

THE 'THIN-BODY IDEAL' IN ADVERTISING FEATURING FEMALE MODELS:  
WHAT IS THE IMPACT ON WOMEN'S EATING BEHAVIOR OF EXPOSURE  
TO SUCH ADVERTISING?

A Thesis

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## ABSTRACT

Eating behavior in women following exposure to idealized female advertising images was examined, along with potential predictors of this behavior. Levels of dietary restraint, self-esteem, depression, anxiety and stress, body comparison, body satisfaction, locus of control, and awareness and internalization of the 'thin ideal' were assessed by questionnaires. Participants were randomly allocated to view either advertisements featuring thin female models (experimental condition) or a selection showing products only (control condition), and then invited to choose from a selection of snack foods in a taste test which was claimed to be part of an unrelated study. The type of advertisement (thin models or product-only) had a significant effect on the total weight of food taken by participants, with women who had viewed the advertisements featuring idealized female images eating significantly more than those in the control condition, contrary to hypothesis. Dietary restraint status was found to have a significant interaction effect with advertisement type. No other factors were significant predictors of eating behavior. In addition, women in the experimental condition, in general, didn't report that they believed exposure to the idealized images had or would affect their behavior, and didn't report negative emotional effects. These findings reinforce previous research showing that idealized images can have an effect on women's eating behavior, but suggest that such images may have a complex role in affecting behavior, since exposure resulted in increased rather than decreased food consumption, as would have been expected.

## BIOGRAPHICAL SKETCH

Claire Devlin completed her undergraduate studies at the University of Edinburgh, graduating with the degree of Master of Arts (Honors) in Economics and Economic History in June 2006, before commencing studies in Applied Economics and Management at Cornell University in August 2006.

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## CHAPTER 1

### INTRODUCTION

There has been extensive research on the topic of media exposure and related body dissatisfaction among females, and a number of prominent theories developed as a result, for example the application of Festinger's (1954) Social Comparison Theory to the area, the potential motivational mechanism of thin-ideal images for restrained eaters (Joshi et al., 2004), and self-discrepancies causing dissatisfaction (Dittmar and Howard, 2004), to name but a few.

However, there seems to be a prevalence of an overly simplistic view of blaming media for spreading the message that women must be thin and thus causing low self-esteem. There is no doubt that the portrayal of women in advertising and the media over-represents an underweight, largely unrealistic body shape, and there is evidence that the typical model has decreased in weight and size in recent years (Sypeck et al., 2004). But the fact remains that women voluntarily expose themselves to thin media images, and can gain pleasure from it. It is clear that not all women feel worse about themselves after viewing idealized media images, despite the media being blamed for the increased incidence of eating disorders. Even if images do make women feel disheartened, there is little evidence that this actually manifests itself by making them eat less. In fact, women may eat *more* following exposure, regardless of whether the media images have had a positive or negative effect. It seems that further research to clarify the complex role idealized media images have in women's lives is called for.

Harrison et al. (2006), maintain that body image concerns do predict self-reported dietary restraint and disordered eating but note that experimentation in the area of

ideal-body media exposure and actual, observed eating behavior is rare. Numerous authors have demonstrated that media exposure has a short-term impact on body image, but it is less clear whether this has a corresponding impact on eating behavior. This is a cause for concern because it has been demonstrated that self-report dietary restraint scales are not reliable predictors of short-term caloric intake measured with unobtrusive observation. Research measuring actual food intake after exposure to idealized images is needed, providing part of the motivation for this thesis.

There has also been a great deal more research into the effects of idealized images on women's emotional states and levels of body dissatisfaction than there has been into the impact of emotional states or personality in causing this body dissatisfaction (or altered eating behavior). This encourages research using such emotional states (for example, self-esteem or anxiety levels) as independent rather than dependent variables, and actual eating as a dependent variable.

To summarize, rather than assuming that all women react negatively when exposed to the thin-body ideal, this thesis examines whether a woman's personality characteristics and general outlook on life affect her response to the media and predict whether she will demonstrate a negative, positive or indifferent response to stimulus with respect to eating behavior. Using actual, observed eating as a dependent variable, individual difference factors which may influence a woman's behavior are included in order to try and gain a more complete perspective on the impact of the portrayal of females in the media on young women. Factors, raised by the literature, which have been included in analyses, comprise of self-esteem, dietary restraint status, extent of body comparison exercised by the individual, awareness and internalization of body shape ideals, locus of control, and body dissatisfaction. The aim was to study which of these

factors, if any, have an impact on the short-term eating behavior of 75 women, following exposure to idealized images of women, in the form of magazine advertisements.

### ***Thesis Statement***

The aim of this thesis is to shed more light on whether certain women are more vulnerable to being negatively affected by exposure to idealized female images in the media, and therefore whether links between advertising and the increased incidence of eating disorders among young women are reasonable. Emphasis is placed on mood and personality factors and any role they may have in altering women's short-term eating behavior, because it appears there has been little previous research into this specific area, and whether it has a significant effect on eating habits. For example, if a woman is feeling particularly low on a certain day, does this make her more susceptible to the negative effects of viewing thin-ideal models in advertising, influence her short term food choices, and could this subsequently, in the long-term, affect her eating behavior, putting her at risk of an eating disorder? Discovering the answer to questions such as this should suggest characteristics, if any exist, which may put a woman most at risk of being negatively affected by female images in advertising. Much of the existing research has demonstrated that exposure to such images can make women feel dissatisfied and anxious, but there is the need to discover whether these feelings translate to what women subsequently choose to eat.

## CHAPTER 2

### LITERATURE REVIEW

This chapter identifies several themes relevant in the study of female body image and eating behavior following exposure to ‘thin-ideal’ advertising and evaluates theories and models applicable to the topic. Individual difference variables which put a woman more or less at risk of a negative reaction to idealized images in advertising are addressed initially, followed by theories of media influence, some of which are later mentioned to help explain results, and finally a summary of key issues raised by the literature and how they have guided the current study. In addition, methods used during studies are evaluated where appropriate, and there are discussions of the importance of further work in a number of areas covered by the literature.

#### ***Risk factors for negative reaction to idealized advertising images***

“The images being portrayed in popular culture are completely unrealistic, airbrushed, manipulated... while putting a lot of pressure on young people to look a certain way... Simply put, this is dangerous.” (Lynn Grefe, Chief Executive Officer of the National Eating Disorders Association, quoted in Women’s eNews, 2006).

The widespread opinion, as represented by the statement above, that exposure to the thin ideal in the media can be associated with greater levels of disordered eating among women must be studied more closely. It is commonly thought that exposure to images of thin bodies in the media adversely affects women, contributing to body dissatisfaction and eating disorders. There is no disputing the fact that eating disorders are a very real problem for many women. An American survey conducted by Pyle et al. (1990) reported that 20 per cent of young college females claimed to self-starve.

Even leaving diagnosed eating disorders aside, “disordered eating and obsession with food is a widely accepted way to deal with weight and body image issues. It is largely considered normative behavior for women, and remains largely unproblematized or altogether ignored by a clinical perspective” (Hesse-Biber et al., 2006). There are numerous studies backing up the links between exposure and body dissatisfaction, for example, a meta-analysis of 25 experimental studies on the psychological impact of exposure to idealized images by Groesz et al. (2002) demonstrated that, on average, women do feel worse about their bodies after exposure to thin images than other types of images. However there is also evidence that women, in fact, demonstrate a very wide range of reactions to media exposure.

It seems that correlational studies (such as Harrison and Cantor, 1997; Stice et al., 1994; Tiggemann and Pickering, 1996) demonstrate a reliable connection between exposure to thin-ideal images and eating disorder symptomatology. However the results of experimental studies vary greatly. It has been suggested (e.g., Stice and Shaw, 1994) that exposure to thin body images has an adverse *main* effect on women. Alternatively, Heinberg and Thompson (1995) find exposure has an *interactive* effect with body-image disturbance, while others (e.g., Seddon and Berry, 1996; Champion and Furnham, 1999) find no significant effect in women lacking an eating disorder. There has also been research finding unexpected positive effects of exposure, in the form of ‘self-enhancement’ effects (Henderson-King and Henderson-King, 1997). Therefore it seems reasonable that some women appear to be entirely unaffected by thin-body images in the media, while others react very extremely in terms of both their emotions and actions: it is important to ask why. It is clear that the effect of media images on women is a complex issue, and to quote van den Bree et al. (2006), “complex behaviors tend to be influenced by a variety of factors, each explaining a

small proportion of the variation.” Several authors, as part of their work, identify what may be termed ‘risk factors’ which can help predict how likely an individual is to suffer a negative reaction to exposure to idealized media images. These so-called ‘individual difference variables’ include aspects of personality, as well as whether or not a woman engages in certain behaviors (for example, dieting), and a number of these are considered below.

Individual characteristics are key in whether media images have a negative impact (Durkin and Paxton, 2002). Durkin and Paxton aimed to show that, following exposure to idealized advertising images, adolescent females would exhibit “significantly lower body satisfaction and higher depression, anxiety and anger”, compared to the control group shown only advertisements featuring inanimate objects. This hypothesis was indeed supported by the findings. They also aimed to identify attributes which predict state body satisfaction, depression, anxiety and anger scores following exposure. The most important predictors were found to be *stable body dissatisfaction, body comparison tendency and internalization of the thin ideal*, as well as BMI (larger girls were especially sensitive to thin-body advertising). Less influential but still worth considering were self-esteem and identity confusion, whereby “people lacking a firm sense of self may turn to culturally defined ideals in an effort to gain a sense of identity”, and depression.

However, weaknesses of this work include the fact that the potential predictor variables (stable body dissatisfaction, internalization, body comparison, self-esteem, depression, and identity confusion) were assessed a week before exposure to the images and measurement of state body satisfaction, depression, anxiety and anger. There is the possibility that participants may have answered questions in the measures

for the predictor variables differently if these were completed at the same time as the rest of the study, despite test-retest reliability of the scales and inventories used. There is also no consideration of causation between variables. For example, the authors find that an individual with stable body dissatisfaction will be more strongly affected by exposure to thin-body images, but it is uncertain whether cumulative exposure to similar images over time has contributed to this body dissatisfaction in the first place, and if so, how much. Also, since it can be argued that body dissatisfaction is more of a 'normative discontent' among women than a stable personality trait, the question is raised as to what distinguishes between women if most are dissatisfied all the time: what results in the more extreme feelings or reactions of certain women (Dittmar and Howard, 2004)? There is motivation to investigate whether the effects of exposure to images (lower body satisfaction and higher depression, anxiety and anger) then have a knock-on effect on behavior, specifically eating behavior, and additionally whether the predictors of these effects may also predict eating behavior.

**Exposure, awareness and internalization:** As mentioned above, it is important to highlight the crucial role 'internalization' plays in determining the effect of exposure to thin-body images on women. In a wide-ranging theoretical model of sociocultural influences on disordered eating, Stice (1994) put forward the view that internalization of the 'thin ideal' by women is a necessary precondition for any harmful impact on body image. According to Tiggemann (2006), "Internalization refers to the extent to which an individual adopts and incorporates the socially defined thin beauty ideal as a goal or standard for herself."

By considering women who have internalized the thin ideal, the role of social comparison and the influence of the current societal beauty standards referred to by

sociocultural models in causing negative effects among women become clearer. The process may be summarized as follows. Following internalization of the thin ideal, women look at relevant images and see a thin body as a ‘target’, and when they compare themselves to ultra-slim fashion models, they then feel dissatisfied with their own body shape if it is larger than this ‘ideal’, triggering the heightened depression, anxiety and anger levels discussed by Durkin and Paxton (2002). It is feasible that feeling inadequate may subsequently cause changes to eating behavior if a woman decides that she is going to take action to lose weight and try to more closely resemble what she sees as the ideal. However, as mentioned previously, it is very unclear what causes a woman to develop disordered eating, when many other women exposed to the same cultural influences remain unaffected. It is unclear what turns feelings into actions, and this is obviously an area requiring further research. Do some women manage to escape internalization of the ‘thin ideal’ message, or internalize it less than others, or are they less susceptible to the message, and therefore are these the women who are more likely to ‘escape’ developing disordered eating habits?

Despite this gap in knowledge, it nevertheless appears that for women to be negatively affected by thin-ideal advertising, whether this is only in terms of their body image, or whether this develops further to influence their eating behavior, the process must involve exposure to relevant images, awareness (of the societal pressures), and internalization (of these pressures). There is debate as to the relative importance of these three aspects. Much of the earlier research (early 1990s and previously) in the field focuses on analyzing *exposure* to the thin-body ideal, by examining magazine content. For example, several studies have demonstrated the shrinking measurements of models, such as Garner et al.’s (1980) study into the changing body shape of Playboy centerfolds, replicated and extended by Wiseman et al. (1992).

Cusumano and Thompson (1997) developed prior research by examining the relative influence of exposure, awareness and internalization on body image, eating disturbance and self-esteem. An attempt was made to develop a reliable coding system for quantifying body size of models in a range of the most popular women's magazines among a sample of 174 female students, age ranging from 18 to 49 years, with a mean of 24 years. This information was then used to calculate an exposure variable by also taking into account the amount of time students spent reading magazines. Questionnaire measures including body image, eating disturbance, awareness and internalization of body shape ideals were collected. Correlational and regression analyses failed to find any relationship between simple exposure to images and the indices for body image, eating dysfunction, and self-esteem. Awareness of societal pressures, on the other hand, was a significant predictor in regression analyses, and internalization came out as most important of all, accounting for "significant and substantial levels of variance beyond that explained by awareness."

However there are methodological issues in Cusumano and Thompson's study which may affect the accuracy of results. One problem is the fact that the amount of time spent reading individual magazines, as reported by participants, is used in calculation of the exposure variable. It is likely to be difficult for participants to recall and estimate how much time they have spent reading a particular magazine. Participants may also alter the figures for various personal reasons, such as the possibility of feeling embarrassed at admitting to reading a particular title. Therefore the accuracy of the data on number of hours spent reading magazines is questionable, and the authors make no attempt to account for this. Also, given that the study is interested in discovering the effect of *images* on women, the estimates by participants for time spent 'reading' a magazine do not distinguish between time spent reading articles,

versus looking at photographs, which is the actual information desired. (The authors do themselves recognize this limitation however, and understandably state their view that the “differentiation would be virtually impossible for individuals to make in a retrospective recall survey.”)

