from 0.80 to 0.95 across the three subscales (Allison et al., 1992; van Strien et al., 1986). Test-retest reliability has been reported to range from 0.85 (Banasiak, Wertheim, Koemer, & Voudouris, 2001) to 0.92 (Allison et al., 1992). The DEBQ has been found to moderately correlate with the two other measures of restrained eating—the RS ($r = 0.59, p < 0.001$) and the Three-Factor Eating Questionnaire ($r = 0.66, p < 0.001$), indicating acceptable convergent validity (Laessle et al., 1989). Discriminant validity has also been demonstrated, as nonsignificant correlations between the DEBQ and the Marlowe-Crowne Social Desirability Scale have been consistently reported ($rs$ range from -0.21 to 0.08; Allison et al., 1992; van Strien, Frijters, Roosen, Knuiman-Hijl, & Defares, 1985).

Current Thoughts Scale (CTS)

The CTS is a 20-item self-report measure designed to assess temporary changes in self-esteem (Heatherton & Polivy, 1991). Although one's characteristic level of self-esteem is usually stable, transitory fluctuations can nevertheless occur in response to events such as the receipt of positive or negative feedback (Heatherton & Wyland, 2003).
On this scale, which can be found in Appendix D, participants indicate from 1 ("not at all") to 5 ("extremely") their agreement with each item.

The CTS consists of three subscales: Performance, Social, and Appearance self-esteem. Performance self-esteem refers to an individual’s confidence in their general competence and abilities (Heatherton & Wyland, 2003). Individuals with high performance self-esteem generally regard themselves as intelligent and capable. Social self-esteem refers to an individual’s perception of how others regard them (Heatherton & Wyland, 2003). If an individual believes that they are positively viewed by others, their social self-esteem will be high. Finally, appearance self-esteem refers to how individuals perceive their physical appearance at the moment (Heatherton & Wyland, 2003). High self-esteem in this domain reflects greater confidence and satisfaction with one’s current appearance. The three subscales of the CTS were calculated by summing the items that constitute each subscale. A total score was also obtained by summing all 20 items.

In a preliminary investigation, Heatherton et al. (1991) reported that the CTS had high internal consistency (Cronbach’s alpha = 0.92). The test-retest reliability of this measure ranged from 0.48 to 0.75 ($p < 0.05$), which is acceptable given that the CTS was designed to assess temporary fluctuations in self-esteem, and is therefore not expected to be temporally stable. The three subscales had good discriminant validity; for example, of the three subscales, appearance self-esteem was found to be most related to dietary restraint ($rs$ ranged from -0.37 to -0.45, $p < 0.05$) and satisfaction with one’s figure ($r = 0.72, p < 0.05$). Finally, convergent validity was demonstrated, as the CTS correlated
highly with other measures of trait self-esteem, such as the Janis and Field Scale (Janis & Field, 1959; \( r_s \) for the total score and all subscales ranged from 0.56 to 0.76, \( p < 0.05 \)).

**Rosenberg Self-Esteem Scale (RSES)**

The RSES (Appendix E) is a 10-item self-report measure designed to assess global trait self-esteem (Rosenberg, 1965, 1979). Participants indicate their level of agreement with each item, with responses ranging from 0 ("strongly disagree") to 3 ("strongly agree"). Scores can range from 0 to 30, with higher scores indicative of higher self-esteem.

The RSES has been reported to have high internal consistency (Cronbach's alpha = 0.92; Rosenberg, 1979). Test-retest reliability has been reported to range from a mean of 0.69 at six years (Robins, Hendin, & Trzesniewski, 2001) to 0.85 at two weeks (Silber & Tippett, 1965). Construct validity is good, as it has been reported that individuals scoring high on this measure evidence few depressive and anxiety symptoms (Rosenberg, 1979). In addition, the RSES has been reported to have good convergent validity, correlating with other measures of self-esteem such as the Coopersmith Self-Esteem Inventory (Coopersmith, 1967; \( r = 0.66, p < 0.001 \); Demo, 1985).

**Positive and Negative Affect Schedule (PANAS)**

The PANAS (Appendix F) is a 20-item self-report measure that assesses an individual’s level of positive and negative affect (Watson, Clark, & Tellegen, 1988). The present study employed the state version of this measure. Twenty adjectives representative of either positive or negative affective states were presented, and participants indicated on a scale from 1 ("very slightly or not at all") to 5 ("extremely")
the extent they felt each emotion at the moment. Two subscales were yielded: Positive Affect (PA) and Negative Affect (NA). The two subscales were calculated by summing the 10 items that constitute each subscale.

In a preliminary investigation of the psychometric properties of the PANAS, it was reported that the Cronbach’s alphas for the PA and NA subscales ranged from 0.85 to 0.89 and 0.85 to 0.91 respectively for the state instructions (Watson et al., 1988). The PA and NA subscales demonstrated acceptable discriminant validity, as only small negative correlations were found between the two subscales (rs ranged from -0.15 to -0.27; Schmukle, Egloff, & Burns, 2002; Watson et al., 1988). Criterion validity was also demonstrated, as a group of psychiatric inpatients was found to have significantly higher scores on the NA subscale and significantly lower scores on the PA subscale than a student sample (Watson et al., 1988).

**Contour Drawing Rating Scale (CDRS)**

The CDRS was first designed to assess an individual’s perception of their current body size (M. A. Thompson & Gray, 1995). Although both male and female depictions are available, only the female version was employed in the present study. In this version, nine sketches of a female wearing a bikini are presented in one row, with the body size of the female gradually increasing from left to right. Thus, the left-most female is very underweight, while the right-most female is very overweight. In a preliminary investigation, it was reported that over 97% of female participants rank ordered the nine sketches in the correct order (M. A. Thompson & Gray, 1995).
In accordance with previous research, the CDRS was modified slightly so that perceptions of both current and ideal body size were indicated (J. K. Thompson, 1996). Participants were presented with two rows of female silhouettes, and were required to indicate their current and ideal figures on the first and second row respectively. Each silhouette corresponded to a number from 1 to 9, with '1' corresponding to the smallest body size and '9' corresponding to the largest body size. In accordance with other studies (e.g., Cusumano & Thompson, 1997), ratings halfway between the figures were permitted. See Appendix G for the version of the CDRS employed.

The CDRS has been reported to have good psychometric properties. For current body size, test-retest reliability from one to fourteen weeks has been found to range from 0.72 to 0.90 ($p < 0.05$; M. A. Thompson & Gray, 1995; Wertheim, Paxton, & Tilgner, 2004). For ideal body size, test-retest reliability from one to fourteen weeks ranged from 0.58 to 0.83 ($p < 0.05$; Wertheim, Paxton, & Tilgner, 2004). Concurrent validity has been supported, as current body size was found to significantly correlate with both self-reported weight ($rs = 0.64$ and $0.71$, $p < 0.001$) and current BMI ($rs = 0.59$ and $0.64$, $p < 0.001$; M. A. Thompson & Gray, 1995). Wertheim et al. also found evidence supporting the convergent validity of this measure, as the discrepancy between current and ideal body size was found to be moderately correlated with both the Body Dissatisfaction subscale ($r = 0.40$) and the Drive for Thinness subscale ($r = 0.62$) of the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983). Finally, discriminant validity was found to be acceptable, as low correlations were obtained between the CDRS and measures of socially desirable responding ($rs$ ranged from -0.15 to 0.08; Wertheim et al., 2004).
Appearance Schemas Inventory-Revised (ASI-R)

The ASI-R is a 20-item self-report revision of the original Appearance Schemas Inventory (Cash & Labarge, 1996) that assesses the investment component of body image, or the importance of physical appearance to an individual (Cash, Melnyk, & Hrabosky, 2004). In addition to yielding a total composite score, this measure includes two subscales—Self-Evaluative Salience, and Motivational Salience. Self-Evaluative Salience assesses an individual's beliefs about how their physical appearance impacts their self-worth, while Motivational Salience assesses an individual's efforts to maintain an attractive appearance (Cash et al., 2004). Participants indicate their agreement with each item on a 5-point Likert scale, from 1 ("strongly disagree") to 5 ("strongly agree"). The two subscales were computed by obtaining the mean of the items that constitute each subscale, while a composite ASI-R score was calculated by obtaining the mean of all items. See Appendix H for this measure.

In a preliminary investigation, Cash et al. (2004) reported that the ASI-R possessed generally sound psychometric properties in both males and females, although only data for females will be discussed. Internal consistency was found to be high for both the entire measure (Cronbach’s alpha = 0.88) as well as the two subscales—Self-Evaluative Salience (Cronbach’s alpha = 0.82) and Motivational Salience (Cronbach’s alpha = 0.90). Convergent validity was good, as the ASI-R was highly correlated with other body image measures such as the Body-Image Ideals Questionnaire (Cash & Szymanski, 1995; \( r = 0.53, p < 0.001 \)) and the Situational Inventory of Body-Image Dysphoria (SIBID; Cash, 2002; \( r = 0.64, p < 0.001 \)). In addition, each of the two
subscales were significant predictors of pathological eating attitudes as assessed by the 
Eating Attitudes Test-26 (Garner, Olmsted, Bohr, & Garfinkel, 1982).

**Body Image States Scale (BISS)**

The BISS (Appendix I) is a 6-item self-report measure designed to assess state 
body image satisfaction (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). 
Participants are instructed to respond based on how they feel “right now, at this very 
moment”. Responses are given on a 9-point Likert-type scale. A total score was 
computed by obtaining the mean of the six items.

In a preliminary investigation, Cash et al. (2002) reported that the BISS possessed 
generally good psychometric properties. Although the validity of this measure was 
established in both a male and a female sample, only results obtained with the female 
sample will be reported. Internal consistency was found to be acceptable, with 
Cronbach’s alphas ranging from 0.77 to 0.90. The test-retest reliability at two or three 
weeks was 0.69 ($p < 0.001$), which is acceptable given that this is a state measure, and is 
therefore expected to be less temporally stable. Convergent validity was demonstrated, as 
the BISS was significantly correlated with trait measures of body satisfaction, such as the 
Body Areas Satisfaction (BAS) subscale of the Multidimensional Body-Self Relations 
Questionnaire (MBSRQ; T. A. Brown, Cash, & Mikulka, 1990; $r_s$ ranged from 0.77 to 
0.78, $p < 0.001$), and the Appearance Schemas Inventory ($r_s$ ranged from -0.28 to -0.41, $p 
< 0.05$).
**Body-Image Ideals Questionnaire (BIIQ)**

The BI IQ covers 11 physical attributes (Cash & Szymanski, 1995). For each attribute, participants are firstly instructed to think about their personal ideal, or how they would like to be. They then evaluate: (a) the discrepancy between the current status and their ideal on that attribute, and (b) the importance they place on attaining their ideal. The discrepancy item is rated on a 4-point scale from 0 ("Exactly as I am") to 3 ("Very unlike me"), while the importance item is also rated on a 4-point scale from 0 ("Not important") to 3 ("Very important").

Three scores are obtained from the BI IQ: the Discrepancy score, the Importance score, and the Weighted Discrepancy score. The Discrepancy score can be thought of as an index of body image satisfaction, with higher scores indicating greater dissatisfaction. In contrast, the Importance score can be considered an index of body image investment, with higher scores indicating greater investment. The Weighted Discrepancy is a composite score that takes into consideration both dimensions, with higher scores indicating greater body image disturbance (e.g. an individual feels that they are discrepant on a highly valued body dimension).

For this study, the Importance instructions of the BI IQ were modified so as to render it a state, rather than a trait, measure of body image investment. In particular, participants were instructed to rate the importance of their ideals "at this very moment". There are currently no measures of state body image investment; however, Thompson (2004) stresses the importance of employing state measures when investigating the impact of experimental manipulations (e.g. thin media exposures). Furthermore,
Thompson encourages the adaption of existing measures to meet a study's purposes when no other alternatives exist. See Appendix J for the version of the BIIQ employed in this study.

The Discrepancy and Importance subscales of the BIIQ were scored by calculating the mean of the 11 items that constitute each subscale. Before calculating the Weighted Discrepancy score, all Discrepancy items were recoded so that ratings of 0 would be altered to -1. The Discrepancy and Importance ratings of each item were then multiplied, and lastly, the mean of the cross-products was calculated to obtain the Weighted Discrepancy score. Recoding prior to computing the Weighted Discrepancy score was necessary to differentiate between two scenarios that would otherwise both result in cross-products of zero. With recoding, the cross-product of a negative number would now indicate that an individual did not perceive a self-ideal discrepancy, whereas the cross-product of zero would indicate that an individual did not believe that it was important to attain their ideal. For all three scales, higher scores were indicative of greater body image disturbance.

In a preliminary investigation, Cash and Szymanski (1995) found that the Cronbach's alphas for the Discrepancy, Importance, and Weighted Discrepancy scores were 0.75, 0.82, and 0.77 respectively. Convergent validity was demonstrated, as the Discrepancy scale was significantly correlated with other measures of body image satisfaction (e.g. the Appearance Evaluation and the BAS subscales of the MBSRQ, $r_s$ ranged from -0.57 to -0.71, $p < 0.001$), while the Importance scale was significantly correlated with other measures of body image investment (e.g. the Appearance
Orientation subscale of the MBSRQ, $r = 0.43, p < 0.001$). The Weighted Discrepancy score also demonstrated good convergent validity, as it was significantly correlated with both the SIBID and the Body Image Avoidance Questionnaire (Rosen, Srebnik, Saltzberg, & Wendt, 1991; $r$s ranged from 0.50 to 0.64, $p < 0.01$).

*Consumer Response Questionnaire (CRQ)*

The fictitious CRQ was first constructed by Mills et al. (2002) to increase the credibility of their cover story and to ensure that participants were focussed on the presented advertisements. This measure was subsequently modified by Tiggemann and McGill (2004) to serve as an indirect method of eliciting social comparisons in participants. Previous research has found that eliciting social comparisons indirectly may be a more effective method of producing actual comparisons than directly instructing participants to do so (Tiggemann & Slater, 2003). Tiggemann and McGill (2004) embedded items in their measure to encourage participants to compare their bodies with those of the models in the advertisement. It was subsequently found that the comparison questions indeed elicited more social comparisons than other types of instructions that focussed on the model's appearance, or on the qualities of the advertisement (Tiggemann & McGill, 2004). Therefore, the CRQ modified by Tiggemann and McGill (2004) was used in the present study for all advertisements depicting models, and served as an indirect means of encouraging participants to make social comparisons to the models (this measure will be subsequently referred to as the model-CRQ).

