Running Head: EFFECTS OF THIN-IDEAL VS. NATURAL-IDEAL MEDIA IMAGES

Is Big Really Beautiful?:
Effects of Thin-Ideal vs. Natural-Ideal Media Images on Body Dissatisfaction
in Young Adult Females

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Declaration

I hereby declare that this thesis is my own work. I have acknowledged material from the work of other people and I have clearly marked and given references to all quotations.

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Acknowledgements

Abstract

In line with sociocultural theory, previous studies found that exposure to ultra-thin models in the media can lead to increased body image disturbance in the short term which may have secondary effects including eating pathologies and depression. The present study compared the influence of thin-ideal, natural-ideal, and no-model media images on four measures of body image disturbance (drive for thinness, state body dissatisfaction, state weight dissatisfaction, state body anxiety) of young adult females. The results indicate that the effects of thin-ideal and natural-ideal media images are highly dependent on individual difference measures including trait body anxiety. Refuting the hypotheses, the results showed that natural-ideal images only deceased body image disturbance for women with high trait body anxiety but increased it for women with low trait body anxiety. Alternative ways of decreasing body image disturbance are discussed.

Key words: body image disturbance, body anxiety, natural-ideal, females

Introduction

For decades, women in Western cultures have been told by society and by the media that being slim is the key to success in life. No catwalk without those skinny beauties showing off the latest fashion in size zero, no evening in front of the TV without shows like "The Swan", "I want a famous face" or "America's/Australia's/Germany's/you name it… Next Topmodel", and no fashion magazine without at least a handful of diet ads, telling women how to reach their bikini goal and look their best.

The intuitive truth that the media in Western cultures are filled with increasingly unrealistic beauty ideals and thereby impose a societal standard of thinness on women is supported by sociocultural theory. "This theory purports that individuals, particularly women, are exposed to pervasive, culturewide ideals and expectations regarding what is deemed attractive" (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999, p. 125). Empirical studies further corroborate the omnipresence of the societally sanctioned norms of female thinness in the media (Hargreaves & Tiggemann, 2002; Levine & Smolak, 1996). In their dated, albeit famous content analysis, Garner, Garfinkel, Schwartz, and Thompson (1980) compared the bodyweight of models entering the Miss America Pageant beauty contest as well as models presented in the Playboy Magazine centerfolds from 1959 to 1978 to the bodyweight of the average female U.S. population. Garner et al. found that the weight of the models was significantly lower than that of the average U.S. female. Also, mean weights of the centerfolds and contestants decreased during this period, while the mean weight of the general population increased. Wiseman, Gray, Mosimann, and Ahrens (1992) corroborated the findings of Garner et al. (1980) with data ranging from 1979-1988 and added that there had been a significant increase in both diet articles and exercise articles in women's magazines from 1959-1988. The authors

concluded that the overvaluation of thinness and attractiveness had not stopped but rather intensified during the analyzed period.

Similarly, Downs and Harris (1985) examined the frequency of attractiveness-based messages in U.S. American television commercials. Their results showed that one fourth of the commercials contained some form of attractiveness messages and that every tenth commercial unambiguously stressed the importance of beauty. Surprisingly, this was even true for commercials advertising appearance-unrelated products. Also, women were far more often associated with the attractiveness stereotype than men. Since there is no evidence that this trend has stopped, the media are frequently criticized for their role in the creation and perpetuation of an increasingly unrealistic female beauty ideal. However, how do the media contribute to the sociocultural norms of ideal appearance? Why is it that women feel pressured by thin-ideal media images?

Social Comparison Theory and Self-Discrepancy Theory. According to social comparison theory (Festinger, 1954), individuals have an innate drive to evaluate their abilities and opinions. If an objective or non-social basis for the evaluation is unavailable, individuals tend to compare themselves to others who then serve as reference points. Individuals tend to choose reference points that are comparable to themselves on the relevant dimensions. Comparison with someone who is superior on the relevant dimension is called upward; comparison with someone who is inferior is called downward (Kruglanski & Mayseless, 1990; Thompson et al., 1999). While downward comparison can be a mechanism of self-enhancement, upward comparison often serves as motivational source for improvement. However, since there is always a biological ceiling with respect to the maximally possible achievements for every individual in any discipline, individuals may enter a state of perpetual upward social comparison

(Wood, 1989). According to self-discrepancy theory (Higgins, 1987), this state is associated with anger, decreased self-esteem, and depression.