Therefore there are at least two possible explanations for the finding that exposure does not have an effect. Methodological problems may partially account for this. On the other hand, it is possible that by the time women have reached adulthood, as is the case with this sample, the ‘thin ideal’ has become so commonplace, that women have become somewhat ‘desensitized’ and feelings of body satisfaction are no longer affected. The authors suggest that “for adult women, it is conceivable that the initial effect of exposure on awareness/internalization is no longer detectable, but that exposure- at some point in development- began the perpetuation of a process culminating in internalization of societal values.”

Whatever the true effects, the literature highlights the importance in considering awareness and internalization of the thin ideal when examining the effects on women of exposure to thin-body images in advertising.

**Dietary Restraint:** A further individual difference variable which has been found to result in differences in eating behavior in response to exposure to thin media images, is dietary restraint status. Whether a woman is a restrained or an unrestrained eater (i.e. on a diet or not) appears to be a crucial factor in predicting her response to idealized media images. It makes sense that restrained eaters exhibit different responses to exposure to idealized body images than do unrestrained eaters, because weight and shape are personally relevant to them, insofar as a diet is an attempt to

reduce one's body weight so that it more closely resembles the 'ideal'. However, perhaps contrary to what might be expected, exposure to thin-ideal images often results in disinhibited eating among restrained eaters (shown in various studies, e.g., Strauss et al., 1994; Warren et al., 2005; Seddon and Berry, 1996). A number of alternative explanations for such an effect have been posited.

A "spiral model" has been proposed by Heatherton and Polivy (1992), whereby restrained eaters engage in negative self-evaluations when they see thin-body images. Women feel that they do not meet the 'ideal' standards for body shape and so begin a series of unsuccessful diets in an aim to achieve their goal of thinness, subsequently 'spiralling' into increased negative affect and body dissatisfaction, lowered self-esteem and heightened vulnerability to dietary disinhibition and overeating. Another explanation is put forward by Strauss et al. (1994), who suggest that thin images produce "ego threats" in dieters which result in disinhibited eating. Seddon and Berry (1996) made similar predictions, but contrary to predictions, and the 'ego threat' theory, their study showed that dieters' self-esteem was not reduced by viewing thin-body images, even though restrained eaters did increase their food consumption in taste tests while unrestrained eaters did not.

It is also possible that dieters' self-esteem is not worsened by viewing thin bodies, and that instead exposure may result in a shift toward improved self-image, probably through *inspirational effects* (Lockwood and Kunda, 1997). Therefore positive affect may be just as likely as negative affect to show itself through disinhibited eating. It may be the case that idealized images can make dieters feel thinner and therefore less concerned with limiting their food intake. A positive response to idealized images

would help to explain the otherwise contradictory fact that many women appear to enjoy viewing idealized images in magazines and other media.

Mills et al. (2002) aimed to clarify whether the ‘ego threat’ or the ‘inspirational effect’ theory provides a more likely explanation for disinhibited eating exhibited by dieters after exposure to thin-body images. The study revealed that when shown images, then asked to ‘sample’ cookies, restrained eaters ate more when shown thin body images as opposed to large-body or product-only ads. The amount eaten by non-dieters was the same regardless of ad condition. In addition, restrained eaters on average (across all conditions) ate more than unrestrained eaters. However the theory that overeating among restrained eaters is mediated by ego threats was unsupported, as it was found that exposure to thin-body images did not result in lowered body image, mood, or self-esteem among dieters. Instead, there was a trend toward increased appearance self-esteem among dieters after exposure to thin-body images, therefore this study suggests that self-enhancement does in fact occur. (Similar results were obtained by Joshi et al. (2004), who found that restrained eaters’ self-image and social self-esteem improved after they were shown ads featuring thin women.) The type of ad shown also had an effect on women’s own current and ideal body size perception. Restrained eaters in the thin-body condition judged their current body size to be smaller than when shown either of the other types of images, whereas unrestrained eaters judged their current body size to be marginally larger. Restrained eaters also rated their ideal body size as smaller when shown thin-body images as opposed to the other types of ads.

Unrestrained eaters had the same ideal body size regardless of image shown. To summarize, according to Mills et al. (p1692), “after looking at very thin models, chronic dieters report not only that they *want* to be thinner but that they *are* in fact thinner.”

These findings suggest that the danger in exposure to very thin images of women in advertising is not necessarily that they immediately impact upon women's self-esteem, making them feel depressed and discouraged, but that they make women who are more at risk (i.e. dieters) want to be thinner than they otherwise would, perhaps by presenting a 'thinness fantasy' which women may start to see as more achievable (Myers and Biocca, 1992). Unrestrained eaters on the other hand are more likely to react to thin images in the more 'expected' way, by wanting to be thinner and negatively contrasting themselves to the models. Another finding of note is that duration of exposure to thin-body images does not appear to moderate restrained eaters' self-enhancement: presenting thin-body images for as little as 150ms was just as effective as presenting them for a full 7 seconds (Joshi et al., 2004). From this finding, it would seem that "extended cognitive processing of the image" is not required by the self-enhancement effect in order "for the image to have a psychological impact". Rather, "fleeting glances, which presumably outnumber extended examinations by a wide margin in daily living, are just as potent" (p340).

Joshi et al. (2004) make the valid argument that while their study, and those of others (including Mills et al., 2002) provide evidence of self-enhancement, rather than the more negatively perceived spiral model, in response to thin-body images, "this does not exculpate such images from a possible role in the development of eating problems. Whether these images induce self-castigation (demanding dieting), or, as now seems more likely, they induce a pleasant fantasy (inspiring dieting), the behavioral result (dieting) is probably the same, even if the affective tone differs. By the same token, however [such results] do not support the suggestion that media images play a primary role in the development of problem eating" (p341). It is clear that the role of the 'thin-body ideal' in contributing to problem eating is complex, but that dietary restraint

status is a crucial individual difference factor to consider when assessing the issue. The importance of dietary restraint in explaining women's responses to thin-body images in advertising is highlighted further by the finding of Mills et al. (2002) that it was restraint, not body dissatisfaction, which was the key individual difference variable in explaining the varying responses to idealized body images.

**Self-objectification:** Another potential risk factor for a negative effect on women of exposure to thin-body media images is self-objectification. Women referred to as 'self-objectifiers' view themselves, especially their bodies, as an object to be valued for appearance rather than internal qualities, therefore are believed to be more at risk of disordered eating because they tend to monitor appearance more closely than 'low self-objectifiers' (Frederickson and Roberts, 1997). It appears that dietary restraint and self-objectification actually have very similar effects on eating behavior (Monro and Huon, 2006). High self-objectifiers were found to eat more when shown ads containing thin-body images than when there was no person featured in the ad, similar to the disinhibition effect observed when restrained eaters were shown thin-body images. Indeed, self-objectification and restraint were significantly correlated ( $r = 0.604$ ;  $p = 0.05$ ). It seems that a possible area for future research is in determining the relationship between self-objectification and restraint.

**Locus of control:** Locus of control was first conceptualized by Rotter (1966).

Whether a woman believes that one is entirely in control of one's own life (has an 'internal locus of control'), or that events in life happen due to external forces beyond one's control ('external locus of control'), also has the potential to affect the nature of a woman's reaction to exposure to idealized body images (Venkat and Ogden, 2002). There is evidence that those with an external locus of control tend to be less satisfied

with their bodies than those with an internal locus of control. This may be because women with an internal locus of control feel more in control of their lives and therefore that their body shape is changeable, whereas individuals with an external locus of control feel more hopeless and therefore less satisfied. However, when women with an internal locus of control engaged in upward comparison with images of idealized bodies, their levels of body satisfaction were lower than when shown average-looking models, whereas when external locus of control subjects engaged in upward comparison, it resulted in higher satisfaction levels. A possible explanation for this is that women who have an external locus of control are likely to attribute other peoples' success (in this case, their 'good looks') to chance or luck, and such an attribution may then 'inoculate' them from the negative effects of upward comparison demonstrated by their internal locus of control counterparts. Again, the role of locus of control, like many other individual characteristics, appears complex and further research is desirable.

### *Theories of media influence*

While it is useful to consider individual attributes which may put a woman more at risk of negative reactions as a result of viewing 'thin-ideal' media images, it is also necessary to consider the mechanisms by which her self-perception can be affected, in order to explain the possible impact on behavior. What follows is a review of theories for how media influence occurs.

**Sociocultural models:** Quoting Cusumano and Thompson (1997), a sociocultural model is "perhaps the most empirically supported approach" in "explain(ing) the development and maintenance of body image disturbance." Such models blame

society for creating a 'culture of thinness' which women try to emulate. According to Tiggemann (2003), "such models maintain that current societal standards for beauty inordinately emphasize the desirability of thinness, and this ideal of thinness is accepted by most women." Possible mechanisms for the spread of the thin ideal include family and peers, but Tiggemann points out the argument that the mass media is likely to be the most influential conveyor of the so-called sociocultural ideals. An advantage of Tiggemann's work is that she recognizes the importance of distinguishing between media types (television, magazines, etc.) when attempting to identify effects of media exposure on body dissatisfaction and eating behavior. While thin ideals are portrayed both on television and in magazines, "the ways in which these media are processed and responded to are quite different." At least part of the reason women read fashion magazines is in order to gain information about style, beauty, fitness, and related topics, whereas the main purpose of television is entertainment, and the presentation of the thin ideal is therefore implicit rather than explicit, as in magazines. Following the views of Harrison and Cantor (1997), this is compatible with the general pattern that magazine reading more consistently predicts body dissatisfaction and eating disturbances than does television watching.

However Polivy and Herman (2004) make several criticisms of the sociocultural model. While the model argues that "exposure to media images (a) makes women feel bad about themselves and (b) impels women to undertake the sort of "remedial" eating patterns that easily and often deteriorate into eating disorders," the question is raised as to why women still buy fashion magazines if the images they contain make them feel so bad about their own bodies. In some cases it has been found that exposure to thin media images can actually make women feel better about their bodies (Mills et al., 2002), which could possibly be attributed to a 'thin fantasy', where women

imagine what it would be like to resemble the model, and are inspired to imitate the models. The sociocultural model ignores potential positive effects such as these. Furthermore, the model seems to neglect the fact that most young women exposed to thin images do not develop an eating disorder, and instead “focuses too heavily on the pathological outcomes,” where such a focus “makes it easy to blame the media, which always seems to be implicated when the cause of eating disorders is debated. If more attention were paid to the majority (nonpathological) outcomes, then perhaps we would be less inclined to blanket condemnations of the media and be more attentive to the factors that make young women more or less vulnerable to its messages.”

While it may not explain why some women suffer from disordered eating behavior, while others are unaffected, a sociocultural model does help explain the prevalence of ‘stable body dissatisfaction’ discussed by Durkin and Paxton, and blamed for being a major predictor of negative responses to idealized images in advertising. Support for the views of Durkin and Paxton (2002) in this area is given by Hesse-Biber et al. (2006), when they state that “the more dissatisfied one is with their body prior to viewing images of the media’s portrayal of the ideal woman, the more dissatisfied they become with their weight as images are presented to them.” It seems evident that considering stable levels of body dissatisfaction among women is a valuable strategy when assessing how women’s eating behavior is affected by exposure to thin ideal advertising.

**Social Comparison Theory:** Also featuring heavily in the literature is Social Comparison Theory, based on Festinger’s (1954) work, which relates to Durkin and Paxton’s findings that body comparison tendency is an important predictor of negative

feelings post-exposure to idealized images. Festinger stated the following about “the conditions under which a social comparison process arises, and about the nature of this social comparison process:

1. This social process arises when the evaluation of opinions or abilities is not feasible by testing directly in the environment;
2. Under such circumstances persons evaluate their opinions and abilities by comparison with others;
3. This comparison leads towards pressures toward uniformity;
4. There is a tendency to stop comparing oneself with others who are very divergent. This tendency increases if others are perceived as different from oneself in relevant dimensions;
5. Factors such as importance, relevance, and attraction to a group which affect the strength of the original motivation will affect the strength of the pressure towards uniformity.”

To sum up the key elements of the original theory, Festinger stated that people compare themselves to others *in order to be like them*. It is worth noting that research revising this theory now indicates that individuals may also compare themselves to dissimilar individuals, despite Festinger’s assertion to the contrary. Applications of Festinger’s original theory, such as the explanation put forward by Hesse-Biber et al. (2006), theorize that social comparisons related to physical appearance are usually upward. This means that women compare themselves to others who they believe to be more attractive in some regard. These upward comparisons tend to damage the individual’s self-perception of attractiveness, so that they feel less attractive. It makes sense that those who are already vulnerable to self-esteem issues are most negatively

affected by social comparisons (Stephens et al., 1994). Taking into account revised versions of social comparison theory such as this, it would appear that women who compare themselves to others more readily may be more at risk for disturbed eating habits as a result of exposure to thin-ideal advertising. Questions raised by this theory may include identification of specific social and psychological factors that put women more or less at risk, and how media messages are assimilated by different individuals.

While an obvious drawback to the Hesse-Biber et al. article is that no original research has been conducted, the theoretical discussion of how disordered eating is partly culturally-induced is informative and provides an effective summary of some of the means and mechanisms by which the thin ideal affects women, and is also prudent to point out that “it is true that not all individuals adhere or succumb to this ideal to the same degree, if at all.”

Further consideration to social comparison theory is given by Richins (1991). While Hesse-Biber et al. consider a theoretical perspective, Richins aims to demonstrate that a social comparison tendency does in fact exist. Here, the author demonstrates that women do compare themselves to models: this was suggested by results from focus groups using female students, and also by survey results, where students were asked a series of questions related to self-comparison to advertising images. Richins' study found that exposure lowers (at least temporarily) body satisfaction. Dissatisfaction tends to occur when there is a discrepancy between the ideal level of an attribute and the actual level. Exposure seems to raise the ‘comparison standard’ - after viewing beautiful models, subjects tend to rate average women as less attractive than if they had not viewed the idealized images. Women can always find an ‘ideal’ to aspire to, but the downside lies in the strong possibility that, according to Naomi Wolf (1992),

“ideal beauty is ideal because it does not exist: the action lies in the gap between desire and gratification. Women are not perfect beauties without distance. That space, in a consumer culture, is a lucrative one.” However, it was found that while exposure (more frequent comparison) tends to decrease satisfaction, it does not appear to alter self-perception of attractiveness. It is believed that ‘self-concept’ is fairly stable by college age.

A number of questions are raised by Richins’ study, such as the effects of lowered satisfaction on purchase behavior, the duration of lowered satisfaction, and the possible cumulative effects of exposure. (With respect to the latter point, Stice, Spangler and Agras (2001), demonstrated that prolonged exposure to thin models in magazines over 15-month period had a negative impact on a particular subset of vulnerable female adolescents.)