For the present study, four changes were made to Tiggemann and McGills' (2004) version of the model-CRQ. Firstly, two additional filler items focussing on the ad itself
were included, in order to even out the number of comparison and filler items. Secondly, the last item on the Tiggemaan and McGill questionnaire originally read “In a busy clothes shop, I would not like to try on bathers in the same room if this woman was also trying on bathers in the same change-room”. In the present study, the words “bathers” and “clothes shop” were changed to “a bathing suit” and “store” to accord with Canadian-English language usage.

Thirdly, an additional item was appended at the end of the questionnaire that assessed the direction of social comparison participants made to the depicted model. The purpose of this item was to determine whether a social comparison was in the upward or downward direction. This approach is novel as it represents the first attempt in the literature to empirically determine the direction of a particular comparison. The item consisted of a Visual Analogue Scale (VAS) that instructed participants to indicate how they compare in relation to the model depicted in the advertisement. The exact wording of the question was: “In relation to myself, the woman in the ad is...”. A ten centimetre horizontal line was anchored on the left-hand side with “Much less desirable than me”, and on the right-hand side with “Much more desirable than me”. The midpoint of the line, at five centimetres, was marked by “the same as me”. Participants were instructed to make a mark anywhere on the line corresponding to their perceptions. Marks made on the left of the midpoint (less than 5 centimetres) indicated a downward comparison, while marks made on the right of the midpoint (greater than 5 centimetres) indicated an upward comparison. Scores were obtained by measuring the mark made by participants to the nearest millimetre.
Finally, two additional questions were added to the model-CRQ to serve as manipulation checks assessing the degree of perceived attractiveness and thinness of each model. The two questions were identical to the ones used in the initial rating form to select the final pool of models. One question stated “The woman in this ad is very attractive”, and the other question stated “The woman in this ad is very thin”.

To summarize the model-CRQ that was employed (Appendix K), all questions remained the same as the CRQ developed by Tiggemann and McGill (2004), except for the addition of two additional filler items, one item to assess the direction of social comparison, and two items that served as manipulation checks. In addition, one question was altered to accord with Canadian-English language usage. All questions aside from the VAS were assessed on a 9-point Likert scale.

An alternate version of the CRQ constructed by Tiggemann and McGill (2004) was employed in the product condition, and in the model conditions when ads depicted only products (this measure will be subsequently referred to as the product-CRQ, see Appendix L). The product-CRQ inquired only about qualities of the advertisement itself. Five additional items were appended to ensure that the model- and the product-CRQs contained the same number of questions (ten each).

To correspond with the composition of the advertisements in each condition, in the two model conditions, seven model-CRQs and five product-CRQs were employed; while in the product condition, twelve product-CRQs were employed.
Similarity to Models Survey (SMS)

The SMS was developed by Strowman (1996) to assess how similar individuals typically feel to same-sex models portrayed in magazine ads. Feelings of similarity are inquired about in eight domains, ranging from in general, to physical appearance and happiness. Responses range from 1 (“never”) to 5 (“always”), with a total score obtained by computing the mean of the eight items. In a preliminary investigation of this measure, internal consistency was found to be high in women (Cronbach’s alpha = 0.86; Strowman, 1996).

In the product condition of this study, participants completed the original version of the SMS (subsequently referred to as the product-SMS, see Appendix M), while in the two model conditions, they completed a modified version (subsequently referred to as the model-SMS, see Appendix N). The model-SMS instructed participants to indicate the degree of similarity perceived between themselves and the models they had viewed previously, rather than to models in general.

Ad and Model Perception Survey (AMPS)

The AMPS was constructed for the present study to assess how relevant and attainable participants perceived the models portrayed during the advertisement task. Two versions of this questionnaire were administered, depending on what condition participants were assigned to. Participants assigned to the two model conditions received the model-AMPS (Appendix O). The model-AMPS consisted of six items—four filler items, and two critical items assessing the level of perceived relevance and attainability of the models. Relevance was assessed with the question “I found that most of the women..."
in the ads would be good role models for me”, while attainability was assessed with the question “I think it would be easy to make my body look like most of the women’s bodies in the ads”. The filler items inquired only about the products that had been advertised. Participants in the product condition received the product-AMPS (Appendix P). The product-AMPS consisted of six filler items, and made no reference to models. On both versions of the questionnaire, participants indicated their agreement with each statement on a 4-point scale, from “strongly disagree” to “strongly agree”.

**Sketch Comparison Task (SCT)**

This task is comprised of two computer generated sketches, one of a woman leaning over a table near a Christmas tree, and one of a man leaning over a table near a fireplace. The two sketches can be found in Appendix Q. These sketches were employed in two previous studies (Mussweiler, 2001; Mussweiler et al., 2004), and are adapted from Markman and Gentner (1996). In accordance with the procedure employed by Mussweiler et al. (2004), participants were asked to rate on a 9-point Likert scale “how similar the following two pictures are to each other” (1 = “not at all similar”, 9 = “completely similar”).

**Product Recall Survey (PRS)**

The PRS (Appendix R) was constructed for the present study to support the cover story. Participants were instructed to recall in any order as many of the product brand names that had been seen in the previously presented advertisements.
Demographic Questionnaire (DQ)

This questionnaire was employed to obtain demographic-related information from participants, such as ethnicity and educational background (see Appendix S).

Body Mass Index (BMI)

Participants’ BMI was calculated by dividing weight (in kilograms) by height (in metres) squared.

Procedure

The present study was conducted under a cover story to minimize demand characteristics, as women may have preexisting opinions about the impact of media images on their own well-being, and may respond accordingly if they were aware of the true purpose of the study (Mills et al., 2002; Tiggemann, Gardiner, & Slater, 2000). The cover story employed was based on the one used by E. Henderson-King and Henderson-King (1997). Female undergraduate students who have never been diagnosed with an eating disorder were invited to participate in a study supposedly investigating the factors that influence people’s memories for the brand names of products advertised in magazines. Participants were tested individually in approximately one hour long sessions. Upon arrival to the lab, they were asked to read and sign the consent form (Appendix T). A letter of information (Appendix U) was also provided for their own records.

As an introduction, participants were given the following fictitious rationale for the study. They were informed that the researchers were interested in determining the factors that influence memory for the brand names of products in advertisements. The
factors supposedly of most interest were: (a) individual differences in personality (assessed with personality questionnaires), and (b) characteristics of the ad itself (assessed with the Consumer Response Questionnaire). Participants were informed that they would first view a series of advertisements, and would assess each one on a number of different dimensions. Then, to prevent rehearsal of the product names, the personality measures of interest would be completed between the ad presentations and the final memory task.

After this introduction, participants completed the two state measures assessing self-esteem and mood (CTS and PANAS) and the trait measure of self-esteem (RSES). They were then presented with a series of 12 magazine advertisements. Participants were randomly assigned to one of the three ad conditions: (a) thin model, (b) large model, and (c) product only. Instructions preceding the ad task directed participants to examine each ad closely, and to complete the corresponding CRQ for each ad. They were given 20 minutes to complete this task. They were instructed that if they had evaluated all 12 ads before 20 minutes had elapsed, they should reexamine the ads.

After the advertisement task, participants were given all remaining questionnaires to complete. The first measure presented was the SCT, in order to capitalize on the transfer of the similarity or dissimilarity focus that may have arisen while participants viewed the advertisements. Then, all the state measures (PANAS, CTS, BISS, BIIQ) and all the measures that inquired about participants’ perceptions of the ads or the models in the ads (AMPS, SMS) were presented in random order. Because the latter measures inquired about participants’ impressions of the previously presented advertisements, they were completed relatively early, before participants forgot about the general impressions.
they had formed. The remaining questionnaires (ASI-R, CDRS, DEBQ, DQ, RS) were then presented randomly, with the product recall task (PRS) presented last. Following the completion of the questionnaires, participants were debriefed and informed of the true purpose of the experiment. They were also queried about any suspicions they may have had during the experiment.

Following debriefing, participants were asked if they would consent to having their height and weight measured in order to calculate their BMI. They were informed that accurate measures of height and weight are important components of the study. For participants who agreed to be measured, they were asked to complete an additional consent form (Appendix V), as the original consent form did not detail this additional procedure.

Approach to Data Analysis

All analyses were performed using Statistics Package for the Social Sciences (SPSS) for Windows, Version 14.0. Reliability and descriptive analyses were conducted on the RS, DEBQ Restrained Eating subscale, CTS, PANAS, ASI-R, BISS, BIIQ, and SMS. The first three hypotheses of this study were then tested twice, once with restraint status defined by the RS, and once with restraint status defined by the DEBQ Restrained Eating subscale. The fourth hypothesis was tested lastly.

Hypotheses 1a and 2a: Assumptions of ANOVA

Hypotheses 1a and 2a were assessed with a 2 (restrained vs. unrestrained) x 2 (thin ad vs. large ad) ANOVA. Before conducting any formal statistical analyses, the data were cleaned and checked to ensure that all assumptions of the ANOVA had been
met. The normality of the SCT distribution was examined using a histogram of participants’ scores and the Shapiro-Wilk ($SW$) statistic (A. Field, 2000). A visual inspection of the histogram revealed that participants’ scores were negatively skewed. Similarly, the $SW$ statistic revealed that there was a significant deviation from normality, $SW(1, 143) = 0.93, p < 0.001$. However, as ANOVA is robust to deviations from normality (Glass & Hopkins, 1996), the SCT data were not transformed. The assumption of homogeneity of variances was met when assessed both with the Levene’s test of equality of error variances (A. Field, 2000), and by ensuring that the variance of the largest group was not greater than four times the variance of the smallest group (Howell, 2002).

**Hypotheses 1b and 2b: Assumptions of ANCOVA and MANOVA**

Hypotheses 1b and 2b were tested with six 2 (restrained vs. unrestrained) x 3 (thin vs. large vs. product ads) ANCOVAs and two 2 x 3 MANOVAs. The $SW$ statistic revealed that all variables aside from the PANAS Positive Affect and the CTS Appearance subscales significantly deviated from normality (all $p$s < 0.001). However, all variables aside from the PANAS Negative Affect subscale met the assumption of homogeneity of variances. Because the PANAS Negative Affect subscale violated both the assumptions of normality and homogeneity of variances, it was transformed. A visual inspection and examination of the skewness coefficient revealed that this variable was severely positively skewed, for which a reciprocal transformation is recommended as a solution (Tabachnick & Fidell, 2000). This transformation was performed, and although this variable still significantly deviated from normality, $SW(1, 137) = 0.87, p < 0.001$, it
no longer violated the assumption of homogeneity of variances, Levene’s (5, 131) = 1.97, 
$p = 0.088$. This was deemed acceptable as ANCOVA is robust to violations of the
normality assumption (Glass & Hopkins, 1996). Because no other variables violated the
assumption of homogeneity of variances, and ANCOVA is robust to non-normality
(Glass & Hopkins, 1996), no other transformations were performed.

There are two additional assumptions of ANCOVA that must be tested (Stevens,
2002). The assumption that a linear relationship exists between the dependent variable
and the covariate was tested by examining a series of six scatterplots with the dependent
variable on the X-axis and the covariate on the Y-axis; all plots revealed a linear
relationship between the two variables. In addition, all correlations between the
dependent variables and their respective covariates were significant ($p < 0.01$).

The assumption of homogeneity of the regression slopes was tested by examining
the interaction between the independent variables and the six covariates. This assumption
was met for all variables ($p > 0.10$) except the CTS Academic subscale. Specifically, the
interaction between Ad Type and Time 1 CTS Academic scores was significant ($p =
0.035$). Because ANCOVA is not appropriate when there is heterogeneity of the
regression slopes, Stevens (2002) recommends analyses on difference scores (posttest -
pretest) as an alternative. Therefore, for CTS Academic scores only, a 2 X 3 ANOVA
was conducted with the dependent variable being the difference between post-ad
exposure and pre-ad exposure CTS Academic scores.

For the two MANOVAs, the assumption of multivariate normality was assessed
by examining the $SW$ statistics, and the skewness and kurtosis coefficients for all nine
dependent variables (Stevens, 2002). Although this method assesses univariate
normality, it is nevertheless one of the most powerful methods of assessing multivariate
normality, as violations of multivariate normality are usually detected through univariate
methods (Stevens, 2002). An examination of the SW statistics revealed that the BIIQ
Weighted Discrepancy and Importance subscales, as well as the CDRS ideal size
estimation, significantly deviated from normality. The former two variables were
positively skewed, while the latter was negatively skewed. As MANOVA is robust to
violations of multivariate normality as long as no distributions are platykurtic (Stevens,
2002), no transformations were performed.

A final assumption of MANOVA is that the covariance matrices are homogenous.
This assumption was assessed with the Box’s test of equality of covariance matrices, and
was not significant for either MANOVA (ps > 0.08).

Hypothesis 3: Assumptions of ANOVA

Hypothesis 3 was tested with two 2 (restrained vs. unrestrained) x 2 (thin ad vs.
large ad) ANOVAs with the relevance and attainability items of the model-AMPS as
dependent variables. An examination of both the histogram and the SW statistic of the
relevance and attainability items revealed that these two variables significantly deviated
from normality. However, both variables met the assumption of homogeneity of
variances. Because ANOVA is robust to deviations from normality (Glass & Hopkins,
1996), the SCT data were not transformed.
RESULTS

Reliability Analyses

Prior to further analyses, the internal reliability Cronbach alpha coefficients for the measures specified above were calculated. These are displayed in Table 1, along with the overall ranges, means and standard deviations of all measures. The reliability analyses revealed coefficients ranging from 0.70 to 0.92, with the exception of the BIIQ Importance subscale, which had a Cronbach alpha coefficient of 0.62. For research purposes, it has been recommended that the reliability of the measures employed should be at least 0.70 (Nunnally, 1978). However, the BIIQ Importance subscale was nevertheless included in all further analyses, as it has been reported that scales with lower coefficient alphas can still be validly employed with homogenous samples (Bernardi, 1994). This study included a relatively homogenous sample, as all participants were females, almost 75% identified themselves as Caucasian, and over 34% were majoring in psychology.