Beauty can be defined as the ability to conform to the societal standards of attractiveness and thinness that are endorsed by a certain culture. Because there are no objective standards of beauty, individuals have to search for reference points to find out how they compare to others with respect to appearance and thinness. The pressure to conform to the current societally sanctioned standards of thinness and attractiveness becomes graver the more self-relevant beauty is for the individual, the more the individual would like to become a member of the comparison group (i. e. fashion models), and the more pronounced the perceived discrepancies with the sociocultural beauty standards are. The recurring confrontation with the all-pervasive and hardly attainable beauty image as it is communicated by the media may thus cause a perpetual upward social comparison, which, in turn, may have devastating consequences for the female body image (Cattarin, Thompson, Thomas, & Williams, 2000; Higgins, 1987; Myers & Biocca, 1992; Salovey & Rodin, 1984).

Body Image and Self-Schema Theory. The term *body image* can be defined as the self-ascribed degree of attractiveness, "our own internal view of how we look, how we think we appear to others, and how we feel about our looks" (Thompson et al., 1999, p. 3). The subjective component is central to the term. A person can be judged attractive by others but nevertheless have a negative body image. A negative body image is called body image disturbance. Body image disturbance can include *affective* (e. g. anxiety), *cognitive* (e. g. expectations), *behavioral* (e. g. avoiding situations that expose the body), and *perceptual* (e. g. overestimation of one's body size) features and its levels may range from *none* to *extremely high* with most individuals falling somewhere in the middle (Thompson et al., 1999, p. 7). The degrees of concern, distress, or dissatisfaction with the

own body and/or bodyweight can be expressed as a specific value on a continuum. Body image disturbance is thus not a negative concept per se; it may actually bear beneficial aspects. Moderate levels of body image disturbance may motivate people to eat a healthy diet, to exercise frequently, and to generally take good care of their body. However, as soon as body image disturbance reaches a clinically severe level, it becomes a predictor of restrictive eating behavior including bingeing, purging, and starvation. At the far end of the continuum, body image disturbance may lead to critical social and occupational dysfunctions. Not every individual with signs of body image disturbance is bound to develop eating pathologies. However, every individual with eating pathologies shows severe signs of body image disturbance (Cattarin & Thompson, 1994; Thompson et al., 1999).

The concept of body image is closely linked to the term *body schema* (also called appearance schema). Coined by Head in 1926, body schema is said to serve as a reference point for organizing new information about one's appearance (Thompson et al., 1999, p. 5). The body schema is one of several self-schemas, which are held by every individual. These "cognitive generalizations about the self, derived from past experience, that organize and guide the processing of self-related information contained in the individual's social experience" (Markus, 1977, p. 64) are vital with respect to forming an impression about the self concerning any area of life. The extent to which an individual's body schema is activated at a certain point in time differs, however. While information about attractiveness, body shapes, thinness, and the like can make the body schema salient for any individual at any point in time, there are also differences with respect to how salient these topics are on a permanent basis. This can be linked to social comparison theory. Although every person has the general drive to engage in social comparisons (Festinger, 1954), the extent and frequency with which a person engages in social comparison differs

on an individual basis (Rodin, Silberstein, & Striegel-Moore, 1985). A chronic or dispositional activation of the body schema heightens awareness and salience of schema-relevant information at all times. Individuals with a chronically activated body schema can thus be expected to be more susceptible to appearance-related information (i. e. in the media) and to engage in social comparisons concerning thinness and attractiveness more frequently than individuals whose body schema is not chronically active. The level of chronically activated body schema is called *thin-ideal internalization* or *trait body anxiety* (Cash & Labarge, 1996; Cattarin et al., 2000; Hargreaves & Tiggemann, 2003; Labarge, Cash, & Brown, 1998). Thus, the influence of appearance-related media images on the female body image disturbance is assumed to be dependent on the relative importance of beauty for the self-image, the propensity to engage in social comparisons, and the degree of the internalization of sociocultural norms for ideal appearance and thinness.