Disadvantages to Richins’ study include the use of focus groups as part of the research. By putting a group of women together, it is likely that the women will influence each other in their answers so it is unclear how reliable the findings are. However, the study also made use of surveys, increasing the reliability overall. Furthermore, use of believable cover stories increase the likelihood that women are demonstrating their true feelings, rather than trying to answer in a ‘socially acceptable’ way, or attempting to hide their insecurities, and the article highlights the importance of manipulation checks in a study, as these help support conclusions made.

Social comparisons can also be made with a number of people from an individual’s own life, as well as from the mass media, for example comparisons with family members and friends can be significant sources of influence. It follows that family

issues, such as whether a woman feels like she was more unattractive than her siblings in childhood, can also influence body perception and related behavior. It seems sensible that the media may “interact with or reinforce other social, cultural or physical causes of body self-esteem and related disordered eating patterns” (Wykes and Gunter, 2005). Furthermore, not all women necessarily make comparisons between their own body and others’. Wilcox and Laird (2000) proposed that only women who place significance upon body shape tend to compare themselves to images portraying the thin-body ‘ideal’ and experience the resulting negative feelings about their bodies.

**Self-ideal discrepancy:** Similar to social comparison theory is the self-ideal discrepancy model, which also assumes that individuals compare their own body shape and size to another source. However, this model posits that comparisons are not made between another person in the individual’s social environment, but with an ‘ideal’ the person has put together in his or her own mind. According to Dittmar and Howard (2004), “self-discrepancies are perceived gaps between different aspects of the self-concept, and the discrepancies between *actual self* (how a person sees him or herself) and *ideal self* (how a person would ideally like to be)”. This idealized self may be a composite of attributes from numerous sources, and self-ideal discrepancy theory contends that individuals seek to ‘match’ their actual self-concept and an internalized ideal (Cash and Szymanski, 1995). The theory predicts that the greater the discrepancy between an individual’s perceived self and perceived ideal, the more dissatisfied she will be with her body. Women may worry about their self-discrepancies to a greater or lesser extent at different times (they are vulnerable to situational influences), but the fact that thin models are now so ubiquitous means that exposure to the ‘thin ideal’ is becoming increasingly unavoidable, resulting in quite

constant reinforcement of the discrepancy between ‘actual’ and ‘ideal’ (Dittmar and Howard, 2004). General self-discrepancies have been correlated with body dissatisfaction and eating disorder symptoms (Strauman, Vookles, Berenstein, Chaiken and Higgins, 1991).

The possible link between self-discrepancies and disordered eating is considered by Harrison et al. (2006), who suggest that when a woman views thin-body media images, she is reminded of her discrepancy, which may result in emotional distress such as anxiety or depression. There may also be motivation to engage in ‘self-regulatory’ behaviors, such as bingeing and purging or restrictive eating, to reduce the distress and discrepancy. It has been suggested (Markus et al., 1998) that emotional distress can also be lessened by *increased* food consumption, especially of carbohydrates. The findings of Harrison et al.’s study were that exposure to idealized body images resulted in decreased eating among high-discrepancy women, relative to women not exposed to such images. It is possible that eating less is a mechanism to cope with anxiety caused by “discrepancy activation”. Alternatively, “eating less may serve as an impression management strategy for women who feel the need to reinforce or demonstrate their femininity in front of other women” (p521). How long this abstinence from eating lasts is unclear, however the results of the study would suggest that if highly discrepant women are frequently exposed to idealized images in the media, then their days may consist of temporary but recurring instances of dietary restraint.

There is a need for research which investigates the interaction of discrepancy levels and other individual difference factors. For example, the effect of exposure to idealized images on highly-discrepant women is the exact opposite of the effect on

women exhibiting high levels of dietary restraint shown by Mills et al. (2002), and this seems counter-intuitive since it would make sense that highly-discrepant women would also be likely to be dieters.

**Cultivation Theory:** Cultivation theory argues that the media represents a repetitive, stereotyped image of social reality. In the context of appearance, there is no doubt that the media depicts a slim physique as attractive. Through regular exposure to such images, media audiences may begin to cultivate the idea that certain characteristics are the ‘norm’, (in this case, extreme slenderness) and some individuals may therefore adopt controlled eating behavior in order to try and achieve this socially circulated ‘ideal’ body shape. Gerbner et al., 1980, Harrison and Cantor, 1997, and Signorielli and Morgan, 1990, all put forward versions of this theory. Myers and Biocca (1992), also present research that suggests body image is an elastic concept, and can change as a function of exposure to different types of body shape representation in the media. Clarification is needed with regard to how media content affects perceptions of body image in an individual, and why this image may change over time. Furthermore, cultivation theory still does not help to answer the question of why some women engage in disordered eating behavior, while many do not, even when, theoretically, they are all likely to have been exposed to the same mainstream view of an ideal body, as cultivated by the media.

**Schema Theory:** According to self-schema theory, body image is a mental construction rather than an objective evaluation (Markus, 1977). A self-schema is a person’s mental ‘picture’ of how they are, and it becomes established over time. Schema have been defined by Markus as “cognitive generalizations about the self, derived from past experiences, that organize and guide the processing of self-related

information contained in the individual's social experiences". Body image is just one example of a schema. Everyone will develop their own body image schema, but it tends to affect different individuals in different ways. Some people are highly preoccupied with their body shape and therefore it becomes a central defining feature to them. Such individuals have been labeled as 'schematic', whereas those for whom body shape is not a primary concern have been labeled 'aschematic' (Markus et al., 1987), and this categorization may help explain why some women are negatively affected by the thin ideal in advertising, and others are not.

It follows that schematics will worry more about their weight, are more likely to diet and pay more attention to issues related to body shape and size, and therefore are potentially more vulnerable to disturbed eating as a result of exposure to idealized images. In the study by Markus et al. (1987), schematic individuals were found to be much more attuned to images of body shape, reacting to them significantly faster than did aschematic individuals. In this case, participants were asked to judge to what extent different body shapes resembled their own body image. However, *drawings* of female body shapes were used, so it is uncertain how this relates to how women react when exposed to photographic images in advertising and the media, although it seems likely that the implications would be similar.

In sum, it seems that while schematic and aschematic individuals may look very similar outwardly, the differences in their self-identity have the potential to cause them to react to advertising images of women in notably different ways. Relating back to previously mentioned factors and processes, it is probable that schematic individuals are more likely, for example, to engage in social comparison and be more dissatisfied with their body. Therefore schema theory provides a broader way to classify women

as each of the two possible characteristics (schematic and aschematic) would seem to encompass a wide range of possible traits.

### *Summary of literature*

*Selection of dependent and independent variables:* Issues raised by the literature have guided the determination of independent variables for the current study, as well as the decision to use actual, observed eating behavior as the dependent variable. According to Harrison et al. (2006) very few published studies exploring effects of idealized media image exposure have (to date) used actual observed eating behavior as the dependent measure, so there is clear motivation for a study which measures food intake after exposure to idealized advertisements.

Of course, there are some studies which have explored relationships between eating behavior and exposure to idealized images. One example is a study conducted by Jansen and de Vries (2002). They tested the effects of subliminal exposure to female fashion models. After exposure, participants were given plates of high-calorie foods and instructed to rate the taste, but there were no significant differences between participants who had viewed thin, fat, or neutral slides. It appeared that such images must be consciously processed to have an effect on viewers' eating behaviors. Strauss et al. (1994) also investigated observed eating behavior, using four commercials for diet products, with explicit verbal and visual references to dieting and idealized body images, spliced into a movie segment. There were two groups of participants, one was shown the movie with commercials, the other just shown the movie. Contrary to hypothesis, participants trying to lose weight ate almost twice as much as those in the two comparison conditions. Non-dieting participants exposed to diet commercials,

showed a slight, nonsignificant tendency to eat less than the other two groups. It was concluded that perhaps dieting participants exposed to diet commercials ate more to cope with the stress induced by the commercials. However, despite some such examples, most existing studies have used emotional qualities or levels of body dissatisfaction as dependent variables.

As regards independent variables used for the current study, all variables chosen have been found to have some influence or role in body image and body satisfaction by existing studies, justifying their inclusion. Durkin and Paxton (2002) found that stable body dissatisfaction, body comparison tendency, internalization of the thin ideal and, to a lesser extent, self-esteem, predict lower body satisfaction and higher depression, anxiety and anger levels after exposure to thin-body images. The question is raised as to whether these predictors, or trait characteristics, can also affect short term eating behavior, and also whether emotional states such as depression or anxiety influence food choices. Some of these characteristics, such as self-esteem, appear to have very complex roles in the area of women's body image and can act in different ways. For example Mills et al. (2002) and Joshi et al. (2004) found that certain women's self-esteem (specifically, that of dieters) actually increases after exposure to thin-body images. Therefore, self-esteem, body satisfaction, body comparison tendency, depression levels, anxiety levels, and internalization of the thin ideal are all included in the study as possible predictor variables.

Internalization as a crucial precondition for negative effects on women's body image as a result of exposure to idealized images has been highlighted by a number of additional authors, including Stice (1994), and Cusumano and Thompson (1997), who also found awareness of the thin body ideal to have a negative impact on body image

and self-esteem (although it was less important than internalization). Therefore awareness has been included alongside internalization as an independent variable.

Existing evidence suggests that dietary restraint status is particularly important in predicting eating behavior post-exposure, so has also been considered in the current study. A disinhibition effect on dieters has frequently been demonstrated, for example, the results of Mills et al.'s (2002) study, which showed that restrained eaters ate more when shown thin body images as opposed to either large body or product-only images, whereas unrestrained eaters ate the same regardless of condition.

Finally, locus of control appears to have had a complex role in affecting women's body image, in that those with an external locus of control tend to be less satisfied with their bodies than those with an internal locus of control. However when exposed to idealized images, women with an internal locus of control are more negatively affected. By including locus of control as an independent variable, it has been possible to evaluate which, if either, of these effects applies when eating behavior is measured.

*Explanation for focus on young females:* It is apparent from the literature that the vast majority of work in the field of effects of idealized body images in advertising on body image and/or eating behavior focuses on young (usually adolescent or college-age) females. Therefore a study of the topic of effect of the 'thin ideal' in advertising on women's body image and eating habits seems incomplete without an explanation of *why* the focus is in fact on females, rather than giving equal attention to males, and also why age seems to make a difference in response.

The majority of research focuses on females mainly because women tend to report greater levels of body image disturbance and have lower levels of satisfaction with their bodies than do males. This has been attributed, at least in part, to 'sex-role socialization' in Western cultures (Venkat and Ogden, 2002), where more emphasis is placed on the importance of women achieving 'success' by looking good, compared to men being able to be seen as successful in a greater variety of ways. Additionally, there is a much higher incidence of eating disorders among women than men. Around 90-95 per cent of those diagnosed as anorexic are female, with particularly high rates among women in certain careers, such as ballet, sport, and modeling (Malson, 1998). According to Venkat and Ogden, women are also more susceptible to making social comparisons than men (although interestingly they found that only 'fitness satisfaction' was affected by looking at idealized images, rather than 'attractiveness satisfaction': while women are less satisfied with their body shape/weight than men, they do not perceive themselves to be any less attractive than males do).

However, despite the focus on females, that is not to say that males are unaffected by idealized images, and there have been studies which do investigate male responses. An early study by Mishkind et al. (1986) on male body image showed that 95 per cent of college-aged men expressed dissatisfaction with some part of their bodies, and 70 per cent expressed a discrepancy between their current and ideal body shapes. The emphasis on appearance that has long affected women is now increasingly directed at men as well, and the 'ideal' male body is also ever more unattainable, with a 'culture of muscularity' in place of the female 'culture of thinness' (Agliata and Tantleff-Dunn, 2004). The results of this study indicated that men exposed to idealized images became significantly more depressed and had higher levels of 'muscle dissatisfaction' than those who had been shown 'neutral' ads, which is similar to reactions exhibited

by females. Furthermore, as males “tend to find visual material more evocative than females do” (Agliata and Tantleff-Dunn), it makes sense that media exposure may have a greater effect than has been previously thought, especially since the prevalence of articles concerned with body matters and weight loss in men’s magazines has increased in recent years, making body image issues more prominent in male mindsets (Nemeroff et al., 1994). While males and females appear not to respond in the same way to media exposure, there is evidence, for example, that magazine consumption is linked to body image perceptions and eating habits in males as well as females (Botta, 2000).

Nevertheless, as is effectively summarized by Wykes and Gunter (2005), despite “changes in gendered roles and the growing socio-cultural emphasis on looks and grooming”, which “may well (mean) that men feature more and more frequently with poor body image, low self-esteem and consequent self-harming or mental health problems”, there is still “no doubt that currently it is overwhelmingly a problem of and for young women” (p6).

Regarding age, while there has been relatively more research on body dissatisfaction in adolescents and young women, there is much less which includes older populations of women. Bessenoff and Del Priore’s (2007) study aimed to examine body dissatisfaction in response to media exposure across the lifespan, rather than just for younger women. A possible reason for the apparent neglect of older experimental subjects is provided by their contention that body dissatisfaction appears to level off after adolescence and become relatively stable across the adult lifespan, therefore effects are more noticeable in young women. Interestingly, social comparison theory would predict that body dissatisfaction should actually increase with age, because as

women age, they generally move further and further from the media's 'ideal' body size and shape, and in turn this should produce greater dissatisfaction as the women compare their larger bodies with the much smaller ideal, yet this does not appear to be the case. Two possible reasons for this may be, firstly, that older women do not use thin-ideal media images as a comparison standard, as most of these images feature young women, and if older women see themselves as too different from the images, social comparison is less likely to occur. Secondly, it has been suggested that the media provides older women with heavier body ideals than are provided for young women, therefore discrepancies between ideal and self are lessened.

## CHAPTER 3

### THE CURRENT STUDY

The study presented here compares the eating behavior of women in two groups: one which was exposed to a series of advertisements featuring thin-body models, and a control group exposed to advertisements featuring products only (no images of people). Eating behavior was measured by weighing the food chosen by each participant from a selection of snacks offered to them. The roles of dietary restraint, self-esteem, stress, anxiety and depression, awareness and internalization, body comparison tendency, body satisfaction, and locus of control were evaluated for potential moderating effects on eating behavior according to exposure group.

Stress, anxiety and depression, self-esteem, and locus of control were measured first, before respondents were exposed to one of the two types of advertisement. They then completed a questionnaire based on advertising effectiveness of the ads they had seen, before being asked to complete a 'taste test' of three types of snack food. Finally, they completed measures of body comparison tendency, body satisfaction, dietary restraint, and awareness and internalization of the thin ideal. Additionally, participants exposed to the thin-body advertisements completed measures of behavior and attitude, assessed statements based on process measures, and evaluated statements designed as manipulation checks.