Participant Characteristics

BMI

Using the RS, a 2 (Restraint Status) X 3 (Ad Type) ANOVA revealed no significant differences between experimental conditions in BMI; however, restrained eaters had a higher BMI ($M = 25.24$, $SD = 5.01$) than did unrestrained eaters ($M = 22.84$, $SD = 4.28$), $F(1, 136) = 9.34$, $p = 0.003$. Similarly, with the DEBQ, the ANOVA revealed no significant differences between experimental conditions in BMI; however,
Table 1

Descriptive data for Participants and Study Measures (N = 144)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Range</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>17.00-45.00</td>
<td>20.98</td>
<td>4.15</td>
<td>--</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>16.19-45.70</td>
<td>23.79</td>
<td>4.71</td>
<td>--</td>
</tr>
<tr>
<td>Restraint Scale</td>
<td>0.00-29.00</td>
<td>13.76</td>
<td>6.21</td>
<td>0.82</td>
</tr>
<tr>
<td>DEBQ Restrained Eating subscale</td>
<td>1.00-4.78</td>
<td>2.37</td>
<td>0.83</td>
<td>0.90</td>
</tr>
<tr>
<td>Current Thoughts Scale Time 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>14.00-32.00</td>
<td>25.60</td>
<td>3.33</td>
<td>0.82</td>
</tr>
<tr>
<td>Social</td>
<td>12.00-35.00</td>
<td>26.84</td>
<td>5.57</td>
<td>0.90</td>
</tr>
<tr>
<td>Appearance</td>
<td>8.00-30.00</td>
<td>20.12</td>
<td>4.71</td>
<td>0.86</td>
</tr>
<tr>
<td>Total</td>
<td>47.00-98.00</td>
<td>74.90</td>
<td>12.45</td>
<td>0.92</td>
</tr>
<tr>
<td>PANAS Time 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive subscale</td>
<td>11.00-50.00</td>
<td>28.3</td>
<td>8.07</td>
<td>0.91</td>
</tr>
<tr>
<td>Negative subscale</td>
<td>10.00-27.00</td>
<td>12.55</td>
<td>3.20</td>
<td>0.86</td>
</tr>
<tr>
<td>Contour Drawing Rating Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current body size</td>
<td>2.00-9.00</td>
<td>6.13</td>
<td>1.49</td>
<td>--</td>
</tr>
<tr>
<td>Ideal body size</td>
<td>2.00-7.00</td>
<td>4.89</td>
<td>0.97</td>
<td>--</td>
</tr>
<tr>
<td>Appearance Schemas Inventory-Revised</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-evaluative salience</td>
<td>1.25-4.83</td>
<td>3.25</td>
<td>0.70</td>
<td>0.86</td>
</tr>
<tr>
<td>Motivational salience</td>
<td>2.13-4.00</td>
<td>3.12</td>
<td>0.36</td>
<td>0.82</td>
</tr>
<tr>
<td>Composite Score</td>
<td>1.50-4.90</td>
<td>3.40</td>
<td>0.61</td>
<td>0.89</td>
</tr>
<tr>
<td>Body Image States Scale</td>
<td>2.17-8.00</td>
<td>5.17</td>
<td>1.48</td>
<td>0.86</td>
</tr>
<tr>
<td>Body Image Ideals Questionnaires</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Range</td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Cronbach’s Alpha</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------</td>
<td>-------</td>
<td>--------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Discrepancy</td>
<td>0.36-2.27</td>
<td>1.12</td>
<td>0.44</td>
<td>0.78</td>
</tr>
<tr>
<td>Importance</td>
<td>0.45-3.00</td>
<td>1.64</td>
<td>0.57</td>
<td>0.62</td>
</tr>
<tr>
<td>Weighted Discrepancy</td>
<td>-0.45-6.36</td>
<td>1.83</td>
<td>1.32</td>
<td>0.70</td>
</tr>
<tr>
<td>Similarity to Models Survey</td>
<td>1.00-4.00</td>
<td>2.39</td>
<td>0.6</td>
<td>0.75</td>
</tr>
<tr>
<td>Sketch Comparison Task</td>
<td>1.00-8.00</td>
<td>5.50</td>
<td>1.56</td>
<td>--</td>
</tr>
<tr>
<td>AMPS Relevance item</td>
<td>1.00-5.00</td>
<td>3.02</td>
<td>1.04</td>
<td>--</td>
</tr>
<tr>
<td>AMPS Attainability item</td>
<td>1.00-6.00</td>
<td>3.42</td>
<td>1.36</td>
<td>--</td>
</tr>
</tbody>
</table>

*Note. AMPS = Ad and Model Perception Survey; DEBQ = Dutch Eating Behavior Questionnaire; PANAS = Positive and Negative Affect Schedule.*
restrained eaters had a higher BMI ($M = 25.13, SD = 5.05$) than did unrestrained eaters ($M = 22.55, SD = 4.03$), $F(1, 136) = 11.67, p = 0.001$.

**Trait Self-Esteem**

With the RS, a 2 X 3 ANOVA revealed no significant differences in trait self-esteem between experimental conditions. However, restrained eaters had lower self-esteem ($M = 21.05, SD = 4.01$) than did unrestrained eaters ($M = 23.69, SD = 4.50$), $F(1, 138) = 12.59, p = 0.001$.

In contrast, with the DEBQ, there were no significant main or interaction effects ($ps > 0.13$), as well as no significant differences in trait self-esteem between the experimental conditions.

**Manipulation Checks**

All manipulation checks were performed with 2 (restrained vs. unrestrained) X 2 (thin ads vs. large ads) ANOVAs.

**Attractiveness of the models.** With the RS, there was a significant main effect of Ad Type for perceived attractiveness, $F(1, 90) = 6.52, p = 0.012$, such that the thin models ($M = 6.86, SD = 1.16$) were perceived as more attractive than the large models ($M = 6.32, SD = 1.24$).

Similarly, with the DEBQ, there was a significant main effect of Ad Type on perceived attractiveness, $F(1, 90) = 5.30, p = 0.024$, such that the thin models ($M = 6.87, SD = 1.16$) were perceived as more attractive than the large models ($M = 6.32, SD = 1.25$).
Thin Media Exposures and Social Comparison

**Thinness of the models.** With the RS, there was a significant main effect of Ad Type for perceived thinness, $F(1, 90) = 270.10, p < 0.001$, with the thin models ($M = 8.28, SD = 0.66$) perceived as significantly thinner than the plus-size models ($M = 4.13, SD = 1.55$). A significant main effect of Restraint was also found, $F(1, 90) = 4.20, p = 0.042$; unrestrained eaters ($M = 6.42, SD = 2.26$) perceived all models to be thinner than did restrained eaters ($M = 5.77, SD = 2.62$).

With the DEBQ as the measure of restraint, there was also a significant main effect of Ad Type for perceived thinness, $F(1, 90) = 265.57, p < 0.001$; thin models ($M = 8.28, SD = 0.79$) were perceived as significantly thinner than the plus-size models ($M = 4.13, SD = 1.55$).

**Direction of social comparison.** With the RS, there was a significant main effect of Ad Type for direction of comparison, $F(1, 90) = 25.14, p < 0.001$; participants made upward comparisons to the thin models ($M = 6.39, SD = 1.80$) but slightly downward to neutral comparisons to the large models ($M = 4.93, SD = 1.30$). However, this was qualified by a significant interaction, $F(1, 90) = 4.48, p = 0.037$. Restrained eaters ($M = 7.18, SD = 1.55$) made significantly higher upward comparisons to the thin models than did unrestrained eaters ($M = 5.88, SD = 1.79$), $t(44) = 2.52, p = 0.016$. In contrast, restrained ($M = 4.90, SD = 1.73$) and unrestrained eaters ($M = 4.96, SD = 0.92$) did not differ in comparison direction when viewing the large models ($p > 0.70$).

With the DEBQ, there was a significant main effect of Ad Type, $F(1, 90) = 22.52, p < 0.001$, as participants made upward comparisons to the thin models ($M = 6.39, SD = 1.80$), but slightly downward to neutral comparisons to the large models ($M = 4.93, SD = 1.30$).
Again however, this was qualified by a significant interaction between Ad Type and Restraint, $F(1, 90) = 6.77, p = 0.011$. Restrained eaters ($M = 7.05, SD = 1.80$) made significantly higher upward comparisons to the thin models than did unrestrained eaters ($M = 5.79, SD = 1.61$), $t(44) = 2.48, p = 0.017$. In contrast, restrained ($M = 4.74, SD = 1.44$) and unrestrained eaters ($M = 5.12, SD = 1.15$) did not differ in comparison direction when viewing the plus-size models ($p = 0.32$).

Hypotheses 1a and 2a: Similarity Perceptions of Restrained and Unrestrained Eaters

Tables 2 and 3 displays the means and standard deviations of all dependent measures by ad condition and restraint status as defined by the RS and the DEBQ respectively.

Hypothesis 1a stated that upon exposures to thin media images, restrained eaters will engage in similarity testing, while hypothesis 2a stated that in this situation, unrestrained eaters will engage in dissimilarity testing. These hypotheses were assessed with a 2 (restrained vs. unrestrained) x 2 (thin ad vs. large ad) ANOVA. The results with the RS as the definition of restraint status revealed a marginal main effect of Restraint, $F(1, 90) = 2.95, p = 0.089$, such that restrained eaters ($M = 5.78, SD = 1.21$) rated the two sketches as being more similar than did unrestrained eaters ($M = 5.21, SD = 1.71$), regardless of ad condition. In contrast, with the DEBQ, no significant main effects, but a marginally significant interaction, $F(1, 90) = 3.20, p = 0.077$ was obtained. Restrained eaters' responses on the SCT did not differ between the thin ($M = 5.75, SD = 1.19$) and the large advertisements ($M = 5.54, SD = 1.38$), $p = 0.24$; however, unrestrained eaters...
Table 2

Means and Standard Deviations of Dependent Measures as Function of Restraint (Defined by the RS) and Ad Type

<table>
<thead>
<tr>
<th>Variable</th>
<th>Restrained Eaters</th>
<th>Unrestrained Eaters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thin</td>
<td>Large</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>24.63 (5.85)</td>
<td>25.11 (4.50)</td>
</tr>
<tr>
<td>CTS Time 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>25.61 (3.55)</td>
<td>25.25 (4.19)</td>
</tr>
<tr>
<td>Social</td>
<td>24.28 (5.99)</td>
<td>24.30 (5.62)</td>
</tr>
<tr>
<td>Appearance</td>
<td>17.89 (4.80)</td>
<td>18.15 (3.88)</td>
</tr>
<tr>
<td>Total</td>
<td>70.11 (13.50)</td>
<td>69.60 (10.90)</td>
</tr>
<tr>
<td>PANAS Time 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive subscale</td>
<td>28.78 (8.67)</td>
<td>26.80 (6.76)</td>
</tr>
<tr>
<td>Negative subscale</td>
<td>12.94 (3.26)</td>
<td>15.55 (5.18)</td>
</tr>
</tbody>
</table>

The raw untransformed data have been reported for conceptual clarity. The statistics resulting from the reciprocal transformations are as follows: Restrained, Thin ($M = 0.081$, $SD = 0.016$); Restrained, Large ($M = 0.074$, $SD = 0.016$); Restrained, Product ($M = 0.080$, $SD = 0.018$); Unrestrained, Thin ($M = 0.084$, $SD = 0.017$); Unrestrained, Large ($M = 0.087$, $SD = 0.016$); Unrestrained, Product ($M = 0.092$, $SD = 0.010$).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Restrainted Eaters</th>
<th>Unrestrained Eaters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thin</td>
<td>Large</td>
</tr>
<tr>
<td>Current body size</td>
<td>6.50 (1.61)</td>
<td>6.75 (1.45)</td>
</tr>
<tr>
<td>Ideal body size</td>
<td>4.72 (1.35)</td>
<td>5.02 (1.14)</td>
</tr>
<tr>
<td>ASI-R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-evaluative salience</td>
<td>3.55 (0.62)</td>
<td>3.64 (0.68)</td>
</tr>
<tr>
<td>Motivational salience</td>
<td>3.11 (0.28)</td>
<td>3.16 (0.32)</td>
</tr>
<tr>
<td>Composite Score</td>
<td>3.75 (0.53)</td>
<td>3.69 (0.62)</td>
</tr>
<tr>
<td>Body Image States Scale</td>
<td>4.52 (1.54)</td>
<td>4.27 (1.34)</td>
</tr>
<tr>
<td>BIIQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrepancy</td>
<td>1.20 (0.38)</td>
<td>1.29 (0.45)</td>
</tr>
<tr>
<td>Importance</td>
<td>2.01 (0.60)</td>
<td>1.95 (0.51)</td>
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<tr>
<td>Weighted</td>
<td>2.44 (1.41)</td>
<td>2.49 (1.42)</td>
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<tr>
<td>Discrepancy</td>
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<td></td>
</tr>
<tr>
<td>Model-SMS</td>
<td>2.11 (0.57)</td>
<td>2.52 (0.44)</td>
</tr>
<tr>
<td>Sketch Comparison Task</td>
<td>5.64 (1.23)</td>
<td>5.90 (1.21)</td>
</tr>
<tr>
<td>AMPS Relevance item</td>
<td>3.00 (1.08)</td>
<td>3.30 (1.13)</td>
</tr>
<tr>
<td>Variable</td>
<td>Restrained Eaters</td>
<td>Unrestrained Eaters</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td>Thin (SD)</td>
<td>Large (SD)</td>
</tr>
<tr>
<td>AMPS Attainability item</td>
<td>2.39 (1.09)</td>
<td>4.00 (1.21)</td>
</tr>
<tr>
<td>Direction of social</td>
<td>7.18 (1.55)</td>
<td>4.90 (1.73)</td>
</tr>
</tbody>
</table>

Note. AMPS = Ad and Model Perception Survey; ASI-R = Appearance Schemas Inventory-Revised; BIIQ = Body Image Ideals Questionnaire; CDRS = Contour Drawing Rating Scale; CTS = Current Thoughts Scale; PANAS = Positive and Negative Affect Schedule; RS = Restraint Scale; SMS = Similarity to Models Survey.
Table 3