The Influence of Thin-Ideal vs. Control Images on Female Body Image Disturbance. A large number of empirical studies has been conducted on the impact of thin-ideal media images versus control images on the female body image. Few studies did not detect any relationship between the dependent and independent variables (Champion & Furnham, 1999). However, Rodin, Silberstein, and Striegel-Moore concluded already in 1985 that due to the media, body image disturbance and general dissatisfaction with appearance were so wide-spread among the female population of Western cultures that nearly every woman would experience some degree of body dissatisfaction at least once in her life. They referred to this phenomenon as "normative discontent". More recent studies also found main effects for thin-ideal media images on the female body image as well as two-way interactions with individual difference measures (Heinberg & Thompson, 1995; Stice, Schupak-Neuberg, Shaw, & Stein, 1994; Strahan et al., 2008). A meta-analysis of twenty-five studies on the effect of thin-ideal visual stimuli in magazines and television

commercials on female body dissatisfaction concluded that the mass media are the "loudest and most aggressive purveyors of images and narratives of ideal slender beauty" (Groesz, Levine, & Murnen, 2002, p. 2). Across all twenty-five studies, body image disturbance was significantly higher for women who had been exposed to commercials containing thin-ideal models than for women who had been exposed to commercials using average-, oversized-, or no model. This effect was amplified with increasing vulnerability to the activation of a thinness schema.

Likewise, Hargreaves and Tiggemann (2002) found that viewing appearance related commercials led to appearance-schema activation in their adolescent sample, which in turn decreased confidence and increased anger and body dissatisfaction. In contrast to their predictions, the appearance schema was activated equally for those scoring high on thin-ideal internalization (appearance-schematics) and for those participants scoring low on thin-ideal internalization (appearance-aschematics). The former were more heavily influenced by appearance-related commercial viewing than the latter, though. Their follow-up study (Hargreaves & Tiggemann, 2003) added that the level of thin-ideal internalization (here called dispositional appearance schematicity) did not moderate the main effect in their adolescent sample. This unanticipated finding was explained with the high levels of average thin-ideal internalization of adolescent girls, which was actually comparable to a sample of eating-disordered college women (Cash & Labarge, 1996, as cited in Hargreaves & Tiggemann, 2003). Thus, adolescent girls can be expected to be particularly preoccupied with their appearance and therefore show elevated levels of thin-ideal internalization.

It can be summarized that with the exception of a few studies, the negative impact of thin-ideal media images on the body image of females has been confirmed. A moderation of the effect by individual difference variables like thin-ideal internalization or trait body

anxiety is likely for adult samples. Adolescent samples are expected to score uniformly high with respect to these measures and thus moderation is unlikely.

Natural-Ideal Media Images and their Influence on Female Body Image Disturbance. During the past five years, awareness for eating disorders like bulimia nervosa and anorexia nervosa seems to have risen. Confessions of celebrities like Victoria Beckham, Janet Jackson, and Calista Flockhart about their struggle with eating disorders have helped to trigger a gradual but seemingly steady change in opinion about attractiveness and beauty. Especially the tragic death of Ana Carolina Reston, a Brazilian fashion model who had starved herself in 2006, shook up the fashion industry for a second and caused the Madrid council to impose a minimum body mass index (BMI) of 18 for their fashion week models in order to achieve a healthier image of this event (Yeoman, Asome, & Keeley, 2002). However, the more important fashion weeks in Paris, Milan, and New York did not follow this example and refused to introduce a minimum BMI for their models.

Similar developments can be noted in the area of marketing and advertising. In 2004, Unilever's Dove brand launched their "Campaign for Real Beauty", allegedly aiming for a more natural and realistic beauty ideal. Portraying models that deviate from the ultra-slim model norm, Dove started advertising its products by reminding women of their own, natural beauty. This campaign not only raised awareness for the issue of unrealistic beauty standards, it also earned much praise from media, politics, and customers. However, what are the effects of natural-size models compared to ultra-thin models in advertising? Are advertising campaigns like Dove's Campaign for Real Beauty the key to a healthier body image?

Only a handful of empirical studies have compared thin-ideal to natural-ideal models and their impact on the female body image. One of the early studies was conducted by

Irving in 1990. Using social comparison theory, she compared women's levels of self-reported bulimic symptoms when exposed to thin-, average-, or oversized models. The central hypothesis that the negative impact of thin models on women's self-evaluations will rise with increasing levels of thin-ideal internalization (here called bulimic symptoms), was disconfirmed. Exposure to thin models lowered self-evaluations of participants regardless of their levels of thin-ideal internalization compared to women watching average- or oversized models. This result led Irving to hypothesize that the use of average- and oversized models in the media could possibly reduce the media's pressure on women to be thin, and thus lead to more positive self-evaluations in women, regardless of the level of thin-ideal internalization. However, an essential limitation of this study is the possibility that weight and attractiveness were confounded. Irving failed to control for weight- and appearance-related features of the models that were used as stimuli, which may have influenced the self-evaluations of the participants.