#### Hypotheses

Taking the previous reviews and discussions together, several hypotheses were formulated.

### *Differences between the two exposure conditions*

(1) Given that thin-body images have been shown to decrease levels of factors such as body satisfaction and self-esteem, it was hypothesized that there would be a significant effect of exposure condition (ad type) on food consumption. Furthermore, it was hypothesized that this effect would reveal itself as decreased eating among women shown the thin-body ads, in comparison to the control group, as these women will be more likely to feel that they should more closely resemble the 'ideal', and that reducing food intake is the necessary action to take in order to achieve this.

### *Individual difference variables*

(2) **Dietary restraint:** Based on results of disinhibition effects found in several studies, it was hypothesized that restrained eaters in the group exposed to the thin-body ads will eat more than unrestrained eaters.

(3) **Self-esteem:** Since women with low self-esteem have previously been found to be more negatively affected by idealized images in terms of body dissatisfaction and emotional state, it was hypothesized that women in the group exposed to thin-body ads who had lower levels of self-esteem would demonstrate a negative response to the ads by eating less than women with high self-esteem.

(4) **Depression, anxiety and stress:** It was hypothesized that women with higher scores in any of these emotional states may feel worse about themselves generally, and therefore eat less than women who are less depressed, anxious or stressed in order to feel better about themselves in at least one area.

(5) **Body comparison tendency:** Women who compare themselves more readily to others are more likely to notice discrepancies between themselves

and the models portrayed in the ads and feel like they don't measure up to the 'ideal', therefore it was hypothesized that women who have a strong body comparison tendency and who are shown the thin-body ads will eat less than those who don't compare themselves as readily.

(6) **Body satisfaction:** Women who are more satisfied with their own bodies are less likely to feel bad about themselves after viewing models, so it was hypothesized that women with lower body satisfaction would eat less than those with higher scores.

(7) **Locus of control:** Since women who have an internal locus of control (they feel that it is one's own actions that determines events in life), are more likely to feel that they can also control their own weight, it was hypothesized that they would be more likely to eat less following exposure to thin-body ads than those with an external locus of control, since they will feel worse about themselves, and that they can control and limit food intake to help them resemble the models more closely.

(8) **Awareness and internalization:** Women who are aware of and/or who have internalized the thin body ideal are more likely to compare themselves negatively to the 'ideal' and therefore it was hypothesized that they would eat less than those who have low awareness or internalization scores, having seen the thin-body ads.

## CHAPTER 4

### METHOD

#### *Participants*

In all, 75 female participants were recruited from classes and staff at Cornell University, via email and announcements in classes, with the study also listed as available for sign-ups on the 'Lab for Experimental Economics and Decision Research' website. Extra credit in certain classes or a \$10 payment was offered as an incentive. Demographic information collected included age, class year, major and height and weight (in order to allow Body Mass Index to be calculated). The average age of participants was 21.6 years ( $SD = 7.25$ ), and the median age was 20 years. The age range was large (18-54), but over 90% were aged 25 years and under. The average BMI was 22.86 ( $SD = 5.70$ , range 17.5 = underweight to 60.2 = obese), classified as normal according to population-relevant guidelines (Centers for Disease Control and Prevention, 2007). 35% of participants were Freshmen, 33% Sophomores, 9% Juniors, 12% Seniors, and the remaining 11% either Graduate Students or Staff. Participants were majoring in a wide variety of subjects, including Food Science, Nutrition, Economics, Fine Arts, Mathematics, and Chemical Engineering, but the three best-represented majors were Applied Economics and Management (27%), Biology (12%), and Communications (7%).

The 75 participants were divided into two experimental conditions. 41 women were exposed to advertising images of thin models, and the remaining 34 to no model (product-only) control images (there was a slight imbalance due to difficulties in accurately estimating how many participants who had registered for the study would

actually turn up). As would be expected, there was a moderate positive correlation between BMI and age of participants ( $r = .49$ ;  $p < .01$ ), indicating that older women tend to be heavier. In addition, BMI differed by exposure group (ads featuring models vs. product-only ads). The BMI for the ‘model ads’ group was significantly higher (24.4,  $SD = 7.19$ ) than for the ‘product-only ads’ group (21.0,  $SD = 1.95$ );  $t(73) = -2.90$ ,  $p < .01$ . Age did not differ by exposure condition, but the links between age and BMI did. The correlation between BMI and age was  $r = .50$  ( $p < .01$ ) in the ‘model ads’ condition. In the control condition (‘product-only ads’), a negative correlation ( $r = -.15$ ) was detected, although this was not significant. Given these confounds, it was decided to use both BMI and age as covariates in all statistical analyses in order to detect possible systematic relationships with dependent variables.

### ***Materials***

*Images and advertisements.* Each condition was represented by ten advertising images. These images were drawn from the popular women’s fashion magazines, *Elle* and *Glamour* (the February 2008 and March 2008 issues respectively). Participants in the ‘thin-body ideal’ condition, viewed a booklet of advertising images containing seven advertisements comprised of full-body images of extremely slender women, along with three advertisements which did not contain images of people (product-only), to act as ‘fillers’ to help ensure that participants did not guess that the impact of viewing the thin ideal on behavior was central to the study. The advertisements which made up the booklets given to the ‘thin-body condition’ are listed below. In order to select appropriate images for this condition, a pool of images from these magazines was compiled, and then presented to a focus group of ten women who were asked to rate each model on a Likert scale featuring values of 1-9, where 1 was described as

‘very overweight’ and 9 ‘very thin’. The group helped to select advertisements which were felt to best represent the thin female ideal which prevails in fashion magazines, and where clothing did not obscure the body shape excessively. The seven advertisements chosen from the pool for inclusion in the final booklet had an average score of 7.9 (out of a possible 9), with none of the individual ads scoring less than an average of 7.2. The three filler advertisements were selected from the ten used for the control (product-only condition).

**‘Thin body ideal’ experimental condition advertisements**

**(magazine taken from indicated in parentheses)**

1. Boss clothing (Glamour)
2. Jergens moisturiser (Glamour)
3. Alessandro dell’Acqua (Elle)
4. Philosophy Alberta Ferretti (Elle)
5. Jimmy Choo (Elle)
6. Bebe Sport clothing (Elle)
7. Dior (Elle)

*Ads containing only products, no people:*

8. Nissan Altima car (Glamour)
9. Sony Vaio laptop (Elle)
10. Tiffany (Elle)

Participants in the ‘product-only ad’ control condition viewed booklets of advertisements which contained no images of people. These were again selected from Elle and Glamour as being representative of products advertised to women in fashion

magazines, and a fairly wide range of brands and products was chosen. The advertisements presented in the booklets participants are listed below.

**‘Product-only’ (control) experimental condition advertisements**

1. Neutrogena mascara (Glamour)
2. Nissan Altima car (Glamour)
3. General Foods instant latte (Glamour)
4. Aerosoles shoes (Glamour)
5. Honda Civic car (Elle)
6. Tiffany (Elle)
7. Pama Liqueur (Elle)
8. Sony Vaio laptop (Elle)
9. Biore skincare (Elle)
10. Abreva cold sore cream (Elle)

***Measures***

Respondents completed seven measures, assessing their depression, anxiety and stress levels, self-esteem, locus of control, dietary restraint, body comparison tendency, body satisfaction levels, and their awareness and internalization of the thin body ideal. In the first phase of the experiment, depression, anxiety and stress, self-esteem, and locus of control were measured, and in a later section, the remaining measures were completed. Labeled copies of the questionnaires used in the study are presented in the Appendix.

*Depression, anxiety and stress.* The levels of depression, anxiety and stress were assessed by the Depression, Anxiety and Stress Scale (DASS) (Lovibond and Lovibond, 1995). The full DASS is a 42-item self report instrument which measures the three related negative emotional states of depression, anxiety and tension/stress. There are 14 items on each of the three DASS scales, divided into subscales of 2-5 items with similar content. Subjects rate themselves by the extent to which they have experienced each state over the past week using a 4-point severity/frequency scale ranging from 0 = “Did not apply to me at all” to 3 = “Applied to me very much, or most of the time.” The study used the short, 21-item version (7 items per scale) of the DASS instead of the full version, because it has the advantage of only taking half the time to administer yet has been shown to give similar results to the full DASS. Within the 21-item scale, questions 3, 5, 10, 13, 16, 17 and 21 correspond to Depression; questions 2, 4, 7, 9, 15, 19 and 20 correspond to Anxiety; and questions 1, 6, 8, 11, 12 and 18 correspond to Stress. Scores for Depression, Anxiety and Stress are calculated by summing the scores for the relevant items and multiplying by two, so that they are the same as if the full scale had been used.

*Self-esteem.* Self-esteem levels were assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The scale is a 10-item Likert scale with items answered on a four point scale ranging from ‘strongly agree’ to ‘strongly disagree’. Five items are reverse scored and total scores can range from 0 to 30: the higher the score, the higher the self-esteem.

*Locus of control.* The locus of control measure consisted of 12 items, selected from Rotter’s (1966) Locus of Control Scale, as used by Venkat and Ogden (2002). Twelve pairs of statements were presented to participants, who were asked to choose either a

or b, which best represented their feelings. Answers are given either one or two points, so scores can range from 12 to 24. A high score corresponds to an internal locus of control, and a low score to an external locus of control.

*Dietary restraint.* Dietary restraint (whether the participant could be classified as a restrained or unrestrained eater) was assessed by the dietary restraint scale (Herman and Polivy, 1980), which consists of 10 items. The scale assesses weight fluctuations, eating behavior, and attitudes. Questions were scored on 0-3 or 0-4 scales. Possible scores range from 0 to 35, and individuals who score 15 or higher are classified as restrained eaters (Joshi et al., 2004).

*Body comparison.* Body comparison tendency was assessed using the Physical Appearance Comparison Scale (PACS) (Thompson et al., 1991). This scale consists of five questions each rated on a 1-5 scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Usually, 5 = Always), with one question that had to be reverse scored. It was adapted slightly as two of the questions fitted more appropriately with a 1-9 Likert scale, and were therefore embedded in another section of the questionnaire. These 2 questions had their scores converted to equivalent 1-5 values, so scores could range from 5 to 25. High scores correspond to a strong tendency towards body comparison.

*Body satisfaction.* Body satisfaction levels were assessed using seven satisfaction items (Venkat and Ogden, 2002), which included satisfaction in terms of body weight and shape, and participants' own perceived physical attractiveness. Responses were measured on a 9-point Likert scale ranging from 1 = Strongly Disagree to 9 = Strongly Agree, and scores could range from 7 to 63. A high score indicates a high level of body satisfaction.

*Awareness and internalization of body shape ideals.* Awareness and internalization of the thin body ideal were assessed by the 14-item Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ) (Heinberg et al., 1995). Six items on the scale corresponded to awareness, and the remaining eight to internalization, with some reverse scaled. A Likert scale ranging from 1 = Strongly Disagree to 9 = Strongly Agree was used. Awareness scores could range from 6-54, and internalization scores from 8-72, and higher scores in both cases correspond to a greater degree of awareness or internalization of the thin body ideal.

In addition, participants exposed to the thin-body images had an extra set of questions to respond to after they had been shown their set of advertisements, along with the other measures already mentioned. Firstly, there were eleven *behavioral* statements, asking participants about potential changes in their eating behavior, appetite, and exercise habits as a result of viewing the ads. For example, ‘After seeing the ads I’ll eat less’, ‘After seeing the ads I felt like going to the gym’, and ‘After seeing the ads I had less appetite’. These were designed to gain an insight into whether participants believed their behavior would change after exposure to the advertisements. These were all answered on a Likert scale ranging from 1 = Strongly Disagree to 9 = Strongly Agree, with four questions reverse scored.

There were also seven questions based on *process measures*, designed to test if how participants felt about themselves in terms of their own attractiveness and body shape after viewing the thin-body images, as well as how they felt about the models’ body shapes, was as expected (did they think about their own body shape and that of the models when they looked at the ads, and make links between the two?). These questions included ‘The ads I saw made me feel fat’, ‘A thin body shape, as

represented by these models, is the most attractive’, and ‘The ads made me think about my own body shape’. Again, a 1-9 Likert scale was used for responses, and one of the questions was reverse scored.

Next, there were questions designed to provide a measure of *attitude* after viewing the ads, with seven statements presented in order to provide information on whether exposure to the advertisements made women feel worse about themselves by affecting their self-esteem or inducing negative comparisons. For example, ‘The ads made me think about how I compare to the models’ ‘I feel worse about myself after looking at the ads’, and ‘I do not wish I looked like the models’ (reverse scored.)

*Manipulation checks* were also made via seven statements, which verified whether participants did actually recognize and process that they had viewed thin, attractive models. A Likert scale rated from 1-9 was used for participants to rate their level of agreement with statements such as ‘I noticed that there were photos of beautiful women in most of the ads I saw’, and ‘All of the women had a thinner than average body shape’.

### ***Procedure***

The cover story presented to participants was that they were taking part in a study into advertising effectiveness and personality, alongside a separate study into taste preferences and diet. Participants were randomly assigned to one of two conditions: exposure to advertisements featuring ‘thin ideal’ images of female models (N = 41), and the control condition (N = 34), which involved exposure to advertisements featuring inanimate objects (product-only ads, with no people).

Participants were assigned to their respective groups before attendance of the study, and the groups were dealt with in separate sessions, in groups of up to 25 at a time. To minimize incidence of women guessing the true purpose of the study, it was presented as two unrelated studies, the first of which ostensibly dealt with ‘advertising effectiveness and personality’. On arrival at the lab, all participants were told the cover story that they were participating in a study to gauge reactions to advertising according to personality factors, and presented with a composite questionnaire assessing the measures of *mood (depression, anxiety and stress), self-esteem, and locus of control*. Some demographic information (age, class status, and major) was collected at the end of this first questionnaire.

Following completion of this questionnaire, participants in each group were presented with the booklets of 10 full-page color advertisements. Participants in the ‘thin-body ideal’ condition received the booklets containing the 7 full-body advertisements featuring thin models, combined with 3 ‘filler’ ads showing a product only, and the participants in the control condition received the booklets containing 10 full-page product-only ads. Along with the advertisements, participants were presented with a questionnaire asking them to assess each ad, marking their response on a 1-9 Likert scale (strongly disagree to strongly agree) with respect to qualities such as attractiveness, layout, creativity (similar to measure used by Tiggemann and McGill, 2004). Data from these ‘Advertisement Rating’ questionnaires was not used in analyses as these questions were simply to ensure consistency with the cover story.