Means and Standard Deviations of Dependent Measures as Function of Restraint (Defined by the DEBQ) and Ad Type

<table>
<thead>
<tr>
<th>Variable</th>
<th>Restrained Eaters</th>
<th>Unrestrained Eaters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thin</td>
<td>Large</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>24.61 (5.40)</td>
<td>24.52 (4.31)</td>
</tr>
<tr>
<td>CTS Time 2 Performance</td>
<td>25.45 (3.33)</td>
<td>25.79 (4.11)</td>
</tr>
<tr>
<td>CTS Time 2 Social</td>
<td>24.32 (5.85)</td>
<td>25.79 (5.42)</td>
</tr>
<tr>
<td>CTS Time 2 Appearance</td>
<td>17.86 (4.54)</td>
<td>19.38 (4.06)</td>
</tr>
<tr>
<td>CTS Time 2 Total</td>
<td>69.50 (13.11)</td>
<td>73.46 (11.54)</td>
</tr>
<tr>
<td>PANAS Time 2 Positive subscale</td>
<td>27.32 (7.82)</td>
<td>26.92 (7.91)</td>
</tr>
<tr>
<td>PANAS Time 2 Negative subscale</td>
<td>13.82 (4.11)</td>
<td>14.29 (5.20)</td>
</tr>
</tbody>
</table>

CDRS

The raw untransformed data have been reported for conceptual clarity. The statistics resulting from the reciprocal transformations are as follows: Restrained, Thin ($M = 0.077$, $SD = 0.018$); Restrained, Large ($M = 0.081$, $SD = 0.017$); Restrained, Product ($M = 0.087$, $SD = 0.017$); Unrestrained, Thin ($M = 0.088$, $SD = 0.013$); Unrestrained, Large ($M = 0.082$, $SD = 0.017$); Unrestrained, Product ($M = 0.088$, $SD = 0.013$).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Restrainted Eaters</th>
<th>Unrestrained Eaters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thin</td>
<td>Large</td>
</tr>
<tr>
<td>Current body size</td>
<td>6.52 (1.44)</td>
<td>6.48 (1.27)</td>
</tr>
<tr>
<td>Ideal body size</td>
<td>4.86 (1.19)</td>
<td>4.98 (1.11)</td>
</tr>
<tr>
<td>ASI-R</td>
<td></td>
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<tr>
<td>Self-evaluative</td>
<td>3.59 (0.65)</td>
<td>3.58 (0.71)</td>
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<td>salience</td>
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<tr>
<td>Motivational salience</td>
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<td>3.22 (0.23)</td>
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<tr>
<td>Composite Score</td>
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<td>3.71 (0.59)</td>
</tr>
<tr>
<td>Body Image States Scale</td>
<td>4.57 (1.45)</td>
<td>4.78 (1.34)</td>
</tr>
<tr>
<td>BIIQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrepancy</td>
<td>1.21 (0.40)</td>
<td>1.18 (0.42)</td>
</tr>
<tr>
<td>Importance</td>
<td>1.99 (0.51)</td>
<td>1.77 (0.63)</td>
</tr>
<tr>
<td>Weighted</td>
<td>2.41 (1.40)</td>
<td>2.07 (1.39)</td>
</tr>
<tr>
<td>Discrepancy</td>
<td></td>
<td></td>
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<tr>
<td>Model-SMS</td>
<td>2.16 (0.59)</td>
<td>2.66 (0.48)</td>
</tr>
<tr>
<td>Sketch Comparison Task</td>
<td>5.75 (1.19)</td>
<td>5.54 (1.38)</td>
</tr>
<tr>
<td>AMPS Relevance item</td>
<td>2.95 (1.00)</td>
<td>3.12 (1.03)</td>
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## Thin Media Exposures and Social Comparison

<table>
<thead>
<tr>
<th>Variable</th>
<th>Restricted Eaters</th>
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<th>Unrestricted Eaters</th>
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<tr>
<td></td>
<td>Thin</td>
<td>Large</td>
<td>Product</td>
<td>Thin</td>
<td>Large</td>
<td>Product</td>
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<tr>
<td>AMPS Attainability item</td>
<td>2.41 (1.10)</td>
<td>4.04 (1.23)</td>
<td>--</td>
<td>3.33 (1.34)</td>
<td>3.67 (1.24)</td>
<td>--</td>
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<tr>
<td>Direction of social</td>
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<td>4.66 (1.41)</td>
<td>--</td>
<td>5.79 (1.61)</td>
<td>5.12 (1.16)</td>
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</tr>
</tbody>
</table>

\[ \text{Note. AMPS = Ad and Model Perception Survey; ASI-R = Appearance Schemas Inventory-Revised; BIIO = Body Image Ideals Questionnaire; CDRS = Contour Drawing Rating Scale; CTS = Current Thoughts Scale; DEBQ = Dutch Eating Behavior Questionnaire; PANAS = Positive and Negative Affect Schedule; SMS = Similarity to Models Survey.} \]
rated the two sketches as being marginally less similar in the thin \( (M = 4.79, SD = 1.84) \) than in the large condition \( (M = 5.71, SD = 1.57) \), \( t(46) = 1.85, p = 0.070 \).

Hypotheses 1b and 2b: Effects of Thin Ad Exposures on Restrained and Unrestrained Eaters

Hypotheses 1b and 2b stated that upon thin media exposures, restrained eaters will experience self-enhancing effects, while unrestrained eaters will experience deflating effects. These hypotheses were tested with six 2 (restrained vs. unrestrained) x 3 (thin vs. large vs. product ads) ANCOVAs and two 2 x 3 MANOVAs. Because the measures of state self-esteem and mood were completed once before and once after the ad presentations, the ANCOVA employed the pre-test scores as covariates, while the post-test scores were included as dependent variables. The first MANOVA included as dependent variables the measures of body image investment and satisfaction (BISS, ASI-R, BIIQ), which are highly correlated with each other (Cash et al., 2002); while the second MANOVA included as dependent variables participants' estimations of their own current and ideal body size.

State Mood

With the RS, there was a significant main effect of Restraint on negative mood, \( F(1, 137) = 6.13, p = 0.015 \), with restrained eaters \( (M = 14.66, SD = 5.60) \) reporting greater negative affect than did unrestrained eaters \( (M = 12.10, SD = 3.12) \). In contrast, the raw untransformed data have been reported for conceptual clarity. The means resulting from the reciprocal transformation are: restrained \( (M = 0.078, SD = 0.017) \) and unrestrained \( (M = 0.088, SD = 0.014) \).
with the DEBQ, there were no significant main or interaction effects with either positive or negative mood \((p_s > 0.10)\).

**State Self-Esteem**

With the RS, there was a significant main effect of Restraint on both appearance and social self-esteem. Restrained eaters \((M = 17.36, SD = 4.08)\) reported significantly lower appearance self-esteem than did unrestrained eaters \((M = 22.00, SD = 4.16)\), \(F(1, 136) = 5.23, p = 0.024\). Restrained eaters \((M = 23.97, SD = 5.80)\) also reported significantly lower social self-esteem than did unrestrained eaters \((M = 28.80, SD = 4.48)\), \(F(1, 136) = 15.89, p < 0.001\).

In contrast, with the DEBQ, there was a significant main effect of Restraint on social self-esteem, \(F(1, 136) = 4.65, p = 0.03\); restrained eaters \((M = 25.62, SD = 5.33)\) as a group had lower social self-esteem than did unrestrained eaters \((M = 28.00, SD = 5.58)\).

**Body Image**

With the RS, results of the first MANOVA indicated a significant main effect of Restraint, Wilks' Lambda = 0.64, \(F(7, 132) = 10.44, p < 0.001\). On the BISS, restrained eaters \((M = 4.26, SD = 1.34)\) had significantly lower state body image satisfaction than did unrestrained eaters \((M = 5.78, SD = 1.26)\), \(F(1, 138) = 46.39, p < 0.001\). In addition, restrained eaters had significantly higher scores than did unrestrained eaters on the BIIQ Weighted Discrepancy score \((M = 2.51, SD = 1.39 \ vs. \ M = 1.37, SD = 1.06; F(1, 138) = 30.06, p < 0.001)\); the BIIQ Discrepancy score \((M = 1.29, SD = 0.44 \ vs. \ M = 1.01, SD = 0.41; F(1, 138) = 14.15, p < 0.001)\); the BIIQ Importance score \((M = 1.93, SD = 0.53 \ vs. \ M = 1.45, SD = 0.51; F(1, 138) = 29.27, p < 0.001)\); the ASI-R Composite score \((M =
3.65, $SD = 0.54$ vs. $M = 3.23, SD = 0.61$; $F(1, 138) = 18.77, p < 0.001$), and the ASI-R Self-Evaluative Salience subscale ($M = 3.58, SD = 0.61$ vs. $M = 3.02, SD = 0.68$; $F(1, 138) = 25.17, p < 0.001$). This indicated that restrained eaters perceived significantly greater discrepancies between their self and their ideal body image, that they considered this ideal more important, and that their physical appearance was a more centrally defining feature of the self than it was for unrestrained eaters.

Similarly, with the DEBQ, results of the MANOVA indicated a significant main effect of Restraint, Wilks’ Lambda = 0.72, $F(7, 132) = 7.29, p < 0.001$. On the BISS, restrained eaters ($M = 4.69, SD = 1.46$) had significantly lower state body image satisfaction than did unrestrained eaters ($M = 5.62, SD = 1.37$), $F(1, 138) = 15.85, p < 0.001$. In addition, restrained eaters had significantly higher scores than did unrestrained eaters on the BIIQ Weighted Discrepancy score ($M = 2.18, SD = 1.38$ vs. $M = 1.50, SD = 1.18$; $F(1, 138) = 10.01, p = 0.002$); the BIIQ Discrepancy score ($M = 1.20, SD = 0.43$ vs. $M = 1.05, SD = 0.44$; $F(1, 138) = 4.35, p = 0.039$); the BIIQ Importance score ($M = 1.80, SD = 0.58$ vs. $M = 1.49, SD = 0.52$; $F(1, 138) = 12.57, p < 0.001$); the ASI-R Composite score ($M = 3.67, SD = 0.52$ vs. $M = 3.14, SD = 0.59$; $F(1, 138) = 35.27, p < 0.001$), and the ASI-R Self-Evaluative Salience subscale ($M = 3.54, SD = 0.62$ vs. $M = 2.97, SD = 0.67$; $F(1, 138) = 29.57, p < 0.001$).

**Current and Ideal Body Size Perception**

With the RS, results of the second MANOVA indicated a significant main effect of Restraint, Wilks’ Lambda = 0.83, $F(2, 137) = 13.65, p < 0.001$; restrained eaters rated their current body size ($M = 6.74, SD = 1.42$) as being significantly larger than did
unrestrained eaters \((M = 5.72, SD = 1.39)\), \(F(1, 138) = 17.45, p < 0.001\). However, no difference between the two groups was observed in ratings of ideal body size \( (p \geq 0.50)\).

Similarly, with the DEBQ, the second MANOVA revealed a significant main effect of Restraint, Wilks' Lambda = 0.89, \(F(2, 137) = 8.71, p < 0.001\); restrained eaters rated their current body size \((M = 6.55, SD = 1.32)\) significantly larger than did unrestrained eaters \((M = 5.73, SD = 1.53)\), \(F(1, 138) = 11.48, p = 0.001\). Again, no difference between the two groups was observed in ratings of ideal body size.

Hypothesis 3: Relevance and Attainability Perceptions of Restrained and Unrestrained Eaters

Hypothesis 3 stated that restrained eaters will perceive the thin models as more relevant and their physique as more attainable than will unrestrained eaters. This hypothesis was tested with two 2 (restrained vs. unrestrained) x 2 (thin ad vs. large ad) ANOVAs with the relevance and attainability items of the model-AMPS as dependent variables.

Relevance

Using the RS, a marginal main effect of Ad Type was found, \(F(1, 90) = 3.46, p = 0.066\), such that participants perceived the ads portraying the plus-size models \((M = 3.85, SD = 1.24)\) as being more relevant than the ads portraying the thin models \((M = 2.85, SD = 1.30)\).

Similarly, using the DEBQ, a significant main effect of Ad Type was found for relevance, \(F(1, 90) = 3.92, p = 0.05\), such that participants perceived the advertisements
portraying the plus-size models ($M = 3.20, SD = 1.01$) as more relevant than the advertisements portraying the thin models ($M = 2.78, SD = 1.03$).

**Attainability**

Using the RS, there was a significant main effect of Ad Type was found, $F(1, 90) = 16.71, p < 0.001$, with participants perceiving the bodies of the plus-size models ($M = 3.85, SD = 1.24$) as significantly more attainable than those of the thin models ($M = 2.89, SD = 1.30$). This main effect was qualified by a significant interaction between Restraint and Ad Type, $F(1, 90) = 4.19, p = 0.043$. Restrained eaters ($M = 2.39, SD = 1.09$) felt that the bodies of the thin models were significantly less attainable than was perceived by unrestrained eaters ($M = 3.21, SD = 1.34$); however, these two groups did not differ in their perceptions of the attainability of the large models' bodies ($p > 0.49$).

Similarly, using the DEBQ, there was a significant main effect of Ad Type was found for attainability, $F(1, 90) = 14.90, p < 0.001$, with participants perceiving the bodies of the plus-size models ($M = 3.85, SD = 1.24$) as significantly more attainable than those of the thin models ($M = 2.89, SD = 1.30$). However, this main effect was qualified by a significant interaction between Restraint and Ad Type, $F(1, 90) = 6.51, p = 0.012$. Restrained eaters ($M = 2.41, SD = 1.10$) felt that the bodies of the thin models were significantly less attainable than was perceived by unrestrained eaters ($M = 3.33, SD = 1.34$); however, these two groups did not differ in their perceptions of the attainability of the large models' bodies ($p > 0.29$).
Hypothesis 4: Convergent Validity of the SCT with the model-SMS

The correlation between the SCT and the model-SMS was examined. These two variables were not significantly correlated, $r = 0.13, p = 0.46$. 