After rating the ads, participants were told that the ‘first study’ was complete, and that they would next take part in a second study involving ‘taste preferences and diet’. One by one, as they completed the first set of questionnaires, participants were taken into

the kitchen, where a selection of snacks (healthy: carrot sticks, unhealthy: M&Ms, and neutral: pretzels) had been laid out, with each snack in a separate large bowl.<sup>1</sup> Participants were told to take as much as they wanted of each (but to ensure comprehensive tasting, as part of the cover story, they were told to take at least one of each). Each participant's selection was weighed and recorded (participants were told that this was in order to keep track of resources), with the value for each of the three foods recorded separately. Once participants had been given the plate holding their food, they were also handed a 'Taste Ratings' questionnaire, again to ensure consistency with the cover story. This asked each woman to rate the snacks, on a 1-9 Likert scale, in a number of areas, for example how much they liked the snack, appearance of the snack, saltiness, and sweetness. This questionnaire also asked them to estimate the number of calories in the food they consumed. At this point, participants were told to return to the main room to complete the questionnaire. It was decided that the weight of food taken is an adequate measure of how much participants actually ate, even though not all participants consumed all the food on their plate. It would have been possible to weigh leftover food to get a more accurate measure of food actually consumed, but this would have increased the likelihood of participants guessing the true purpose of the study. In addition, peer presence has been shown to influence how much women eat (Harrison et al., 2006), so if the food had been reweighed after, the final value would have been biased by this effect.

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<sup>1</sup> To check that these were valid categorizations of the food (i.e. that carrot sticks were typically rated as a healthy choice, M&Ms unhealthy and pretzels neutral), before the study began, a focus group of 10 women were asked to provide a rating on a 1-9 Likert scale (1 = Strongly Disagree, 9 = Strongly Agree) as to whether they agreed with the statement 'This snack is a healthy choice'. The mean rating for carrots was 9, M&Ms 1.2, and pretzels 4.3, indicating they were appropriate choices for each 'snack type'.

Finally, once participants returned their taste rating questionnaires, they were presented with the last questionnaire which they were told contained questions concerning their diet and food choices. This questionnaire contained the measures for *dietary restraint, body comparison, body satisfaction, and awareness and internalization of body shape ideals*, and in the case of the women who had viewed the thin-body ads, the behavior, attitude, and process measures, and manipulation checks. It was better to administer these scales late in the experiment to minimize participants' awareness that eating and restraint are central to study. At the very end of the questionnaire, participants were asked to record their height and weight, in order for BMI to be calculated later, and lastly, were debriefed.

## CHAPTER 5

### RESULTS

A between-subjects experimental design was used, and differences between women in the two exposure groups were tested with a series of analyses of covariance (ANCOVAs), with age and BMI as covariates. For most of the analyses total food weight (in grams) was used as the dependent variable (the weights of each food type were added together). Weights of each individual food type, as well as total calorie values of foods taken, were also tested as dependent variables, but were less successful. For each of the possible predictor variables, a median split was used to create high and low scores to use in the analyses.

*Dietary restraint:* A two-way Ad Type (thin bodies vs. product-only) x Restraint (unrestrained vs. restrained) ANCOVA was performed in order to test the hypothesis that ad type would have a significant main effect on total food weight taken, and restraint status an interactive effect. Dietary restraint scores were used to separate women into two groups, unrestrained and restrained, with a cut-off score of 15+ corresponding to membership of the ‘restrained eater’ group (Joshi et al., 2004). 32 participants (43%) were categorized as unrestrained eaters, and 43 (57%) as restrained.

Age did not emerge as significant,  $F(1, 69) = .04$ , ns, nor did BMI,  $F(1, 69) = .47$ . In fact, neither age nor BMI were significant in any of the analyses. As expected, there was a significant main effect for exposure condition on total food weight consumed,  $F(1, 69) = 5.65$ ;  $p < .05$ . The analysis revealed no significant effect of dietary restraint status,  $F(1, 69) = 1.39$ ; ns, however there was a significant two-way interaction

between ad type and dietary restraint status,  $F(1,69) = 4.85$ ;  $p < .05$ . Means and standard deviations (in parentheses) are displayed in the following table.

Table 1: Mean Total Food Weight Consumption for Participants who are Unrestrained and Restrained Eaters, Across the Two Ad Conditions

	AD CONDITION	
RESTRAINT STATUS	Thin-body ads	Product-only ads
Unrestrained	99.81 (43.18)	56.38 (18.91)
Restrained	86.96 (41.61)	88.56 (47.08)
<b>Mean</b>	91.98 (42.17)	73.41 (39.62)

While there was a significant difference between exposure conditions (ad type), as expected, participants who had seen the thin-body ads actually consumed comparatively more food, by weight, than those who had seen the product-only ads, which was contrary to the first hypothesis that women in the thin-body ad group would eat less. In addition, within the group exposed to the thin-body ads, restrained eaters were expected to consume more than unrestrained eaters due to disinhibited eating brought about by exposure, but again this was not the case, restrained eaters ate slightly less than unrestrained eaters.

Weight of pretzels taken was next tried as a dependent variable, and the same pattern was exhibited as when total food weight was used. The effect of exposure condition was again significant, as was the interaction between exposure condition and dietary restraint status.

Table 2: Mean Pretzel Consumption for Participants who are Unrestrained and Restrained Eaters, Across the Two Ad Conditions

	AD CONDITION	
RESTRAINT STATUS	Thin-body ads	Product-only ads
Unrestrained	17.94 (14.23)	7.06 (3.34)
Restrained	13.28 (9.56)	11.72 (7.57)
<b>Mean</b>	15.10 (11.66)	9.53 (6.34)

Weight of M&Ms and carrots were also tried as dependent variables, but there were no significant main or interaction effects for either.

*Self-esteem:* The median self-esteem score was 24, with a mean of 22.93 and range from 6 to 30. A median split was used to create high and low self-esteem scores, and there were 35 participants below the cut-off value (low self-esteem) and 40 above (high self-esteem). A 2x2 Ad Type x Self-esteem category ANCOVA was performed. Again, as expected, ad type had a significant effect,  $F(1, 69) = 4.60$ ;  $p < .05$ . However, contrary to the third hypothesis, the tests revealed no significant effect for self-esteem category,  $F(1, 69) = 2.61$ ; ns, nor for the interaction between ad type and self-esteem category,  $F(1, 69) = .08$ ; ns. The mean values are shown below, revealing that, again, women shown the thin-body ads ate more than the women in the control group.

Table 3: Mean Total Food Weight Consumption for Participants with High and Low Self-Esteem Levels, Across the Two Ad Conditions

	AD CONDITION	
SELF-ESTEEM CATEGORY	Thin-body ads	Product-only ads
Low	98.68 (46.08)	83.25 (49.04)
High	86.18 (38.62)	64.67 (27.45)
<b>Mean</b>	91.98 (42.17)	73.41 (39.62)

*Depression, anxiety and stress:*

*Depression:* The median depression score was 6, with a mean of 6.85 and range from 0 to 36. Again, a median split was used to create high and low depression scores, with 44 participants classified as having low depression scores, and 31 as having high scores. A 2x2 Ad Type x Depression category ANCOVA was performed. Ad type had a significant effect,  $F(1, 69) = 4.48; p < .05$ , but there was no significant effect for depression category,  $F(1, 69) = .07; ns$ , nor for the interaction between ad type and depression category,  $F(1, 69) = .01; ns$ . Women who were more depressed, within the thin-body ads group, also appeared to eat less than those who were less depressed (consistent with hypothesized effect), although this finding was not significant.

Table 4: Mean Total Food Weight Consumption for Participants with High and Low Depression Levels, Across the Two Ad Conditions

	AD CONDITION	
DEPRESSION CATEGORY	Thin-body ads	Product-only ads
Low	92.75 (38.17)	75.00 (45.11)
High	90.88 (48.48)	71.14 (31.65)
<b>Mean</b>	91.98 (42.17)	73.41 (39.62)

*Anxiety*: The median anxiety score was 4, with a mean of 5.84 and range from 0 to 20. Using another median split, 43 participants had low anxiety scores and 32 had high anxiety scores. A 2x2 Ad Type x Anxiety category ANCOVA was performed. Ad type had a significant effect,  $F(1, 69) = 5.16$ ;  $p < .05$ , but there was no significant effect for anxiety category,  $F(1, 69) = .14$ ; ns, nor for the interaction between ad type and anxiety category,  $F(1, 69) = 1.99$ ; ns. In the thin-body ads group, women who had higher anxiety scores ate more than women reporting lower anxiety, although this was not significant.

Table 5: Mean Total Food Weight Consumption for Participants with High and Low Anxiety Levels, Across the Two Ad Conditions

	AD CONDITION	
ANXIETY CATEGORY	Thin-body ads	Product-only ads
Low	84.04 (38.68))	77.63 (45.85)
High	103.18 (45.48)	68.07 (30.72)
<b>Mean</b>	91.98 (42.17)	73.41 (39.62)

*Stress*: The median stress score was 14, with a mean of 13.60 and range from 0 to 36. A median split created high and low stress scores, with 43 participants classified as having low stress scores, and 32 having high. A 2x2 Ad Type x Stress Category ANCOVA was performed. Ad type had a significant effect,  $F(1, 69) = 5.17$ ;  $p < .05$ , but again the analysis did not reveal a significant main effect for stress category,  $F(1, 69) = .14$ ; ns, nor for the two-way interaction between ad type and stress category,  $F(1, 69) = 1.93$ ; ns. Also, women who were highly stressed, in the thin-body ads group, ate more than those who were less stressed.

Table 6: Mean Total Food Weight Consumption for Participants with High and Low Stress Levels, Across the Two Ad Conditions

	AD CONDITION	
STRESS CATEGORY	Thin-body ads	Product-only ads
Low	83.35 (39.86)	76.86 (47.10)
High	103.00 (43.58)	67.08 (20.18)
<b>Mean</b>	91.98 (42.17)	73.41 (39.62)

*Body comparison:* The median body comparison score was 14, with a mean of 14.41 and range from 7.5 to 23 (higher scores indicate higher degree of comparison). The median split created two categories for body comparison scores, with 41 classified as having low scores, and 34 as having high scores. A 2x2 Ad Type x Body Comparison Tendency category ANCOVA was performed. Ad type, again, had a significant effect on total food weight consumed,  $F(1, 69) = 5.66$ ;  $p < .05$ , but the category for body comparison tendency did not have a significant effect,  $F(1, 69) = 1.95$ ; ns, nor did the interaction between ad type and body comparison,  $F(1, 69) = 1.24$ ; ns. Although not significant, women high in body comparison tendency in the thin-body ads group ate more than those who did not tend to compare themselves so readily.

Table 7: Mean Total Food Weight Consumption for Participants with High and Low Body Comparison Levels, Across the Two Ad Conditions

	AD CONDITION	
BODY COMPARISON	Thin-body ads	Product-only ads
Low	82.50 (39.42)	71.71 (35.29)
High	105.35 (43.44)	75.12 (44.57)
<b>Mean</b>	91.98 (42.17)	73.41 (39.62)

*Body satisfaction:* The median body satisfaction score was 41, with a mean of 39.52 and range from 9 to 56. The median split, creating 2 body satisfaction categories, classified 38 women as having low body satisfaction, and 37 as having high body satisfaction. A 2x2 Ad Type x Body Satisfaction category ANCOVA was performed. Ad type had a significant effect on total food weight consumed,  $F(1, 69) = 4.75$ ;  $p < .05$ , but there was no significant effect for body satisfaction category,  $F(1, 69) = .003$ ; ns, nor for the two-way interaction between ad type and body satisfaction,  $F(1, 69) = 1.50$ ; ns. Among the thin-body ads group, women who were more satisfied with their bodies ate less than those who were more dissatisfied, although again this was not significant.

Table 8: Mean Total Food Weight Consumption for Participants with High and Low Body Satisfaction Levels, Across the Two Ad Conditions

	AD CONDITION	
BODY SATISFACTION	Thin-body ads	Product-only ads
Low	95.75 (45.87)	65.86 (30.48)
High	86.65 (37.02)	78.70 (44.94)
<b>Mean</b>	91.98 (42.17)	73.41 (39.62)

*Locus of control:* The median value for locus of control was 19, with a mean of 18.93 and range from 13-24. A median split classified 31 women as having an external locus of control (lower scores) and 44 as having an internal locus of control (higher scores). A 2x2 Ad Type x Locus of Control category ANCOVA was performed, and again ad type was significant in predicting total food weight,  $F(1, 69) = 5.02$ ;  $p < .05$ . Neither the locus of control category,  $F(1, 69) = .95$ ; ns, nor the interaction between ad type and locus of control category,  $F(1, 69) = .01$ ; ns had a significant effect. As predicted

by hypothesis 7, women exposed to thin-body ads who had an internal locus of control did indeed eat less than those with an external locus of control, although this was not significant.

Table 9: Mean Total Food Weight Consumption for Participants with Internal and External Locus of Control, Across the Two Ad Conditions

	AD CONDITION	
LOCUS OF CONTROL	Thin-body ads	Product-only ads
External	100.00 (44.23)	77.76 (46.61)
Internal	87.81 (41.30)	69.06 (32.02)
<b>Mean</b>	91.98 (42.17)	73.41 (39.62)

*Awareness and internalization:* The median value for awareness was 39, with a mean of 38.36 and range from 22 to 54. A median split classified 36 women as having low awareness of the thin ideal, and 39 as having high awareness. The median value for internalization was 37, with a mean of 36.76 and range from 8 to 69. The median split resulted in 37 women classified as having low internalization of the thin ideal, and 38 and having a high internalization value. In this case a 2x2x2 ANCOVA (still with age and BMI as covariates, although they again emerged as not significant,  $F(1, 65) = .05$ ; ns, and  $F(1, 65) = .59$ ; ns, respectively). There was a significant main effect of ad type on total food consumed,  $F(1, 65) = 4.83$ ;  $p < .05$ , but no significant main (or interaction) effects for awareness,  $F(1, 65) = .02$ ; ns, or internalization of the thin ideal,  $F(1, 65) = .54$ ; ns.