Chapter IV

DISCUSSION

Hypotheses 1 and 2: Similarity/Dissimilarity Testing and the Effects of Thin Ad Exposures

The first and second hypotheses of this study stated that when exposed to thin media images, restrained eaters would engage in similarity testing and thus experience self-enhancing effects, while unrestrained eaters would engage in dissimilarity testing and experience deflating effects. These hypotheses were not supported, either with the RS or the DEBQ as the measure of restraint. With an implicit test of similarity perceptions, only a marginally significant trend was obtained, such that unsuccessful restrained eaters engaged in more similarity testing than did unrestrained eaters in both model ad conditions. Furthermore, no groups experienced any affective consequences of either the thin or the large ad exposures, as evidenced by the lack of main or interaction effects of the ad conditions.

The lack of a self-enhancement effect found in this study questions the veracity of this effect. In a closer examination of the first study to report self-enhancement in restrained eaters following thin exposures (Mills et al., 2002), the statistics used to support this claim are questionable. In particular, the results cited as demonstrating the self-enhancement effect were, on occasions, not statistically significant at an alpha level
of 0.05; instead, many were trends at alpha levels of 0.10 or even 0.15. For example, it was reported that restrained eaters had higher state appearance self-esteem after viewing the thin images as opposed to the large or product images \((p < 0.10)\), and judged their current body size to be smaller in the thin condition than in the product condition \((p < 0.15)\).

Furthermore, the researchers appeared to interpret results at identical significance levels contrarily, depending on whether the findings were in accordance with their predictions. For example, while in the preceding instance results at a significance level of 0.15 were interpreted as demonstrating a “trend” that supported the existence of a self-enhancement effect in restrained eaters, in another section that compared the dietary intake of restrained eaters in the large and product conditions, results at an identical significance level were labelled as “nonsignificant”.

As the preceding examples demonstrate, the biased use of statistical inference by Mills et al. (2002) raises the possibility that the self-enhancement effect is a product of liberal statistical interpretation rather than a genuine phenomenon. Even if genuine, the lengths to which the authors went to obtain results in accordance with their predictions seem to indicate that this effect is likely very small and difficult to obtain. In fact, as discussed in the introduction, the researchers had difficulty replicating all aspects of the original self-enhancement effect in a second part of their series of studies.

However, it can be argued that the self-enhancement effect does exist, and was simply not obtained in the present study. This possibility is tenable for a number of reasons. Firstly, the self-enhancement effect was replicated by Joshi et al. (2004) using
sound statistical methodology, which indicates that there may be more to this effect than simply biassed statistical interpretation. Secondly, the absence of any impact of the model images employed in this study, either positive or negative, raises the possibility that the self-enhancement effect was not revealed because of methodological issues specific to this study. In fact, while the scant research into the effects of plus-size images has generally not revealed any affective consequences of such exposures (e.g., Halliwell & Dittmar, 2004; Mills et al., 2002; Ogden & Mundray, 1996), it is surprising that the thin media images employed in this study also had no impact on participants, given that the majority of research in this area has found negative sequelae (Groesz et al., 2002). Therefore, the following discussion will mainly focus on attempting to explain the lack of results in the thin, rather than in the large, condition.

Only a handful of previous studies have obtained null effects of thin media exposures, including a study by Jung and Lennon (2003). These authors accounted for their null effects by focussing on the distractor task participants completed while viewing the thin models. In particular, participants were required to rate the “formality and fashionability of models’ clothes” (p. 45), and as such, it was hypothesized that they may have sought information from the models rather than engage in social comparisons with them.

This study similarly required participants to complete a cognitively demanding task during the thin media exposures; in particular, the CRQ. Although Mills et al. (2002) also required participants to complete a CRQ, their questionnaire differed from the one employed in this study in a number of ways. For example, their questionnaire only
included six items, as opposed to the 10 included in this study. In addition, their items appeared to be relatively short statements assessing simple aspects of the ad, such as its effectiveness or its attractiveness. While this study's CRQ also contained some identically simple items, other questions borrowed from the CRQ developed by Tiggemann and McGill (2004) consisted of statements that were lengthier and more complex (e.g. In a busy store, I would not like to try on a bathing suit in the same room if this woman was also trying on a bathing suit in the same change-room). However, despite the use of these questions, Tiggemann and McGill only included five items on their CRQ, and still obtained effects of their thin exposures.

Thus, the CRQ employed in this study appeared to be unique in both its greater overall length, as well as the inclusion of individual items that were of more elaborate breadth and structure. These factors may have required participants to expend greater conscious cognitive effort in completing the CRQ, and they may therefore have studied both the ads and the models in the ads more critically. Therefore, similar to the participants in the study by Jung and Lennon (2003), participants in this study may have viewed the images as sources of information and thus evaluated them intellectually, and as will be discussed below, this intellectual viewpoint may have protected against any affective consequences of comparisons to potentially ego-threatening thin images.

Social comparisons to the thin ideal usually occurs automatically and unintentionally because comparisons to these ideals are so often engaged in (Frisby, 2004). Like heuristics which help simplify problem-solving and decision-making (Kahneman, Slovic, & Tversky, 1982), having social comparisons occur without much
cognitive effort may be necessary to achieve a balance between limited cognitive resources and the large number of comparison targets encountered in daily life. However, automatic processing achieves greater cognitive efficiency at a cost; specifically, the greater likelihood of performing cognitive biases and distortions (Kahneman et al., 1982). As a relevant example, women may base their social comparisons to idealized images only on the salient characteristic of thinness, without critically questioning how this unrealistic level of thinness was achieved, or without considering other relevant domains such as health.

However, in this study, if participants became more intellectually engaged with the thin images as a result of the cognitive style necessitated by the CRQ, the typically automatic social comparisons may have been replaced with more rational evaluations of the images, and this may have eliminated many of the biases in participants' thinking. Specifically, with critical examination, they may have reasoned that the thin models are artificial and unrealistic because their photographs are likely professionally retouched, or that their thin physique is unhealthy and even potentially dangerous to emulate. Based on their critique, they may have concluded that the thin ideal as portrayed in the media is a doctored and impossible standard which does not apply to regular women. Participants' accurate dismissals of the thin models as irrelevant comparison targets may have thus protected against any impact of the thin exposures, because judges may not have engaged in social comparisons with targets deemed irrelevant (Lockwood & Kunda, 1997). The absence of social comparison to the thin images may therefore account for the null effects of the model images in this study.
However, two empirical findings make this possibility unlikely. Firstly, participants' scores on the AMPS relevance item in the thin condition ranged from 2.62 to 3.00 on a 4-point Likert scale, indicating that participants indeed perceived the thin images as moderately relevant. Secondly, in examining the results of the model-CRQ questions that encouraged social comparisons to the models ("This woman is thinner than me", "In a busy store, I would not like to try on a bathing suit in the same room...", "I would like my body to look like this woman's body"), participants did appear to engage in comparisons with all models. With all three comparison questions, there was a significant main effect of Ad Type, with greater agreement with the statements in the thin rather than in the large model condition. Furthermore, an examination of the direction and strength of social comparison participants made in the two model conditions revealed a pattern in which all participants made significantly greater upward comparisons to the thin rather than to the large models. These results thus provide evidence that participants engaged in social comparisons to the portrayed models, as all responses to the comparison questions varied in the expected manner. If participants had failed to engage in social comparisons, they should have responded to the questions indiscriminately.

Therefore, although the completion of the CRQ in this study may have led participants to engage in greater intellectual processing with the thin media images, this intellectualisation likely did not cause participants to dismiss the images as irrelevant and subsequently fail to engage in social comparisons. Therefore, the lack of affective consequences following the thin presentations may have been due to another
methodological issue; in particular, the fact that the thin images were not effective enough.

The sociocultural theory of eating disorders states that thin media exposures are one cause of eating pathologies, as the unrealistically slender images portrayed in the media engender body dissatisfaction among women, eventually leading a subset of women to engage in dangerous eating practices to attempt to shape their bodies more closely to the media-endorsed thin ideal (Polivy & Herman, 2002). This theory has received empirical support from the numerous studies that have found negative effects of even short-term thin media exposures (Groesz et al., 2002). Therefore, based on sociocultural theory, the absence of any impact of this study’s thin images raises the possibility that these images were not effective enough, and in particular, not thin enough.

Although the overall group of thin models were rated by participants to be thin (a mean of 8.28 on a 9-point scale), on the question “This woman is thinner than me”, ratings were only at a mean of 7.45. Both these ratings therefore indicate that the models in the thin condition could be thinner. In fact, a visual inspection of the thin models used in this study, and a comparison of these models to those employed in a recent study (Dittmar & Halliwell, 2006), revealed that the physique of this study’s thin models lacked the waif-like and anorexic quality typically associated with haute couture supermodels.

Thin images that were not slender enough may have had a number of consequences. Because there was evidence that participants engaged in social comparisons to the thin models, one consequence may be found in the hypothesis testing of judges during such comparisons. For example, although it was originally hypothesized...
that unrestrained eaters would engage in dissimilarity testing to the thin images, models that were not perceived as exceptionally thin may have not provided an extreme enough standard for participants to engage in great degrees of dissimilarity testing with during social comparisons. This would then not have resulted in the negative consequences hypothesized to occur as a result of this direction of hypothesis testing.

Although it is plausible that the more realistic physique portrayed by this study’s thin models could have inspired greater degrees of similarity testing among unrestrained eaters, this possibility is precluded by two findings. Firstly, the thin models were perceived as possessing greater than average attractiveness (6.87 on a 9-point scale), and this superior attractiveness may have made it difficult for participants to perceive similarities between themselves and the models. Secondly, as will be discussed below, participants did not perceive the thin models to be as relevant as the large models; these moderate perceptions of relevance would seem to preclude great degrees of similarity testing. Furthermore, although it was originally hypothesized that previous accounts of the self-enhancement effect in restrained eaters could be accounted for by similarity testing, the fact that this study’s thin images were not exceptionally thin may have prevented restrained eaters from engaging in similarity testing. In particular, these individuals may actually desire to differ from the portrayed models, in that their ideal body size may be of even thinner proportions. All the above factors therefore suggest that great amounts of similarity testing would have been difficult for participants to engage in, even if the thin models in this study were of a healthier physique.
As evidence of the lack of hypothesis testing in either direction, an examination of the mean SCT scores of both restrained and unrestrained eaters revealed means clustering around the 5-point range in both ad conditions. This is in approximately the midpoint of the 9-point Likert scale. With the scale anchored on one end by "not at all similar" and the other end by "completely similar", means in the 5-point range would correspond to perceptions of the two sketches as being approximately similar; extrapolating from these results would indicate that participants did not overwhelmingly engage in either similarity or dissimilarity testing when comparing themselves to the models. Instead, these results suggest that participants held a more neutral view of their own standing in relation to the thin models; they did not perceive themselves as either substantially similar or different. However, as Mussweiler (2003a) proposes that it is similarity or dissimilarity testing during social comparisons that lead to the consequences of a comparison, engaging in neither direction of hypothesis testing strongly may simply fail to produce any comparison consequences, as was found in this case.

Thin models that were potentially not slender enough also has consequences on a conceptual level. Mills et al. (2002) based their explanation of the self-enhancement effect on the "thinness fantasy" account first suggested by Myers and Biocca (1992). In particular, Mills et al. hypothesized that exposures to thin images may have encouraged restrained eaters to imagine themselves possessing these thinner bodies, thus leading them to temporarily experience the attainment of their weight-loss goals by feeling thinner and more confident about their appearance. However, if the thin images used in this study were not adequately thin, restrained eaters may not have desired to imagine
themselves possessing these bodies, as their ideal would be represented by an even thinner figure. Therefore, they may have been unaffected by this study’s thin images because these images were not potent enough to trigger fantasies of a slimmer self.

Joshi et al. (2004) suggested another explanation of the self-enhancement effect—they suggested that it may be a defence mechanism rather than a form of enhancement. Presented with thin images that highlight their own weight and shape deficiencies, restrained eaters may have coped with this ego-threat by attempting to foster a more positive self-image, or at the very least, by outwardly claiming this psychological health. Again, the possibility that inadequately thin images were employed in this study may have had consequences—specifically, models that were not thin enough may not have been perceived by restrained eaters to be especially threatening, thus negating the need for any type of defence mechanism.

In summary, if the thin models employed in this study were indeed lacking in thinness and thus effectiveness, this may account for the lack of either similarity or dissimilarity testing during social comparisons, which in turn would explain the absence of any emotional consequences of the comparisons to the thin images. Thus, inadequately thin images may not have been potent enough to have either inspirational or threatening effects. If these possibilities are accurate, the hypotheses of this study were not properly evaluated because of ineffective stimuli. To determine whether the null effects of this study can be attributed to the inadequate thinness of the models in the thin condition, a follow-up study is currently being conducted that replicates this study’s procedures with the exception of the use of slimmer models.
Hypothesis 3: Relevance and Attainability Perceptions of Restrained and Unrestrained Eaters

Hypothesis 3 stated that restrained eaters would perceive the physique of the thin models as more relevant and attainable than unrestrained eaters. This hypothesis was not supported, as all participants regardless of restraint status perceived the plus-size models as representing a more relevant and attainable standard than the thin models. Furthermore, restrained eaters (defined either by the RS or the DEBQ) surprisingly felt that the thin figures were less achievable than did unrestrained eaters.

The low attainability perceptions of restrained eaters seem to indicate that although these individuals are currently engaging in weight-loss techniques, they nevertheless still perceived a thin physique to be less attainable than individuals who do not make concerted efforts to lose weight. Instead, based on these results, restrained eaters appear to be working for a goal they lack faith in actually achieving. One explanation for this counterintuitive finding could be that restrained eaters have had more experience attempting to slim down their physique than unrestrained eaters, and as a consequence, know first-hand the struggles of attempting to lose weight and to maintain this weight loss. Restrained eaters’ lower attainability ratings may therefore simply reflect their personal knowledge as to the difficulty of achieving lasting results with dieting. If this interpretation is accurate however, it may necessitate alterations in current conceptualizations to explain why restrained eaters are motivated to continue dieting, even when they do not strongly believe that their efforts will help them achieve the ultra-thin figures portrayed in the media.
In terms of relevance, all participants regardless of restraint status perceived the large models to be more relevant and relatable than the thin models. This finding is somewhat unexpected in restrained eaters, as some of these individuals presumably must find the physique of the thin models to be highly relevant, since one reason they may be currently dieting is to emulate this physique. Nevertheless, these results indicate that although restrained eaters may hope to one day attain the figures of thin models, they are presently better able to identify with more realistically-sized models. This is not entirely surprising given the BMI of restrained eaters, which was approaching the overweight range for both RS- and DEBQ-defined dieters. Given their current size, restrained eaters may indeed have been better able to relate to larger models who bore a greater physical resemblance to themselves.

An interesting implication of participants perceiving the large models as more relatable than the thin models pertains to advertising effectiveness. It has long been established in the field of social psychology that individuals like and are attracted to others who are similar to themselves (Byrne, 1961). Applying this principle to the results of this study and advertising effectiveness, it would seem to suggest that consumers may respond more favourably to advertisements portraying more realistically-sized models, as these models may be perceived as more relevant and similar to the self, and therefore may be better liked. This logic counters the longstanding assumption of the advertising industry that only thin beautiful women can sell products, rather than equally beautiful but average-sized women. In fact, Halliwell and Dittmar (2004) found that it is the attractiveness of models, rather than their thinness, that influences the efficacy of an
advertisement. The results of this previous study, coupled with the results of the current study, therefore suggest that more realistically sized models can be used in advertisements without detriment to the ad's effectiveness.

Hypothesis 4: Validity of the SCT

The fourth hypothesis of this study stated that the SCT, an implicit test of similarity perceptions, would demonstrate convergent validity with the model-SMS, an explicit measure of similarity perceptions. This hypothesis was not supported, as a significant correlation was not found between the SCT and the model-SMS.

The absence of a significant relationship between the SCT and an explicit test of similarity perceptions may be interpreted as indicating that the SCT lacks construct validity. This is plausible for a number of reasons. Firstly, the SCT has only been employed in one study as a measure of similarity or dissimilarity testing (Mussweiler et al., 2004), and this study failed to provide evidence for the validity of this measure. Secondly, the SCT, unlike other more popular measures of implicit processing (such as the IAT), consists of only a solitary item, which may decrease its reliability or its validity. Therefore, the lack of correlation between the SCT and the model-SMS may indeed accurately reflect the limited validity of the former measure.

However, research in other areas have also found that implicit and explicit measures have low to no correlations with each other (Karpinski & Hilton, 2001; Ottaway, Hayden, & Oakes, 2001). The lack of relationship between implicit and explicit measures is hypothesized to be due to the fact that these two types of measures tap into different aspects of cognition; respectively, unconscious and conscious processes.
Research has found that unconscious and conscious thought have distinct characteristics, account for different aspects of decision-making and attention, and are influential in different circumstances (Dijksterhuis & Nordgren, 2006). Analogously, hypothesis testing is a cognitive process that occurs unconsciously, automatically, and without attention directed to this process (Mussweiler, 2003a); whereas completing the model-SMS requires conscious deliberations of similarity perceptions. Therefore, the SCT and the model-SMS may not be highly correlated because they tap into distinct levels of cognitive processing, and differences in processing may have to led to the disparate responding patterns apparent between the SCT and the model-SMS.

One factor that may have led to differences in responding is judges’ motivations (Hofmann et al., 2005). The SCT is intended to assess the automatic processes of similarity and dissimilarity testing, and because these processes are consciously inaccessible to participants, they may remain relatively free of judges’ considerations. In contrast, responses to the model-SMS are open to deliberate evaluations, and as such, responses may have been biassed by other factors such as social desirability. For example, participants’ mean BMI of 23.79 was in the higher end of the Normal Weight Status category as defined by the U.S. Centers for Disease Control and Prevention (the Normal BMI category ranges from 18.5 to 24.9). Given their high-average BMI, participants may not have felt comfortable claiming similarity to the thin models when it was objectively inaccurate. Even though the model-SMS assesses eight categories instead of one, many of these categories can be contingent on weight (e.g. eating and
exercise habits, physical appearance, popularity), and participants may therefore still have felt reluctant to declare similarity to the thin ideals.

A related difference in responding patterns that may have contributed to the lack of relationship between the SCT and the model-SMS is judges' awareness of the purpose of each measure (Hofmann et al., 2005). Specifically, the SCT is an implicit test, and as such, participants "may be unaware of what is being measured, unaware of how it is being measured, or unable to control their performance on the measure" (Nosek, Greenwald, & Banaji, in press, p.16). Because of the lack of awareness, responses on this test may remain unbiassed and may represent a relatively accurate portrayal of judges' hypothesis testing during social comparisons. However, because of the transparency of the model-SMS, participants were likely aware of what this test was intended to assess, and thus may have adjusted their responses, perhaps in the manner described in the previous paragraph.

In summary, given that the SCT is intended to assess unconscious aspects of cognition, while the model-SMS assesses conscious aspects, the former measure may be relatively free of the factors that may affect responding on the latter measure. Therefore, the lack of correlation between these two measures should not necessarily be taken as evidence against the validity of the SCT. Instead, further research that assesses the validity of the SCT with methodology specifically designed for implicit measures is warranted (Bosson, Swann, & Pennebaker, 2000).
Another goal of this study was to examine the pattern of results obtained by identifying restrained eaters with two measures of restraint: the RS, which mainly identifies unsuccessful dieters, and the DEBQ, which mainly identifies successful dieters. The results obtained with both these measures were highly similar, as neither defining restraint with the RS or the DEBQ revealed any affective consequences of the ad exposures. However, successful dieters appeared to be psychologically healthier than unsuccessful dieters: restrained eaters defined with the RS had greater negative mood and lower trait, state appearance, and state social self-esteem than unrestrained eaters, while restrained eaters defined with the DEBQ only had lower state social self-esteem than unrestrained eaters. In other words, the mood, trait self-esteem, and state appearance self-esteem of successful dieters appeared to be comparable to that of non-dieters.

The reason for the similarity of results obtained with the RS and the DEBQ is evident in examining the distribution of the individuals classified by these measures. Eleven individuals (13.6%) were classified as restrained eaters only with the RS, 23 individuals (28.4%) were classified as restrained only with the DEBQ, and 47 (58%) were classified as restrained both with the RS and the DEBQ. Because more than half of restrained eaters in this sample were identified both with the RS and the DEBQ, the majority of restrained eaters were included in both sets of analyses, thus making both sets of analyses highly similar.

Because the majority of individuals included in the RS analyses were also included in the DEBQ analyses, the latter analyses provided little additional or unique
information. Future studies attempting to define restraint status with both the RS and the DEBQ should take care to employ a large enough sample size to allow for the selection of dieters who are identified solely with either the RS or the DEBQ. In this study, it would not have been statistically sound to conduct analyses employing only the 11 individuals identified as restrained solely through the RS, and the 23 individuals identified as restrained solely through the DEBQ. Although individuals classified as restrained eaters exclusively with either the DEBQ or the RS are by no means guaranteed to be truly successful or unsuccessful dieters, comparisons between these two mutually exclusive groups would nevertheless represent a more valid and powerful form of analyses.

Although two previous studies (Ouwens et al., 2003; Van Strien, Cleven, & Schippers, 2000) have employed both the RS and the DEBQ as measures of restrained eating, both these studies treated these measures as continuous rather than categorical variables, and therefore did not classify individuals as restrained or unrestrained eaters. Therefore, the high degree of overlap between these two measures could not have been predicted. However, this finding can be explained on a conceptual level, as chronic dieters identified by the RS generally vacillate between periods of eating characterized by restriction followed by disinhibition (Polivy & Herman, 1985). The fact that the majority of dieters in this study were classified as restrained both on the DEBQ and the RS may therefore indicate that these individuals were chronic unsuccessful dieters who were nevertheless experiencing short-term success in restricting their caloric intake at the time of testing.
Finally, the substantial overlap between individuals classified as restrained eaters by the RS or the DEBQ suggests that these two measures are not as conceptually distinct as was once hypothesized. Instead, given the cyclical nature of dieting patterns and in particular the phenomenon of weight cycling (Bartlett, Wadden, & Vogt, 1996; Brownell, Greenwood, Stellar, & Shrager, 1986), it may not be accurate to label a dieter as either successful or unsuccessful, as this status is likely to fluctuate with continuous dieting attempts and failures. Given the results of this study, as well as the complexity of dieting practices, the use of the RS and the DEBQ should be reevaluated.

Similarity Testing

Using an implicit measure, it was found that unsuccessful restrained eaters engaged in marginally more similarity testing than did unrestrained eaters, regardless of ad condition. Although unsuccessful and successful restrained eaters were highly similar in their reactions to the media images presented in this study, the fact that only unsuccessful dieters engaged in more similarity testing than did non-dieters highlights a potential difference in the social comparison processes of these two types of restrained eaters. Although as noted above, none of the groups engaged overwhelmingly in either similarity or dissimilarity testing, if the difference in hypothesis testing style between successful and unsuccessful restrained eaters is genuine, it may shed some light as to the origins of unsuccessful restrained eaters' dieting practices.

In particular, as similarity testing is hypothesized by Mussweiler (2003a) to be the default direction of hypothesis testing, the fact that unsuccessful restrained eaters have an inclination for, and may automatically engage in, the cognitively less demanding task of
similarity testing when viewing thin media images may indicate a lifelong pattern in which they accept the thin ideal unquestioningly, without making the effort to critically evaluate this ideal. Not only is the thin ideal accepted, but frequent similarity testing may have eventually required that restrained eaters adopt the thin ideal as their own standard of beauty, as they likely would not have continued to engage in similarity testing to an ideal they did not highly esteem. Valuation of this unrealistically thin ideal may have consequently led to weight control practices in an attempt to attain this standard. Restrained eaters may also have felt compelled to diet because it would have been difficult for them to engage in similarity testing to thin images if they themselves were objectively of a larger physique.

In contrast, successful restrained eaters did not exhibit an increased tendency over unrestrained eaters to engage in similarity testing to the thin media images. Because these individuals may not by default try to perceive great similarities between themselves and the thin ideal, this may indicate that they are less prone to buy into this ideal. Consequently, the attainment of an impossibly thin physique may not be their primary impetus for dieting. Because successful restrained eaters may not have the goal of achieving unrealistic degrees of thinness, they may be better able to effectively restrict their caloric intake as they do not have to resort to drastic weight control measures, measures which usually result in weight cycling and paradoxical weight gain over time (Brownell et al., 1986; A. E. Field, Wing, Manson, Spiegelman, & Willett, 2001).

On the other end of the spectrum were unrestrained eaters, as the DEBQ analyses indicated that they engaged in significantly more dissimilarity testing to the thin than to
the large images. In other words, during social comparisons to the thin images, unrestrained eaters actively sought for differences between themselves and these images. Although looking for and finding differences between oneself and a revered beauty ideal may result in negative consequences, none were evident in unrestrained eaters. This may indicate that unrestrained eaters’ dissimilarity testing was not a critical enumeration of the differences between themselves and the thin ideal, but was instead a more objective assessment of their own standing in relation to the models. This objectivity may have thus prevented any emotional reactions, either positive or negative, from occurring in response to the thin images.

Social Comparison

This was the first study to assess both the direction and the strength of social comparison participants made to presented media images. Although previous studies simply assumed that participants would make upward comparisons to thin models, this study provided empirical support for this assumption. In particular, it was found that all participants made moderate upward comparisons to the thin models, and slightly downward to neutral comparisons to the plus-size models. Moreover, both successful and unsuccessful restrained eaters made significantly higher upward comparisons to the thin models than did unrestrained eaters. Although not all restrained eaters may currently be dieting to attain the physique portrayed by the thin ideal, these results indicate that most of these individuals nevertheless do hold the thin ideal in high regard. In contrast, unrestrained eaters, although they acknowledged that the thin models were aesthetically superior to themselves, did not appear to overly revere this ideal.
Thin Media Exposures and Social Comparison 101

Participants reacted to the large images somewhat neutrally, as their responses indicated that they were in between making downward social comparisons and perceiving the models to be of equal desirability to themselves. This finding may explain why this and previous studies have not obtained any effects of large media exposures: models that are perceived to be of approximately equal desirability to the self should not inspire either feelings of elation or disappointment.

Limitations of the Current Study

In addition to the limitation previously discussed of the use of inadequately slim thin images, another limitation of this study was the lack of diversity of the participants. The majority of participants were Caucasian university students who were majoring in psychology, and who had a mean age of 21. This highly specific sample may therefore limit the generalizability of this study’s findings. Furthermore, the null effects of this study may have been partially attributable to participant characteristics. Given that the majority of participants were not only highly educated but were also majoring in psychology with a mean number of 5.15 psychology courses taken, their familiarity with psychological concepts may have provided them with knowledge and techniques to employ when presented with potentially ego-threatening media images. Their efforts at affect regulation may in fact have been successful, and thus may have protected against any adverse consequences of the ad exposures.

Another limitation of this study is that the ad exposure manipulation required viewing 12 magazine images over 20 minutes. Although this procedure was necessary to ensure uniformity of the ad exposures between participants, it also lacked external
validity, as it does not accurately mirror the natural experiences of most females who encounter advertisements while perusing through fashion magazines. This limitation is not specific to the current study but instead extends to this research area in general, as the majority of randomized controlled studies examining the impact of thin ideal exposures have been conducted in the laboratory. Because findings may differ in naturalistic settings, future research should aim to be conducted outside the laboratory. For example, the only study that has thus far examined the impact of thin media exposures in an everyday setting found that only vulnerable individuals were adversely affected by the thin exposures (Stice et al., 2001).

Suggestions for Future Research

Before any suggestions for future research can be proffered, this study must be replicated with more effective (i.e. thinner) models in the thin condition, to ensure that the null results obtained were not due to inefficacious stimuli. Therefore, the only suggestion that is currently being recommended is methodological in nature, and broadly extends to this field of research. In particular, as was discovered in the advertisement selection phase, it was impossible to base the selection of the thin models on materials employed in previous research, as it is currently rare for studies to provide objective information (e.g. BMI) about the build and physique of the models employed. Instead, readers simply have to assume that the models in a thin condition are of an adequately slim physique (e.g., Champion & Furnham, 1999; Hamilton & Waller, 1993; E. Henderson-King & Henderson-King, 1997), or similar to the procedure employed in this study, it is reported that judges in pilot testing rated the models to be thin, but only on a
Likert scale that does not convey objectively meaningful information (e.g., Durkin & Paxton, 2002; Grogan & Richards, 2002; Halliwell & Dittmar, 2005). Only one study has provided objective information about the size of the models employed (Halliwell & Dittmar, 2004) by reporting the average waist measurements and corresponding dress sizes of the models. Providing objective information about the physiques of the models in a particular ad condition is a vital piece of information that would ensure greater uniformity of the stimuli used in different studies, which would consequently allow for more valid comparisons between studies.