Table 10: Mean Total Food Weight Consumption for High and Low Awareness and High and Low Internalization Participants, Across the Two Ad Conditions

		AD CONDITION			
		Thin-body ads		Product-only ads	
Awareness		<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>
Int.	<i>Low</i>	94.09 (53.83)	94.20 (40.68)	66.36 (39.17)	54.20 (18.13)
	<i>High</i>	84.63 (36.09)	93.08 (40.00)	79.17 (19.63)	85.00 (53.33)

***Analysis of ‘thin-body advertisements’ condition***

As well as the other measures, participants in the thin-body ad condition received an extra set of questions, as discussed previously.

*Manipulation checks:* Seven of these questions were designed as manipulation checks, to verify whether the ads had the desired effect on women, in that they noticed and concentrated on the thin, attractive female images in the advertisements, as opposed to anything else.

The mean, minimum and maximum for each question are reported, and a mean score for each participant was calculated based on their answers, ranging somewhere from 1 = Strongly Disagree to 9 = Strongly Agree. These single-digit scores for each participant were then also used to calculate an overall mean score in the manipulation checks.

*Descriptive statistics for each question:*

Question : 'I noticed that there were photos of beautiful women in most of the ads I saw'

Mean = 6.51, Median = 7, Minimum = 1, Maximum = 9

Question 2: 'The model was the most eye-catching aspect of most of the ads'

Mean = 6.76, Median = 7, Minimum = 1, Maximum = 9

Question 3: 'I did not notice the models' body shapes' (reverse scored)

Mean = 5.98, Median = 6, Minimum = 2, Maximum = 9

Question 4: 'I focused more on the pictures than the words'

Mean = 7.59, Median = 8, Minimum = 3, Maximum = 9

Question 5: 'Most of the ads I saw contained very attractive women'

Mean = 7.12, Median = 8, Minimum = 2, Maximum = 9

Question 6: 'I noticed that there were few 'product-only' ads in the booklet'

Mean = 6.95, Median = 7, Minimum = 1, Maximum = 9

Question 7: 'All of the women had a thinner than average body shape'

Mean = 7.83, Median = 8, Minimum = 3, Maximum = 9

From these statistics, it appears that the manipulation did work as intended; women agreed for every question that they had noticed the thin models, and indeed agreed that their body shape was very thin. This is further evidenced by the participants' individual mean scores across the seven statements. Only two participants out of 41 had a mean score of less than 5 (meaning that the manipulation had not worked on these individuals), but the overall mean index score among all participants in the thin-body ad condition, was 7.03.

Table 11: Mean Score in Manipulation Checks for Each Participant in ‘Thin-body ads’

Condition

Participant	Mean score
1	8.00
2	8.29
3	6.71
4	6.57
5	7.43
6	6.43
7	7.71
8	6.86
9	6.43
10	5.00
11	9.00
12	7.00
13	5.57
14	5.43
15	7.57
16	7.14
17	8.57
18	6.14
19	7.86
20	7.29
21	5.86
22	5.29
23	6.14
24	6.29
25	8.71
26	9.00
27	3.86
28	8.00
29	5.14
30	7.71
31	6.14
32	8.43
33	4.57
34	7.86
35	6.43
36	8.14
37	7.00
38	8.00
39	8.29

Table 11 (Continued)

40	8.00
41	8.29

*Behavior measures:* Participants in the thin-body ad condition were asked to rate their agreement/disagreement with eleven statements intended to judge whether they believed that seeing the ads was likely to have changed their short or long term eating habits, their appetite, or their exercise habits (their behavior in any form). Again, a Likert scale ranging from 1 = Strongly Disagree to 9 = Strongly Agree was used.

Factor analysis was carried out using the eleven ‘behavioral questions’ presented to participants. Using Eigenvalues of greater than 1 as the cut-off, these eleven questions (listed below) reduced to two factors, together explaining 75.08% of the variance in the data.

Question 1: ‘After seeing the ads I’ll try to eat less’

Question 2: ‘The ads have inspired me to do more exercise’

Question 3: ‘The ads are likely to make me eat more healthy foods’

Question 4: ‘After seeing the ads I was craving chocolate’ (reverse scored)

Question 5: ‘After seeing the ads I was hungry’ (reverse scored)

Question 6: ‘After seeing the ads I felt like going to the gym’

Question 7: ‘After seeing the ads I had less appetite’

Question 8: ‘The ads are likely to affect my eating behavior in the short term’

Question 9: ‘The ads are likely to affect my eating behavior in the long term’

Question 10: ‘After seeing the ads my eating behavior won’t change’ (reverse scored)

Question 11: ‘The ads are unlikely to affect my eating habits’ (reverse scored)

From the Rotated Component Matrix, Factor 1 consisted of Questions 1, 2, 3, 6, 7, 8, 9, 10 and 11, and Factor 2 was made up of Questions 4 and 5 (appetite-related questions).

A correlation matrix of the eleven questions was also studied, and there were strong, significant correlations between many of the questions, for example, the correlation between Question 1 and Question 2 was equal to .782,  $p < .01$ . Indeed, except for Question 4, all questions had significant correlations with at least 7, but generally 8 or 9, of the other questions. Since participants responded to Questions 4 and 5 very differently to the other questions, these were analyzed separately. The remaining 9 questions were used to calculate a mean 'behavioral' score for each participant, and these means were then used to calculate an overall behavioral index to judge whether, on the whole, participants who had seen thin-body ads felt that their behavior had/would be affected. An index value of greater than 5 would indicate that participants, on the whole, did feel that their behavior had been altered, less than 5 would imply that they did not. A separate mean and index score was calculated for Questions 4 and 5.

The mean behavioral score among all 41 participants was 4.16, indicating that on the whole, the women did not believe exposure to the ads would affect their long or short term eating and exercise behavior. However, considering the two appetite-related questions ('After seeing the ads I was craving chocolate' and 'After seeing the ads I felt hungry'), the mean score for these two questions taken together (after reverse scoring) was very high, 8.16, indicating that participants did not feel hungry, or crave a high-calorie food after seeing the ads. Therefore it appears that exposure to thin-

body ads has an immediate effect on appetite, even if participants do not believe that their eating behavior or exercise behavior would change.

*Process measures:* Participants in the thin-body ad condition were also asked to rate their agreement/disagreement with seven questions designed to evaluate whether they processed the ads as expected, and engaged in comparisons resulting in negatively affected body image.

Factor analysis was carried out on the seven process measures presented to participants. Again, the questions (listed below), reduced to two factors, explaining 70.55% of the variance in the data.

Question 1: 'The ads I saw made me feel fat'

Question 2: 'The ads made me feel less attractive'

Question 3: 'The ads made me think about my own body shape'

Question 4: 'A thin body shape, as represented by these models, is most attractive'

Question 5: 'The models represent an unrealistic shape to aspire to'

Question 6: 'The ads made me feel good about my body' (reverse scored)

Question 7: 'I believe the models are much thinner than me'

From the Rotated Component Matrix, Factor 1 consisted of Questions 1-4, and Factor 2 of Questions 5-7. The correlation matrix between the seven questions showed that most questions were significantly correlated with at least three others. However Question 5 was only correlated with one other question (Question 7) so Questions 5 and 7 were left out of the index calculation and considered separately. The mean score among all participants for Question 5 was 7.29, showing that the women believed

fairly strongly that models represent an unrealistic body shape to aspire to. For Question 7, the mean score was 7.73, indicating that women also felt fairly strongly that the models were much thinner than them.

However, using the mean scores for each participant on the remaining five questions, to calculate an overall index value, suggested that women did not react as badly in terms of how they felt about their body after exposure as may have been expected. The mean overall score was 4.45, indicating that while women acknowledge models are much thinner than them, they feel that it is unrealistic shape to aspire to, and therefore do not feel as bad about themselves as could be possible. Of course, there were a small number of individuals who did score highly, indicating that the ads did make them feel worse about their own bodies, but on the whole, women do not feel a lot worse, or at least they do not admit to any such feelings.

*Attitude measures:* Thin-body ad group participants were also presented with seven 'attitude' questions following exposure to the ads, to gain an insight into whether women were emotionally affected by the thin ideal ads. Again, they had to rate their agreement/disagreement on a 1-9 Likert scale. High scores (above 5) would indicate that women have been negatively emotionally affected by the ads, and low scores that they have not.

Factor analysis was carried out on the seven questions, listed below, and in this case they were grouped into only one factor, indicating a strong measure for attitude.

Question 1: 'The ads made me think about how I compare to the models'

Question 2: 'The ads made me self-conscious about my weight'

Question 3: 'The ads made me self-conscious about my appearance'

Question 4: 'The ads made me feel I do not live up to an 'ideal''

Question 5: 'The ads had no influence on my self-perception' (reverse scored)

Question 6: 'I feel worse about myself after looking at the ads'

Question 7: 'I do not wish I looked like the models' (reverse scored)

The correlation matrix revealed that all questions were significantly correlated with either five or all of the other questions, with the exception of Question 7, which was still significantly correlated with three other questions. Therefore all seven questions were considered together in calculating an index value for the 'attitude' scale. The index value, an overall mean of the mean scores of each participant, was 3.59, indicating that participants on the whole disagreed that the advertisements had made any difference to how they felt about themselves, their appearance and weight. Again, there were a small number of participants who did feel that the ads had a negative effect, but all of their scores were still below 7. It seems that the thin ideal in advertising, in this sample, cannot be blamed for making women feel worse about themselves.

## CHAPTER 6

### DISCUSSION AND CONCLUSIONS

The study presented here provides evidence concerning the question of whether exposure to idealized images of the female body in advertising has an effect on women's eating behavior. It appears that exposure to the thin-body ideal in advertising does have a significant effect on eating behavior, although not in the expected direction. It was hypothesized that women who were shown the ads featuring thin models would eat less, due largely to comparison effects making them feel bad about themselves. However, in all analyses conducted, it was revealed that participants in the thin-body ad condition ate more than those in the control group. One possible explanation for this could be a media-induced self-enhancement effect as reported previously by Henderson-King and Henderson-King, 1997, or Myers and Biooca, 1992, although this was found to only apply to dieters. Alternatively, looking at seemingly unattainable bodies may make women, both dieters and non-dieters, feel 'hopeless' and that they may as well indulge as they are never going to look like the models anyway. However, a self-enhancement effect would help explain why many women seem to enjoy reading fashion magazines and looking at the images, which would be counter-intuitive if the images only served to make them feel bad.

As expected, dietary restraint was also shown to have a significant (interaction) effect with ad type, although here the disinhibited eating expected from restrained eaters in the thin-body ad condition was not apparent. In fact dieters ate slightly less than unrestrained eaters. Nevertheless, dietary restraint was the only other included predictor variable which had a significant effect on total food weight consumed by participants, therefore this study reinforced the importance of a woman's dietary restraint status in determining her reaction to idealized images.

None of the other included predictor variables had a significant effect on eating behavior. However, there were some non-significant relationships in the expected direction, for example, women who were rated as more highly depressed ate less in both ad conditions, and women with an internal locus of control ate less than those with an external locus of control, possibly because they felt more able to control their bodies, and therefore that it was worth limiting their food intake. The fact that none of the other independent variables included appeared to be significant does not mean that they definitely do not play a role in women's eating behavior post-exposure to idealized advertising. Previous research would suggest that they should have some influence, because factors such as self-esteem and body comparison tendency do have an effect on body image, and body image is related to eating disorders. In this study, it is possible that the effect of the exposure condition simply overwhelmed the influence of all the other variables. The results suggest that women's eating behavior, as affected by advertising, is primarily situational (i.e. depends mainly on whether there is a thin model in the ad), rather than personal.

Some of the most interesting results of the study are that women's behavior and attitude do not appear to be negatively affected by exposure to thin-body ads, as is so often assumed. From this sample, it seems that the blame attributed to advertisers in making women feel bad about themselves and therefore resulting in changes to eating behavior, is unfounded. The relatively low index scores for both behavior and attitude indicate that, in general, this group of women were not particularly negatively affected by exposure to the ads. (Of course, the high scores of a minority of women do help support the view that some women are more vulnerable to the influence of thin-ideal advertising.) Furthermore, that the majority of women believe that fashion models represent a highly unrealistic ideal is a valuable finding, as it is positive they recognize

that the body shape is not easily attained. However, that most women also believe the models are much thinner than they are also indicates a risk in these advertising images, as it increases the likelihood that women, at some point, will make negative comparisons with the models and feel worse about their own bodies, potentially restricting their eating.

Within the behavior measures, that the majority of women reported appetite effects of exposure is also an important implication. Women felt less hungry and were not craving chocolate, a clearly high-calorie food, after seeing the ads. Therefore, even if they do not realize that exposure has had an effect on eating behavior, changes in appetite are likely to have a short term effect on eating. However this seems at odds with the fact that women in the thin-body condition ate more after seeing the ads than those who viewed product-only ads. It would have seemed more likely that if women claimed not to feel hungry after seeing the ads, that they would have eaten less. Perhaps this demonstrates the value of measuring weight of food taken as opposed to using self-report measures of eating behavior.

Like most experimental research in this area, this study only considered short-term effects of exposure to the thin-ideal in advertising. However, if effects can be demonstrated in the short term, it makes sense that long term effects would also exist. A limitation of the study is that there are possible thinness/attractiveness confounds. It is possible that simply viewing a very attractive model, regardless of thinness, is enough to make women feel bad about themselves and eat less. (Attractiveness may not depend heavily on thinness, as suggested by Halliwell and Dittmar, 2004.) It is also uncertain whether the effect on eating behavior found is wholly due to the presence of *thin* models in the advertisements, or merely the presence of a person. It

would be worth repeating the experiments with a third exposure condition of average-sized models (perhaps controlling for attractiveness by digitally manipulating one set of images to create different body sizes of the same model) to compare eating behavior between the three groups. Furthermore, a larger sample size may raise the possibility of significant effects, since the current study only involved 75 women.

The results of this study clarify that exposure to thin-body advertising *does* have an effect on eating behavior (along with dietary restraint status), and they give further evidence of the complexity of the role of media images in disordered eating. If eating behavior is altered (in any direction) by such a short period of exposure, it makes sense that developing disordered eating may indeed be influenced by thin-body ads, but at the same time, the heavy blame placed on the media is somewhat excessive, as the majority of women did not feel very different about themselves. The study failed to identify emotional or personality characteristics which reliably predicted disturbed eating, so no clear 'risk factors' were identified. This is clearly an area requiring further study.

## APPENDIX

### Annotated Copies of Study Questionnaires

PERSONALITY AND ADVERTISING EFFECTIVENESS QUESTIONNAIRE

Thank you for agreeing to participate in my study. I am trying to gain knowledge on how different personalities influence the effectiveness of advertising.

*Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.*

The rating scale is as follows:

0 Did not apply to me at all

1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree, or a good part of the time

3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3

20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

**(DEPRESSION, ANXIETY AND STRESS SCALE)**

*Moving on, below is a list of statements dealing with your general feelings about yourself. Choose the option which best represents your feelings.*

**(SELF-ESTEEM SCALE)**

The rating scale is as follows:

SA If you strongly agree with the statement

A If you agree with the statement

D If you disagree with the statement

SD If you strongly disagree with the statement

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

*For each of the following pairs of statements, choose either a or b, which best represents your feelings. Circle your choice in each case.*

**(LOCUS OF CONTROL SCALE)**

- a. Many of the unhappy things in people's lives are partly due to bad luck
- b. People's misfortunes result from the mistakes they make
  
- a. In the long run, people get the respect they deserve in the world
- b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he/she tries
  
- a. Without the right breaks, one cannot be an effective leader
- b. Capable people who fail to become leaders have not taken advantage of their opportunities

- a. Becoming a success is a matter of hard work, luck has little or nothing to do with it
- b. Getting a good job depends mainly on being in the right place at the right time
  
- a. The average citizen can have an influence on government decisions
- b. The world is run by a few people in power, and there is not much the average man or woman can do about it
  
- a. When I make plans, I am almost certain I can make them work
- b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune
  
- a. In my case, getting what I want has little or nothing to do with luck
- b. Many times we might just as well decide what to do by flipping a coin
  
- a. Many times I feel that I have little influence over the things that happen to me in my life
- b. It is impossible for me to believe that chance or luck plays an important role in my life.
  
- a. As far as the world is concerned most of us are the victims of forces we can neither understand, nor control
- b. By taking an active part in political and social affairs, people can control world events
  
- a. Most people do not realize the extent to which their lives are controlled by accidental happenings
- b. There really is no such thing as luck
  
- a. It is hard to know whether or not a person really likes you
- b. How many friends you have depends on how nice a person you are
  
- a. Sometimes I cannot understand how teachers/professors arrive at the grade they give
- b. There is a direct connection between how hard I study and the grades I get

*Please could you now provide:*

**Your age:** .....

**Are you a:**  
 Freshman    Sophomore    Junior    Senior    Graduate student    Other

**Major:** .....

**Net ID/name:** .....

### ADVERTISEMENT RATING QUESTIONNAIRE

Please rate each advertisement in the booklet in turn, in terms of each of the following measures, using the scale below:

Strongly Disagree					Neither agree nor disagree					Strongly Agree
1	2	3	4	5	6	7	8	9		

#### ADVERTISEMENT 1

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

#### ADVERTISEMENT 2

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

#### ADVERTISEMENT 3

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

#### ADVERTISEMENT 4

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

ADVERTISEMENT 5

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

ADVERTISEMENT 6

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

ADVERTISEMENT 7

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

ADVERTISEMENT 8

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

ADVERTISEMENT 9

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9

Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9
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**ADVERTISEMENT 10**

If I saw this advertisement in a magazine, it would catch my eye	1	2	3	4	5	6	7	8	9
I like the layout of the advertisement	1	2	3	4	5	6	7	8	9
The advertisement is creatively designed	1	2	3	4	5	6	7	8	9
This advertisement is likely to raise my interest in the product	1	2	3	4	5	6	7	8	9
Overall, I feel this advertisement effectively promotes the product	1	2	3	4	5	6	7	8	9

**Please enter your Net ID/name: .....**

**TASTE RATINGS**

Please rate each snack you have sampled today, in terms of each of the following measures, using the scale below:

Strongly <u>Disagree</u>					Neither agree nor disagree					Strongly <u>Agree</u>
1	2	3	4	5	6	7	8	9		

**SNACK 1: MINI PRETZELS**

This snack is appealing to look at	1	2	3	4	5	6	7	8	9
This snack is something I would choose of my own accord when shopping	1	2	3	4	5	6	7	8	9
The snack is too salty for my liking	1	2	3	4	5	6	7	8	9
The snack is too bland for my liking	1	2	3	4	5	6	7	8	9
The snack is too sweet for my liking	1	2	3	4	5	6	7	8	9
I would choose to eat this snack as a ‘treat’ only	1	2	3	4	5	6	7	8	9
This snack is a healthy choice	1	2	3	4	5	6	7	8	9
I enjoyed this snack	1	2	3	4	5	6	7	8	9

**SNACK 2: CARROT STICKS**

This snack is appealing to look at	1	2	3	4	5	6	7	8	9
This snack is something I would choose of my own accord when shopping	1	2	3	4	5	6	7	8	9
The snack is too salty for my liking	1	2	3	4	5	6	7	8	9
The snack is too bland for my liking	1	2	3	4	5	6	7	8	9
The snack is too sweet for my liking	1	2	3	4	5	6	7	8	9
I would choose to eat this snack as a ‘treat’ only	1	2	3	4	5	6	7	8	9
This snack is a healthy choice	1	2	3	4	5	6	7	8	9
I enjoyed this snack	1	2	3	4	5	6	7	8	9

**SNACK 3: M&Ms**

This snack is appealing to look at	1	2	3	4	5	6	7	8	9
This snack is something I would choose of my own accord when shopping	1	2	3	4	5	6	7	8	9
The snack is too salty for my liking	1	2	3	4	5	6	7	8	9
The snack is too bland for my liking	1	2	3	4	5	6	7	8	9
The snack is too sweet for my liking	1	2	3	4	5	6	7	8	9

I would choose to eat this snack as a 'treat' only	1	2	3	4	5	6	7	8	9
This snack is a healthy choice	1	2	3	4	5	6	7	8	9
I enjoyed this snack	1	2	3	4	5	6	7	8	9

Please estimate how many calories, in total (combining all 3 snack items) you think you consumed today:

.....

Using the same rating scale, indicate the extent to which you agree with the following statements:

I ate fewer mini pretzels than I might typically have taken as a snack	1	2	3	4	5	6	7	8	9
I ate fewer carrot sticks than I might typically have taken as a snack	1	2	3	4	5	6	7	8	9
I ate fewer M&Ms than I might typically have taken as a snack	1	2	3	4	5	6	7	8	9

**Please enter your Net ID/name: .....**

TASTE PREFERENCES AND DIET QUESTIONNAIRE LABELS)

(THIN-BODY ADS: WITH ADDED

Thinking back to the ads you saw earlier, please indicate the extent to which you agree or disagree with the following statements, using this scale:

Strongly Disagree					Neither agree nor disagree					Strongly Agree
1	2	3	4	5	6	7	8	9		

After seeing the ads I'll try to eat less <b>B</b>	1	2	3	4	5	6	7	8	9
The ads have inspired me to do more exercise <b>B</b>	1	2	3	4	5	6	7	8	9
The ads are likely to make me eat more healthy foods <b>B</b>	1	2	3	4	5	6	7	8	9
After seeing the ads I was craving chocolate <b>B</b>	1	2	3	4	5	6	7	8	9
After seeing the ads I felt hungry <b>B</b>	1	2	3	4	5	6	7	8	9
After seeing the ads I felt like going to the gym <b>B</b>	1	2	3	4	5	6	7	8	9
After seeing the ads I had less appetite <b>B</b>	1	2	3	4	5	6	7	8	9
The ads are likely to affect my eating behavior in the short term <b>B</b>	1	2	3	4	5	6	7	8	9
The ads are likely to affect my eating behavior in the long term <b>B</b>	1	2	3	4	5	6	7	8	9
After seeing the ads my eating behavior won't change <b>B</b>	1	2	3	4	5	6	7	8	9
The ads are unlikely to affect my exercise habits <b>B</b>	1	2	3	4	5	6	7	8	9
The ads I saw made me feel fat <b>P</b>	1	2	3	4	5	6	7	8	9
The ads made me feel less attractive <b>P</b>	1	2	3	4	5	6	7	8	9
The ads made me think about my own body shape <b>P</b>	1	2	3	4	5	6	7	8	9
A thin body shape, as represented by these models, is the most attractive <b>P</b>	1	2	3	4	5	6	7	8	9
The models represent an unrealistic shape to aspire to <b>P</b>	1	2	3	4	5	6	7	8	9
The ads made me feel good about my body <b>P</b>	1	2	3	4	5	6	7	8	9
I believe the models are much thinner than me <b>P</b>	1	2	3	4	5	6	7	8	9
The ads made me think about how I compare to the models <b>A</b>	1	2	3	4	5	6	7	8	9

The ads made me self-conscious about my weight <b>A</b>	1	2	3	4	5	6	7	8	9
The ads made me self-conscious about my appearance <b>A</b>	1	2	3	4	5	6	7	8	9
The ads made me feel I do not live up to an 'ideal' <b>A</b>	1	2	3	4	5	6	7	8	9
The ads had no influence on my self-perception <b>A</b>	1	2	3	4	5	6	7	8	9
I feel worse about myself after looking at the ads <b>A</b>	1	2	3	4	5	6	7	8	9
I do not wish I looked like the models <b>A</b>	1	2	3	4	5	6	7	8	9
I noticed that there were photos of beautiful women in most of the ads I saw <b>M</b>	1	2	3	4	5	6	7	8	9
The model was the most eye-catching aspect of most of the ads <b>M</b>	1	2	3	4	5	6	7	8	9
I did not notice the models' body shapes <b>M</b>	1	2	3	4	5	6	7	8	9
I focused more on the pictures than the words <b>M</b>	1	2	3	4	5	6	7	8	9
Most of the ads I saw contained very attractive women <b>M</b>	1	2	3	4	5	6	7	8	9
I noticed that there were few 'product-only' ads in the booklet <b>M</b>	1	2	3	4	5	6	7	8	9
All of the women had a thinner than average body shape <b>M</b>	1	2	3	4	5	6	7	8	9
33) The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others	1	2	3	4	5	6	7	8	9
34) Comparing your looks to the looks of others is a bad way to determine if you are attractive or unattractive	1	2	3	4	5	6	7	8	9
35) I am very content with my body weight	1	2	3	4	5	6	7	8	9
36) I am very satisfied with my physical appearance	1	2	3	4	5	6	7	8	9
37) I consider myself to be very attractive	1	2	3	4	5	6	7	8	9
38) I am often told that I am good looking	1	2	3	4	5	6	7	8	9
39) Members of the opposite sex find me attractive	1	2	3	4	5	6	7	8	9
40) I feel I am sexy	1	2	3	4	5	6	7	8	9
41) Physically, I am in good shape	1	2	3	4	5	6	7	8	9
42) Women who appear in TV shows and movies project the type of appearance I see as my goal	1	2	3	4	5	6	7	8	9
43) I believe that clothes look better on thin models	1	2	3	4	5	6	7	8	9
44) Music videos that show thin women make me wish that I were thin	1	2	3	4	5	6	7	8	9
45) I do not wish to look like the models in magazines	1	2	3	4	5	6	7	8	9

46) I tend to compare my body to people in magazines and on TV	1	2	3	4	5	6	7	8	9
47) In our society, fat people are not regarded as unattractive	1	2	3	4	5	6	7	8	9
48) Photographs of thin women make me wish that I were thin	1	2	3	4	5	6	7	8	9
49) Attractiveness is very important if you want to get ahead in our culture	1	2	3	4	5	6	7	8	9
50) It's important for people to work hard on their figures/physiques if they want to succeed in today's culture	1	2	3	4	5	6	7	8	9
51) Most people do not believe that the thinner you are, the better you look	1	2	3	4	5	6	7	8	9
52) People think that the thinner you are, the better you look in clothes	1	2	3	4	5	6	7	8	9
53) In today's society, it's not important to always look attractive	1	2	3	4	5	6	7	8	9
54) I wish I looked like a swimsuit model	1	2	3	4	5	6	7	8	9
55) I often read magazines like Cosmopolitan, Vogue, and Glamour, and compare my appearance to the models	1	2	3	4	5	6	7	8	9

**B=BEHAVIOR MEASURES, P=PROCESS MEASURES, A=ATTITUDE MEASURES, M=MANIPULATION CHECKS**  
**Q33-34=BODY COMPARISON, Q35-41=BODY SATISFACTION, Q42-55=AWARENESS AND INTERNALIZATION (AWARENESS=Q47,49,50,51,52,53; INTERNALIZATION=OTHERS)**

*For each of the following questions or statements, please circle the answer that comes closest to how you feel.* (1<sup>ST</sup> 10 QUESTIONS: DIETARY RESTRAINT)

**How often are you dieting?**

Never      Rarely      Sometimes      Usually      Always

**What is the maximum amount of weight (in pounds) you have ever lost within one month?**

0-4      5-9      10-14      15-19      20+

**What is your maximum weight gain within a week?**

0-1      1.1-2      2.1-3      3.1-5      5.1+

**In a typical week, how much does your weight fluctuate?**

0-1      1.1-2      2.1-3      3.1-5      5.1+

**Would a weight fluctuation of 5lb affect the way you live your life?**

Not at all      Slightly      Moderately      Very much

**Do you eat sensibly in front of others and splurge alone?**

Never      Rarely      Sometimes      Usually      Always

**Do you give too much time and thought to food?**

Never      Rarely      Sometimes      Usually      Always

**Do you have feelings of guilt after over-eating?**

Never      Rarely      Sometimes      Usually      Always

**How conscious are you of what you're eating?**

Not at all      Slightly      Moderately      Very much

**How many pounds over your desired weight were you at your maximum weight?**

0-1      1-5      6-10      11-20      21+

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

Never      Rarely      Sometimes      Usually      Always

**(BODY COMPARISON)**

**At parties or other social events, I compare how I am dressed to how other people are dressed:**

Never      Rarely      Sometimes      Usually      Always

**(BODY COMPARISON)**

**In social situations, I sometimes compare my figure to the figures of others:**

Never      Rarely      Sometimes      Usually      Always

**(BODY COMPARISON)**

*Please could you now provide:*

**Net ID/name:** .....

**Your height:** .....

**Your weight (lbs):** .....

TASTE PREFERENCES AND DIET QUESTIONNAIRE

**(PRODUCT-ONLY ADS: OMITTS BEHAVIOR MEASURES, PROCESS MEASURES, ATTITUDE MEASURES AND MANIPULATION CHECKS)**

Please indicate the extent to which you agree or disagree with the following statements, on the topic of diet and weight-related issues, using this scale:

Strongly Disagree	Neither agree nor disagree						Strongly Agree	
1	2	3	4	5	6	7	8	9