Obtaining objective information such as BMI about the models employed is not difficult; for example, research into the impact of male muscular images is beginning to employ trained raters to estimate the body fat of models, with these estimations used to calculate a fat-free mass index (e.g., Leit, Pope, & Gray, 2001). A similar procedure could be used in this field of research, such that judges may be trained to estimate the height and weight of models, with these two pieces of information contributing to calculations of BMI.

Finally, given that the athletic ideal, which depicts a physique that is lean, toned, and fit, is becoming more popular in the mass media (Fink & Kensicki, 2002), and has been shown to be valued by some women (Butler & Ryckman, 1993), an interesting follow-up study would be to compare the reactions of restrained and unrestrained eaters to this ideal. Given that restrained eating is a means of losing weight but not necessarily of sculpting or toning the body, restrained eaters may react differently to athletic ideals than to unrealistically thin ideals. Similarly, the reactions of unrestrained eaters may also
differ because athletic ideals may not necessarily be perceived as an unhealthy and unrealistic goal.

Conclusions

Whether restrained eaters actually experience self-enhancing effects and unrestrained eaters experience detrimental effects in response to thin media exposures, and whether the social comparison processes of similarity and dissimilarity testing can account for this phenomenon if it does occur, remains unresolved: despite evidence that they engaged in social comparisons to the presented models, participants in this study neither engaged in great degrees of similarity or dissimilarity testing during the comparisons, and as a result may have failed to be affectively impacted by the images. A potential reason for the null effect of the thin images is that these images may not have been effective enough, and in particular, not thin enough. Therefore, they may have lacked the potency required to inspire either similarity or dissimilarity testing. A follow-up study is currently being conducted that aims to test this study's hypotheses with slimmer models in the thin condition.
References


Tiggemann, M., Gardiner, M., & Slater, A. (2000). "I would rather be size 10 than have straight A's": A focus group study of adolescent girls' wish to be thinner. *Journal of Adolescence, 23*(6), 645-659.


Appendix A

RATING FORM FOR THE INITIAL SELECTION OF THE MODELS

1. The model in this ad is very attractive.
   
   1 2 3 4 5 6 7 8 9
   
   Strongly Disagree                    Strongly Agree

2. The model in this ad is very thin.
   
   1 2 3 4 5 6 7 8 9
   
   Strongly Disagree                    Strongly Agree

3. This ad is generally attractive.
   
   1 2 3 4 5 6 7 8 9
   
   Strongly Disagree                    Strongly Agree
REVISED RESTRAINT SCALE

The following questions refer to your normal eating pattern and weight fluctuations. Please answer accordingly.

1. How often are you dieting?
   ____ Never _____ Rarely _____ Sometimes _____ Often _____ Always

2. What is the maximum amount of weight (in pounds) that you have ever lost within one month?
   ____ 0-4 _____ 5-9 _____ 10-14 _____ 15-19 _____ 20+

3. What is your maximum weight gain within a week (in pounds)?
   ____ 0-1 _____ 1.1-2 _____ 2.1-3 _____ 3.1-5 _____ 5.1+

4. In a typical week, how much does your weight fluctuate (in pounds)?
   ____ 0-1 _____ 1.1-2 _____ 2.1-3 _____ 3.1-5 _____ 5.1+

5. Would a weight fluctuation of 5 lbs. affect the way you live your life?
   ____ Not at all _____ Slightly _____ Moderately _____ Very much

6. Do you eat sensibly in front of others and splurge alone?
   ____ Never _____ Rarely _____ Often _____ Always

7. Do you give too much time and thought to food?
   ____ Never _____ Rarely _____ Often _____ Always

8. Do you have feelings of guilt after overeating?
   ____ Never _____ Rarely _____ Often _____ Always

9. How conscious are you of what you’re eating?
   ____ Not at all _____ Slightly _____ Moderately _____ Very much

10. What is your maximum weight ever?

11. How many pounds over your desired weight were you at your maximum weight?
   ____ 0-1 _____ 1-5 _____ 6-10 _____ 11-20 _____ 21+

12. When you break your diet do you react by:
    ____ Going right back on the diet
    ____ Compensating by eating less for a while
    ____ Continue to eat non-diet foods and start the diet another day
    ____ Get rid of the food by vomiting or taking laxatives

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Appendix C

DUTCH EATING BEHAVIOR QUESTIONNAIRE

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td></td>
<td>not applicable</td>
<td>never</td>
<td>seldom</td>
<td>sometimes</td>
<td>often</td>
<td>very often</td>
</tr>
</tbody>
</table>

1. If you have put on weight, do you eat less than you usually do?
2. Do you try to eat less at mealtimes than you would like to eat?
3. How often do you refuse food or drink offered because you are concerned about your weight?
4. Do you watch exactly what you eat?
5. Do you deliberately eat foods that are slimming?
6. When you have eaten too much, do you eat less than usual the following day?
7. Do you deliberately eat less in order not to become heavier?
8. How often do you try not to eat between meals because you are watching your weight?
9. How often in the evening do you try not to eat because you are watching your weight?
10. Do you take into account your weight with what you eat?
11. Do you have the desire to eat when you are irritated?
12. Do you have the desire to eat when you have nothing else to do?
13. Do you have a desire to eat when you are depressed or discouraged?
14. Do you have a desire to eat when you are feeling lonely?
15. Do you have a desire to eat when somebody lets you down?
16. Do you have a desire to eat when you are cross?


not applicable never seldom sometimes often very often

17. Do you have a desire to eat when you are anticipating something unpleasant?

18. Do you have a desire to eat when you are anxious, worried or tense?

19. Do you have a desire to eat when things are going against you or when things have gone wrong?

20. Do you have a desire to eat when you are frightened?

21. Do you have a desire to eat when you are disappointed?

22. Do you have a desire to eat when you are emotionally upset?

23. Do you have a desire to eat when you are bored or restless?

24. If food tastes good to you, do you eat more than usual?

25. If food smells and looks good, do you eat more than usual?

26. If you see or smell something delicious, do you have a desire to eat it?

27. If you have something delicious to eat, do you eat it straight away?

28. If you walk past the bakery, do you have the desire to buy something delicious?

29. If you walk past a snackbar or café, do you have the desire to buy something delicious?

30. If you see others eating, do you also have the desire to eat?

31. Can you resist eating delicious foods?

32. Do you eat more than usual, when you see others eating?

33. When preparing a meal are you inclined to eat something?
CURRENT THOUGHTS SCALE

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

1 = not at all  2 = a little bit  3 = somewhat  4 = very much  5 = extremely

1. I feel confident about my abilities.  
2. I am worried about whether I am regarded as a success or failure.  
3. I feel satisfied with the way my body looks right now.  
4. I feel frustrated or rattled about my performance.  
5. I feel that I am having trouble understanding things that I read.  
6. I feel that others respect and admire me.  
7. I am dissatisfied with my weight.  
8. I feel self-conscious.  
9. I feel as smart as others.  
10. I feel displeased with myself.  
11. I feel good about myself.  
12. I am pleased with my appearance right now.  
13. I am worried about what other people think of me.
14. I feel confident that I understand things. _____
15. I feel inferior to others at this moment. _____
16. I feel unattractive. _____
17. I feel concerned about the impression I am making. _____
18. I feel that I have less scholastic ability right now than others. _____
19. I feel like I’m not doing well. _____
20. I am worried about looking foolish. _____
ROSENBERG SELF-ESTEEM SCALE

Please record the appropriate answer per item, depending on whether you strongly agree, agree, disagree, or strongly disagree with it.

<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
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<tbody>
<tr>
<td></td>
<td>strongly agree</td>
<td>agree</td>
<td>disagree</td>
<td>strongly disagree</td>
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</table>

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

This scale consists of a number of words that describe different feeling and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>very slightly or not at all</td>
</tr>
<tr>
<td>2</td>
<td>a little</td>
</tr>
<tr>
<td>3</td>
<td>moderately</td>
</tr>
<tr>
<td>4</td>
<td>quite a bit</td>
</tr>
<tr>
<td>5</td>
<td>extremely</td>
</tr>
</tbody>
</table>

_____ interested
_____ distressed
_____ excited
_____ upset
_____ strong
_____ guilty
_____ scared
_____ hostile
_____ enthusiastic
_____ proud
_____ irritable
_____ alert
_____ ashamed
_____ inspired
_____ nervous
_____ determined
_____ attentive
_____ jittery
_____ active
_____ afraid
Note:
- The numbers on the line DO NOT refer to dress sizes. They are just numbers we have assigned to each figure.
- The numbers which DO NOT have a drawing on top represent 'in between' sized figures.

Circle the number closest to the size you think you are.

Circle the number closest to the size you would like to be.
Appendix H

APPEARANCE SCHEMAS INVENTORY-REVISED

The statements below are beliefs that people may or may not have about their physical appearance and its influence on life. Decide on the extent to which you personally disagree or agree with each statement and enter a number from 1 to 5 in the space on the left. There are no right or wrong answers. Just be truthful about your personal beliefs.

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</table>

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Mostly Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Mostly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

_____1. I spend little time on my physical appearance.

_____2. When I see good-looking people, I wonder about how my own looks measure up.

_____3. I try to be as physically attractive as I can be.

_____4. I have never paid much attention to what I look like.

_____5. I seldom compare my appearance to that of other people I see.

_____6. I often check my appearance in a mirror just to make sure I look okay.

_____7. When something makes me feel good or bad about my looks, I tend to dwell on it.

_____8. If I like how I look on a given day, it’s easy to feel happy about other things.

_____9. If somebody had a negative reaction to what I look like, it wouldn’t bother me.

_____10. When it comes to my physical appearance, I have high standards.

_____11. My physical appearance has had little influence on my life.

(continued on next page)
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Mostly Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Mostly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Dressing well is not a priority for me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. When I meet people for the first time, I wonder what they think about how I look.</td>
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<td></td>
<td></td>
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<tr>
<td>15. If I dislike how I look on a given day, it’s hard to feel happy about other things.</td>
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<td></td>
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</tr>
<tr>
<td>16. I fantasize about what it would be like to be better looking than I am.</td>
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<tr>
<td>17. Before going out, I make sure that I look as good as I possibly can.</td>
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<tr>
<td>18. What I look like is an important part of who I am.</td>
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<tr>
<td>19. By controlling my appearance, I can control many of the social and emotional events in my life.</td>
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<tr>
<td>20. My appearance is responsible for much of what’s happened to me in my life.</td>
<td></td>
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</table>
Appendix I

BODY IMAGE STATES SCALE

For each of the items below, check the box beside the one statement that best describes how you feel **RIGHT NOW AT THIS VERY MOMENT**. Read the items carefully to be sure the statement you choose accurately and honestly describes how you feel right now.

1. Right now I feel...
   - [ ] Extremely dissatisfied with my physical appearance
   - [ ] Mostly dissatisfied with my physical appearance
   - [ ] Moderately dissatisfied with my physical appearance
   - [ ] Slightly dissatisfied with my physical appearance
   - [ ] Neither dissatisfied nor satisfied with my physical appearance
   - [ ] Slightly satisfied with my physical appearance
   - [ ] Moderately satisfied with my physical appearance
   - [ ] Mostly satisfied with my physical appearance
   - [ ] Extremely satisfied with my physical appearance

2. Right now I feel...
   - [ ] Extremely dissatisfied with my body size and shape
   - [ ] Mostly dissatisfied with my body size and shape
   - [ ] Moderately dissatisfied with my body size and shape
   - [ ] Slightly dissatisfied with my body size and shape
   - [ ] Neither dissatisfied nor satisfied with my body size and shape
   - [ ] Slightly satisfied with my body size and shape
   - [ ] Moderately satisfied with my body size and shape
   - [ ] Mostly satisfied with my body size and shape
   - [ ] Extremely satisfied with my body size and shape
3. Right now I feel...
   □ Extremely dissatisfied with my weight
   □ Mostly dissatisfied with my weight
   □ Moderately dissatisfied with my weight
   □ Slightly dissatisfied with my weight
   □ Neither dissatisfied nor satisfied with weight
   □ Slightly satisfied with my weight
   □ Moderately satisfied with my weight
   □ Mostly satisfied with my weight
   □ Extremely satisfied with my weight

4. Right now I feel...
   □ Extremely physically attractive
   □ Very physically attractive
   □ Moderately physically attractive
   □ Slightly physically attractive
   □ Neither attractive nor unattractive
   □ Slightly physically unattractive
   □ Moderately physically unattractive
   □ Very physically unattractive
   □ Extremely physically unattractive

5. Right now I feel...
   □ A great deal worse about my looks than I usually feel
   □ Much worse about my looks than I usually feel
   □ Somewhat worse about my looks than I usually feel
   □ Just slightly worse about my looks than I usually feel
   □ About the same about my looks as usual
   □ Justly slightly better about my looks than I usually feel
   □ Somewhat better about my looks than I usually feel
   □ Much better about my looks than I usually feel
   □ A great deal better about my looks than I usually feel
6. Right now I feel that I look...

- A great deal better than the average person looks
- Much better than the average person looks
- Somewhat better than the average person looks
- Just slightly better than the average person looks
- About the same as the average person looks
- Justly slightly worse than the average person looks
- Somewhat worse than the average person looks
- Much worse than the average person looks
- A great deal worse than the average person looks
BODY-IMAGE IDEALS QUESTIONNAIRE

Each item on this questionnaire deals with a different physical characteristic. For each characteristic, think about how you would describe yourself as you actually are. Then think about how you wish you were, your physical ideal. On Part A of each item, rate how much you resemble your personal physical ideal by circling a number on the 0 - 3 scale.

Your physical ideals may differ in how important they are to you, regardless of how close you come to having them. Some ideals may be more important to you than others. On Part B of each item, rate how important your ideal is to you at this very moment by circling a number on the 0 - 3 scale.

1. A. My ideal height is:

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exactly as I am</td>
<td>Almost as I am</td>
<td>Fairly unlike me</td>
<td>Very unlike me</td>
</tr>
</tbody>
</table>

B. How important to you is your ideal height?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not important</td>
<td>Somewhat important</td>
<td>Moderately important</td>
<td>Very important</td>
</tr>
</tbody>
</table>

2. A. My ideal skin complexion is:

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exactly as I am</td>
<td>Almost as I am</td>
<td>Fairly unlike me</td>
<td>Very unlike me</td>
</tr>
</tbody>
</table>

B. How important to you is your ideal skin complexion?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not important</td>
<td>Somewhat important</td>
<td>Moderately important</td>
<td>Very important</td>
</tr>
</tbody>
</table>
3. A. My ideal hair texture and thickness are:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exactly as I am</td>
<td>Almost as I am</td>
<td>Fairly unlike me</td>
<td>Very unlike me</td>
</tr>
</tbody>
</table>

B. How important to you is your ideal hair texture and thickness?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not important</td>
<td>Somewhat important</td>
<td>Moderately important</td>
<td>Very important</td>
</tr>
</tbody>
</table>

4. A. My ideal facial features (eyes, nose, ears, facial shape) are:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exactly as I am</td>
<td>Almost as I am</td>
<td>Fairly unlike me</td>
<td>Very unlike me</td>
</tr>
</tbody>
</table>

B. How important to you are your ideal facial features?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not important</td>
<td>Somewhat important</td>
<td>Moderately important</td>
<td>Very important</td>
</tr>
</tbody>
</table>

5. A. My ideal muscle tone and definition is:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exactly as I am</td>
<td>Almost as I am</td>
<td>Fairly unlike me</td>
<td>Very unlike me</td>
</tr>
</tbody>
</table>

B. How important to you is your ideal muscle tone and definition?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not important</td>
<td>Somewhat important</td>
<td>Moderately important</td>
<td>Very important</td>
</tr>
</tbody>
</table>
6. A. My ideal body proportions are:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exactly as I am</td>
<td>Almost as I am</td>
<td>Fairly unlike me</td>
<td>Very unlike me</td>
</tr>
</tbody>
</table>

B. How important to you are your ideal body proportions?

<table>
<thead>
<tr>
<th></th>
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<th>1</th>
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<th>3</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Not important</td>
<td>Somewhat important</td>
<td>Moderately important</td>
<td>Very important</td>
</tr>
</tbody>
</table>

7. A. My ideal weight is:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exactly as I am</td>
<td>Almost as I am</td>
<td>Fairly unlike me</td>
<td>Very unlike me</td>
</tr>
</tbody>
</table>

B. How important to you is your ideal weight?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not important</td>
<td>Somewhat important</td>
<td>Moderately important</td>
<td>Very important</td>
</tr>
</tbody>
</table>

8. A. My ideal chest size is:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exactly as I am</td>
<td>Almost as I am</td>
<td>Fairly unlike me</td>
<td>Very unlike me</td>
</tr>
</tbody>
</table>

B. How important to you is your ideal chest size?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not important</td>
<td>Somewhat important</td>
<td>Moderately important</td>
<td>Very important</td>
</tr>
</tbody>
</table>
9. A. My ideal physical strength is:

0 1 2 3

Exactly as I am  Almost as I am  Fairly unlike me  Very unlike me

B. How important to you is your ideal physical strength?

0 1 2 3

Not important  Somewhat important  Moderately important  Very important

10. A. My ideal physical coordination is:

0 1 2 3

Exactly as I am  Almost as I am  Fairly unlike me  Very unlike me

B. How important to you is your ideal physical coordination?

0 1 2 3

Not important  Somewhat important  Moderately important  Very important

11. A. My ideal overall physical appearance is:

0 1 2 3

Exactly as I am  Almost as I am  Fairly unlike me  Very unlike me

B. How important to you is your overall physical appearance?

0 1 2 3

Not important  Somewhat important  Moderately important  Very important
CONSUMER RESPONSE QUESTIONNAIRE–MODEL VERSION

Please answer each item for the ad you are currently looking at.

Please rate the following statements on the following scale:

1 2 3 4 5 6 7 8 9
Strongly disagree Strongly agree

1. I would like my body to look like this woman's body.
2. I like the layout of this ad.
3. This woman is thinner than me.
4. In a busy store, I would not like to try on a bathing suit in the same room if this woman was also trying on a bathing suit in the same change-room.
5. This ad is effective at promoting its product.
6. The woman in this ad is attractive.
7. This ad has been artistically designed.
8. The woman in this ad is thin.
9. This ad is colourful.

10. Mark anywhere on the line:

In relation to myself, the woman in the ad is...

[ ] Much less desirable than me
[ ] The same desirability as me
[ ] Much more desirable than me
CONSUMER RESPONSE QUESTIONNAIRE—PRODUCT VERSION

Please answer each item for the ad you are currently looking at.

Please rate the following statements on the following scale:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

1. If I saw this ad in a magazine, it would catch my eye.
2. I like the layout of this ad.
3. This ad is captivating.
4. This ad is creative.
5. This ad is effective at promoting its product.
6. This ad is pleasing to look at.
7. This ad has been artistically designed.
8. This ad would stand out among other ads.
9. This ad is colourful.
10. This ad appeals to me.
SIMILARITY TO MODELS SURVEY–PRODUCT VERSION

Instructions: Please use this scale to answer the items below.

<table>
<thead>
<tr>
<th>Very dissimilar</th>
<th>Somewhat dissimilar</th>
<th>About the same</th>
<th>Somewhat similar</th>
<th>Very similar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

When you see models of your own sex in magazines, how SIMILAR do you feel you are to them:

1. In general?  
2. In terms of career success?  
3. In terms of eating habits?  
4. In terms of exercise habits?  
5. In terms of happiness?  
6. In terms of intelligence?  
7. In terms of physical appearance?  
8. In terms of popularity?
INSTRUCTIONS: Please use this scale to answer the items below.

<table>
<thead>
<tr>
<th>Very dissimilar</th>
<th>Somewhat dissimilar</th>
<th>About the same</th>
<th>Somewhat similar</th>
<th>Very similar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Thinking back to the models you saw in the PREVIOUS 12 ADS, how SIMILAR do you feel you are to them:

1. In general? 1 2 3 4 5
2. In terms of career success? 1 2 3 4 5
3. In terms of eating habits? 1 2 3 4 5
4. In terms of exercise habits? 1 2 3 4 5
5. In terms of happiness? 1 2 3 4 5
6. In terms of intelligence? 1 2 3 4 5
7. In terms of physical appearance? 1 2 3 4 5
8. In terms of popularity? 1 2 3 4 5
AD AND MODEL PERCEPTION SURVEY–MODEL VERSION

For these questions, think back to when you were viewing the ads.

1. I found that I liked most of the products that were advertised.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

2. I think it would be easy to make my body look like most of the women’s bodies in the ads.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

3. I don’t think I would be able to afford most of the products that were advertised.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

4. I think most of the products in the ads would not appeal to women over 40.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

5. I found that most of the women in the ads would be good role models for me.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

6. I wanted to buy at least one of the products advertised.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

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AD AND MODEL PERCEPTION SURVEY—PRODUCT VERSION

For these questions, think back to when you were viewing the ads.

1. I found that I liked most of the products that were advertised.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

2. I had heard of at least one of the products that were advertised.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

3. I don’t think I would be able to afford most of the products that were advertised.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

4. I think most of the products in the ads would not appeal to women over 40.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

5. I found most of the ads to be eye-catching.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

6. I wanted to buy at least one of the products advertised.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>
SKETCH COMPARISON TASK

Please rate how similar the following two pictures are to each other.

1  2  3  4  5  6  7  8  9

Not at all similar          Completely similar

Picture 1

Picture 2
PRODUCT RECALL SURVEY

From memory, please list in any order all of the brand names of the products seen earlier in the ads.

1. __________________________________________________________
2. __________________________________________________________
3. __________________________________________________________
4. __________________________________________________________
5. __________________________________________________________
6. __________________________________________________________
7. __________________________________________________________
8. __________________________________________________________
9. __________________________________________________________
10. __________________________________________________________
11. __________________________________________________________
12. __________________________________________________________
DEMOGRAPHIC QUESTIONNAIRE

Age: __________  Sex: __________
Height: _________ feet _________ inch  Weight: _________ pounds

Relationship status:
☐ In a relationship  ☐ Single

What is your ethnic background?
☐ Caucasian  ☐ South Asian  ☐ Hispanic
☐ African-Canadian  ☐ European  ☐ Native-Canadian
☐ East Asian  ☐ Asian  ☐ Other (please specify): __________

What country were you born in? _________________

How many years have you lived in a Western country, if not your entire life? __________

What was your first language learnt? _________________

Which language do you speak best? _________________

How many years of education have you completed? __________

How many years of education have you completed IN ENGLISH? __________

School enrolment:
☐ Full-time student  ☐ Part-time

Years in university:
☐ First Year  ☐ Second Year  ☐ Third Year
☐ Fourth Year  ☐ More than 4 years

Including your current psychology course(s), how many psychology courses have you taken so far? __________

What is/are your major(s)? _________________

What is/are your minor(s)? _________________
CONSENT FORM

CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: Memory and Media

You are asked to participate in a research study conducted by Karen Ip from the psychology department at the University of Windsor. The results will contribute to a master's thesis project supervised by Dr. Josée Jarry.

If you have any questions or concerns about the research, please feel free to contact Dr. Josée Jarry at 253-3000, ext. 2237, or via email at jjarry@uwindsor.ca.

PURPOSE OF THE STUDY

The purpose of this study is to examine the factors that influence memory for product brand names found in magazine ads. The factors of interest are: (a) personality, and (b) characteristics of the ad itself.

PROCEDURES

If you volunteer to participate in this study, we will ask you to do the following things: Firstly, you will fill out several measures. You will then view 12 magazine ads and complete a questionnaire for each ad. You will then be asked to fill out several other personality questionnaires. Finally, you will recall the product names that you had seen previously in the ads.

The entire study will last approximately 90 minutes and will be completed in one session. Filling out the measures at the beginning of the study should take approximately 10 minutes. You will be given 15 minutes to view the 12 ads and to fill out a questionnaire for each ad. The remaining questionnaires should take approximately 30 minutes to fill out. You will be given 5 minutes to recall the product names. You will remain in this room (room 287 Chrysler Hall South) for the duration of the study.

POTENTIAL RISKS AND DISCOMFORTS

You will be asked a variety of questions which may be personal in nature. A risk associated with this study is the possibility that thinking about these personal issues may raise some psychological and emotional concerns for you. If you have any concerns you wish to discuss, please feel free to contact the Student Counselling Centre at 253-3000, ext. 4616.
**POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

You will not benefit from the current study other than the opportunity to learn about and contribute to psychological research. The benefit to society is increasing scientific knowledge in the area of consumer research, particularly in the area of memory for product brand names.

**PAYMENT FOR PARTICIPATION**

You will not receive any monetary payment for your participation. You will, however, receive 3 bonus marks toward a psychology course of your choice, as long as the instructor is providing an opportunity to earn bonus points.

**CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. You will be required to put your name only on this consent form. You do not have to put your name on any of the questionnaires you will fill out. The consent forms and the data will be stored separately in locked filing cabinets. The data will be securely stored for up to seven years, after which it will be shredded.

**PARTICIPATION AND WITHDRAWAL**

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind and will still get your 3 bonus marks. You may also refuse to answer any questions you don’t want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so. You may exercise the option of removing your data from the study.

**FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS**

Research findings for this study will be available to participants on the University of Windsor REB web site: www.uwindsor.ca/reb

**SUBSEQUENT USE OF DATA**

This data will be used in subsequent studies. However, it will remain completely confidential.

Do you give consent for the subsequent use of the data from this study?  ( ) Yes  ( ) No
RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. This study has been reviewed and received ethics clearance through the University of Windsor Research Ethics Board. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; telephone: 519-253-3000, ext. 3916; e-mail lbunn@uwindsor.ca.

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study “Memory and Media” as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

________________________________________
Name of Subject

________________________________________   __________
Signature of Subject                  Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

________________________________________
Signature of Investigator

Date
LETTER OF INFORMATION

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

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You may withdraw your consent at any time and discontinue participation without penalty. This study has been reviewed and received ethics clearance through the University of Windsor Research Ethics Board. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; telephone: 519-253-3000, ext. 3916; e-mail lbunn@uwindsor.ca.

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study “Memory and Media” as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

Name of Subject

Signature of Subject Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator Date
Appendix V

WEIGHT/HEIGHT CONSENT FORM

CONSENT STATEMENT

You have just participated in a research study conducted by Karen Ip and Dr. Josee Jarry at the University of Windsor entitled: The Effects of Thin Media Exposures in Restrained and Unrestrained Eaters: Mechanisms of Social Comparison.

As a final part of the larger study you have just completed, you have been asked to allow the investigator to obtain a measure of your height and weight, so your body mass index (BMI) can be calculated.

The information you provide the investigator will remain confidential and will be disclosed only with your permission. Any information you provide will be used for research purposes only, which may eventually include publication of a research article.

Taking part in this final portion of the study is completely voluntary. If you do not wish to be weighed or have your height measured, you are free to refuse without any penalty or loss of bonus points.

If you are willing to participate in this study and understand all that will be asked of you in participating, please sign your name following this consent statement.

I hereby acknowledge that, after reading this statement, I am willing to allow the investigator to measure my height and weight. I understand that all information I provide will be used for research purposes only and that confidentiality is assured. I also realize I am free to withdraw from the study at any time without penalty.

_________________________________________  __________________________
Signature of participant                      Date

_________________________________________  __________________________
Signature of investigator                     Date
VITA AUCTORIS

Karen Ip was born in 1981 in Vancouver, British Columbia. She graduated from Killarney Secondary School in 1999. From there she went on to study at the University of British Columbia, where she obtained a Bachelor of Arts with Honours in Psychology in 2002. She will continue in September 2006 working toward a Doctor of Philosophy in Clinical Psychology at the University of Windsor.