The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others	1	2	3	4	5	6	7	8	9
Comparing your looks to the looks of others is a bad way to determine if you are attractive or unattractive	1	2	3	4	5	6	7	8	9
I am very content with my body weight	1	2	3	4	5	6	7	8	9
I am very satisfied with my physical appearance	1	2	3	4	5	6	7	8	9
I consider myself to be very attractive	1	2	3	4	5	6	7	8	9
I am often told that I am good looking	1	2	3	4	5	6	7	8	9
Members of the opposite sex find me attractive	1	2	3	4	5	6	7	8	9
I feel I am sexy	1	2	3	4	5	6	7	8	9
Physically, I am in good shape	1	2	3	4	5	6	7	8	9
Women who appear in TV shows and movies project the type of appearance I see as my goal	1	2	3	4	5	6	7	8	9
I believe that clothes look better on thin models	1	2	3	4	5	6	7	8	9
Music videos that show thin women make me wish that I were thin	1	2	3	4	5	6	7	8	9
I do not wish to look like the models in magazines	1	2	3	4	5	6	7	8	9
I tend to compare my body to people in magazines and on TV	1	2	3	4	5	6	7	8	9
In our society, fat people are not regarded as unattractive	1	2	3	4	5	6	7	8	9
Photographs of thin women make me wish that I were thin	1	2	3	4	5	6	7	8	9
Attractiveness is very important if you want to get ahead in our culture	1	2	3	4	5	6	7	8	9
It's important for people to work hard on their figures/physiques if they want to succeed in today's culture	1	2	3	4	5	6	7	8	9
Most people do not believe that the thinner you are, the better you look	1	2	3	4	5	6	7	8	9
People think that the thinner you are, the better you look in clothes	1	2	3	4	5	6	7	8	9
In today's society, it's not important to always look attractive	1	2	3	4	5	6	7	8	9

I wish I looked like a swimsuit model	1	2	3	4	5	6	7	8	9
I often read magazines like Cosmopolitan, Vogue, and Glamour, and compare my appearance to the models	1	2	3	4	5	6	7	8	9

*For each of the following questions or statements, please circle the answer that comes closest to how you feel.*

**How often are you dieting?**

Never      Rarely      Sometimes      Usually      Always

**What is the maximum amount of weight (in pounds) you have ever lost within one month?**

0-4      5-9      10-14      15-19      20+

**What is your maximum weight gain within a week?**

0-1      1.1-2      2.1-3      3.1-5      5.1+

**In a typical week, how much does your weight fluctuate?**

0-1      1.1-2      2.1-3      3.1-5      5.1+

**Would a weight fluctuation of 5lb affect the way you live your life?**

Not at all      Slightly      Moderately      Very much

**Do you eat sensibly in front of others and splurge alone?**

Never      Rarely      Sometimes      Usually      Always

**Do you give too much time and thought to food?**

Never      Rarely      Sometimes      Usually      Always

**Do you have feelings of guilt after over-eating?**

Never      Rarely      Sometimes      Usually      Always

**How conscious are you of what you're eating?**

Not at all      Slightly      Moderately      Very much

**How many pounds over your desired weight were you at your maximum weight?**

0-1      1-5      6-10      11-20      21+

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

Never      Rarely      Sometimes      Usually      Always

**At parties or other social events, I compare how I am dressed to how other people are dressed:**

Never      Rarely      Sometimes      Usually      Always

**In social situations, I sometimes compare my figure to the figures of others:**

Never      Rarely      Sometimes      Usually      Always

*Please could you now provide:*

**Net ID/name:** .....

**Your height:** ..... **Your weight (lbs):** .....

**Thank you very much for your help with the study, it is greatly appreciated!**

## REFERENCES

- Agliata, D., & Tantleff-Dunn, S. (2004). The impact of media exposure on males' body image. *Journal of Social and Clinical Psychology, 23*(1), 7-22.
- Atkinson, C., & Polivy, J. (1976) Effects of delay and attack and retaliation on state depression and hostility. *Journal of Abnormal Psychology, 85*, 570-576.
- Bearden, W.O., & Rose, R.L. (1993). Attention to Social Comparison Information: An individual difference factor affecting consumer conformity. *Journal of Consumer Research, 16*, 461-471.
- Bessenoff, G.R., & Del Priore R.E. (2007). Women, weight, and age: Social comparison to magazine images across the lifespan. *Sex Roles, 56*, 215-222.
- Botta, R.A. (2000). The mirror of television: A comparison of black and white adolescents' body image. *Journal of Communication, 50*(3), 144-159.
- Centers for Disease Control and Prevention (2007). *BMI- Body Mass Index*. [Online]. Available at [http://www.cdc.gov/nccdphp/dnpa/bmi/adult\\_BMI/about\\_adult\\_BMI.htm](http://www.cdc.gov/nccdphp/dnpa/bmi/adult_BMI/about_adult_BMI.htm). Accessed 4/30/08.
- Champion, H., & Furnham, A. (1999). The effect of the media on body satisfaction in adolescent girls. *European Eating Disorders Review, 7*, 213-228.
- Cusumano, D.L., & Thompson, J.K. (1997). Body image and body shape ideals in magazines: Exposure, awareness and internalization. *Sex Roles, 37*(9/10), 701-721.
- Dittmar, H., & Howard, S. (2004). Professional hazards? The impact of models' body size on advertising effectiveness and women's body-focused anxiety in professions that do and do not emphasize the cultural ideal of thinness. *British Journal of Social Psychology, 43*, 477-497.
- Durkin, S.J., & Paxton, S.J. (2002). Predictors of vulnerability to reduced body image satisfaction and psychological wellbeing in response to exposure to idealized female media images in adolescent girls. *Journal of Psychosomatic Research, 53*, 995-1005.
- Festinger, L. (1954). A Theory of Social Comparison Processes. *Human Relations, 7*, 117-140.
- Frederickson, B.L., Roberts, T. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly, 21*, 173-206.

- Garner, D.M., Garfinkel, P.E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. *Psychological Reports, 47*, 483-491.
- Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1980). The 'mainstreaming' of America: Violence profile No. 11. *Journal of Communication, 30*, 10-29.
- Groesz, L.M., Levine, M.P., & Murnen, S.K. (2002). The experimental presentation of thin media images on body dissatisfaction: a meta-analytic review. *International Journal of Eating Disorders, 31*, 1-16.
- Halliwell, E., Dittmar, H. (2004). Does size matter? The impact of model's body size on women's body-focused anxiety and advertising effectiveness. *Journal of Social and Clinical Psychology, 23*(1), 104-122.
- Halliwell, E., Dittmar, H., & Howe, J. (2005). Short Research Note. The impact of advertisements featuring ultra-thin or average-size models on women with a history of eating disorders. *Journal of Community and Applied Social Psychology, 15*, 406-413.
- Harrison, K., & Cantor, J. (1997). The relationship between media consumption and eating disorders. *Journal of Communication, 47*, 40-67.
- Harrison, K., Taylor, L.D., & Marske, A.L. (2006). Women's and men's eating behavior following exposure to ideal-body images and text. *Communication Research, 33*, 507-529.
- Heatherton, T.F., & Polivy, J. (1992). Chronic dieting and eating disorders: A spiral model. In J.H. Crowther, S.E. Hobfall, M.A.P. Stephens, & D.L. Tennenbaum (Eds.), *The etiology of bulimia: The individual and familial context*. Washington, DC: Hemisphere.
- Heinberg, L., Thompson, J.K., & Stormer, S. (1995). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire. *International Journal of Eating Disorders, 17*, 81-89.
- Henderson-King, E., & Henderson-King, D. (1997). Media effects on women's body esteem: Social and individual difference factors. *Journal of Applied Social Psychology, 27*, 399-417.
- Hersen, M., & Bellack, S. (Eds.) (1998). *Dictionary of behavioral assessment techniques*. New York: Pergamon.
- Herman, C.P., & Polivy, J. (1980). Restrained Eating. In A.J. Stunkard (Ed.), *Obesity* (pp. 208-225). Philadelphia: Saunders.

- Hesse-Biber, S., Leavy, P., Quinn, C.E., & Zoino, J. (2006). The mass marketing of disordered eating and Eating Disorders: The social psychology of women, thinness and culture. *Women's Studies International Forum*, 29, 208-224.
- Hill, A.J. (1996). Dietary Restraint. *Nutrition Bulletin*, 21(3), 209-215.
- Jansen, A., & de Vries, M. (2002). Pre-attentive exposure to the thin female beauty ideal does not affect women's mood, self-esteem and eating behavior. *European Eating Disorders Review*, 10, 208-217.
- Joshi, R., Herman C.P., & Polivy J. (2004). Self-enhancing effects of exposure to thin-body images. *International Journal of Eating Disorders*, 35, 333-341.
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology*, 73, 91-103.
- Lovibond, S.H., & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales* (2<sup>nd</sup> ed.) Sydney: Psychology Foundation.
- Malson, H., (1998). *The Thin Woman*. London: Routledge.
- Markus, C.R., Panhuysen, G., Tuiten, A., Koppeschaar, H., Fekkes, D., Peters, M.L. (1998). Does carbohydrate-rich, protein-poor food prevent a deterioration of mood and cognitive performance of stress-prone subjects when subjected to a stressful task? *Appetite*, 31, 49-65.
- Mills, J.S., Polivy, J., Herman, C.P., & Tiggemann, M. (2002). Effects of exposure to thin media images: Evidence of self-enhancement among restrained eaters. *Personality and Social Psychology Bulletin*, 28, 1687-1699.
- Mishkind, M.E., Rodin, J., Silberstein, L.R., & Streigel-Moore, R.H. (1986). The embodiment of masculinity. *American Behavioral Scientist*, 29(5), 545-562.
- Monro, F.J., & Huon, G.F. (2006). Media-portrayed idealized images, self-objectification, and eating behavior. *Eating Behaviors*, 7, 375-383.
- Myers, P.N., & Biocca, F.A. (1992). The elastic body image: The effect of television advertising and programming on body image distortions in young women. *Journal of Communication*, 42, 108-133.
- Nemeroff, C.J., Stein, R.I., Diehl, N.S., & Smilak, K.M. (1994). From the Cleavers to the Clintons: Role choices and body orientation as reflected in magazine article content. *International Journal of Eating Disorders*, 16 (2), 167-176.

Polivy, J., Herman, C.P., & Warsh (1978). Internal and external components of emotionality in restrained and unrestrained eaters. *Journal of Abnormal Psychology*, 87(5), 487-504.

Polivy, J., & Herman, C.P. (2004). Sociocultural idealization of thin female body shapes: An introduction to the special issue on body image and eating disorders. *Journal of Social and Clinical Psychology*, 23(1), 1-6.

Pyle, R.L., Neuman, P.A., Halvorson, P.A., & Mitchell, J.E. (1990). An ongoing cross-sectional study of the prevalence of eating disorders in freshman college students. *International Journal of Eating Disorders*, 10(6), 667-677.

Richins, M.L. (1991). Social comparison and the idealized images of advertising. *The Journal of Consumer Research*, 18(1), 71-83.

Rosenberg, M. (1965). *Society and adolescent self-image*. New York: Princeton University.

Rotter, J.B. (1966). Generalized expectations for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 80(1), 1-28.

Seddon, L., & Berry, N. (1996). Media-induced disinhibition of dietary restraint. *British Journal of Health Psychology*, 1, 27-33.

Signorielli, N., & Morgan, M. (1990). *Cultivation Analysis: New Directions in Media Effects Research*. Newbury Park, CA: Sage.

Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. *Clinical Psychology Review*, 14, 633-661.

Stice, E., Schupak-Neuberg, E., Shaw, H.E., & Stein, R.I., (1994). Relation of media exposure to eating disorder symptomatology: An examination of mediating mechanisms. *Journal of Abnormal Psychology*, 103, 836-840.

Stice, E., Spangler, D., & Agras, W.S. (2001). Exposure to media-portrayed thin-ideal images adversely affects vulnerable girls: A longitudinal experiment. *Journal of Social and Clinical Psychology*, 20, 270-288.

Strauss, J., Doyle, A.E., & Kreipe, R.E. (1994). The paradoxical effect of diet commercials on reinhibition of dietary restraint. *Journal of Abnormal Psychology*, 103, 441-444.

Sypeck, M.F., Gray, J.J., & Ahrens, A.H. (2004). No longer just a pretty face: Fashion magazines' depictions of ideal female beauty from 1959 to 1999. *International Journal of Eating Disorders*, 36, 342-347.

- Thompson, J.K., Heinberg, L.J., & Tantleff-Dunn, S. (1991). The Physical Appearance Comparison Scale (PACS). *Behavior Therapist*, 14, 174.
- Tiggemann, M. (2003). Media exposure, body dissatisfaction and disordered eating: Television and magazines are not the same. *European Eating Disorders Review*, 11, 418-430.
- Tiggemann, M., & Pickering, A.S. (1996). Role of television in adolescent women's body dissatisfaction and drive for thinness. *International Journal of Eating Disorders*, 20, 199-203.
- Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of magazine advertisements on women's mood and body satisfaction. *Journal of Social and Clinical Psychology*, 23(1), 23-44.
- Tiggemann, M. (2006). The role of media exposure in adolescent girls' body dissatisfaction and drive for thinness: Prospective results. *Journal of Social and Clinical Psychology*, 25(5), 523-541.
- Van den Bree, M.B.M., Przybeck, T.R., & Cloninger, C.R. (2006). Diet and personality: Associations in a population-based sample. *Appetite*, 46, 177-188.
- Venkat, R., & Ogden, H. (2002). Advertising-induced social comparison and body-image satisfaction: The moderating role of gender, self-esteem and locus of control. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, 15, 51-67.
- Warren CS, Strauss J, Taska JL, Sullivan SJ (2005). Inspiring or dispiriting? The effect of diet commercials on snack food consumption in high school and college-aged women. *International Journal of Eating Disorders* 37, 266-270.
- Wilcox, K., & Laird, J.D. (2000). Impact of media images of super-slender women on women's self-esteem: Identification, social comparison and self-perception. *Journal of Research in Personality*, 34(2), 278-286.
- Wiseman, C.V., Gray, J.J., Mosimann, J.E., & Ahrens, A.H. (1992). Cultural expectations of thinness in women: An update. *International Journal of Eating Disorders*, 11, 85-89.
- Wolf, N. (1992). *The beauty myth: How images of beauty are used against women*. Inc, New York: William Morrow and Company.

Women's eNews (2006). Fashion world says too thin is too hazardous. Juliette Terzieff, September 24, 2006 [Online]. Available at [www.womensenews.org/article.cfm/dyn/aid/2899/](http://www.womensenews.org/article.cfm/dyn/aid/2899/) Accessed 4/30/08.