Ogden and Mundray (1996) examined the effects of exposure to pictures showing slim models compared to overweight models on the body satisfaction of women and men. They found that after exposure to pictures of slim individuals, participants were less satisfied with their bodies than after exposure to pictures of overweight individuals. The authors concluded that exposure to pictures of overweight people might become body image boosters for patients with eating pathologies. As was true for Irving (1990), images were not matched for attractiveness.

Champion and Furnham (1999) took up the results of Ogden and Mundray and nearly replicated the study with an adolescent female sample. Contrary to their hypotheses, exposure to thin, overweight or control images did not have a significant impact on body dissatisfaction. This finding hints at the possibility that the influence of media images on the level of women's body image disturbance is much more complex than it was outlined
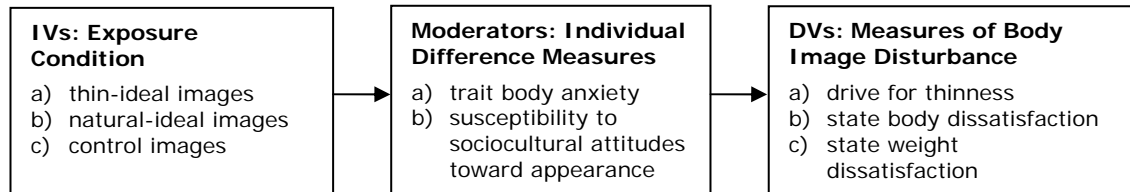
by Irving (1990) and Ogden and Mundray (1996). The authors concluded that individual difference measures including age and susceptibility to societally sanctioned attractiveness norms are likely to have an effect on whether and how females are affected by media images.

In the more recent study by Halliwell and Dittmar (2004), stimuli were carefully created using image processing software in order to match average- and thin-ideal models for attractiveness. Participants in the adult sample who scored high on thin-ideal internalization showed significantly higher body-focused anxiety after exposure to thin-ideal images than after exposure to average-size models or no models. The analysis yielded no results for participants scoring low on thin-ideal internalization. Also, the body weight of models in advertisements did not influence buying intentions of the participants.

The Present Study

Due to the large number of empirical studies supporting the notion that body image disturbance is the primary precursor of eating pathologies (Cattarin & Thompson, 1994; Stice et al., 1994; Thompson et al., 1999), the prospect of alleviating the negative impact of thin-ideal media images by using more natural beauty ideals is a central rationale for the present study. In order to shed light on the question how models representing a more natural beauty ideal influence the body image of young adult females, the present study used stimuli showing sets of three either thin-ideal, natural-ideal or no-model advertisements. Drawing on the study by Halliwell and Dittmar (2004), the present investigation was careful not to confound weight and attractiveness but avoided the use of image processing software. Halliwell and Dittmar claimed that by stretching essential body parts with image processing software, attractiveness was kept constant for thin-ideal

FIGURE 1. Overview of Study Variables.

IVs: Exposure Condition	Moderators: Individual Difference Measures	DVs: Measures of Body Image Disturbance
a) thin-ideal images b) natural-ideal images c) control images	a) trait body anxiety b) susceptibility to sociocultural attitudes toward appearance	a) drive for thinness b) state body dissatisfaction c) state weight dissatisfaction

and average-size stimuli. However, in view of the fact that not all body parts (e. g. faces) of the thin models were stretched, this claim is little convincing. Average-size models also have average-size faces, average-size busts and the like. By merely enlarging single body parts, attractiveness of the models may have been held constant at the expense of authenticity. The use of actual magazine advertisements showing female models that conform to the thin-ideal or to a more natural-ideal of attractiveness allows for faces that match the body, clothes that are designed for the models' body shape, and advertisement designs that show the models' best side. Admittedly, limitations come with these advantages and will be addressed in the discussion section. However, differences in general liking of the ad, design aesthetics, sympathy for the brand, and model attractiveness were controlled for as much as possible.

Nearly replicating the study by Halliwell and Dittmar (2004), the author of the present study hypothesized that exposure to advertising featuring a thin model leads to a higher *drive for thinness*, higher *state body-* and *weight dissatisfaction*, and higher *state body anxiety* than exposure to advertisements featuring a natural-size model or no model in the short term. The level of *trait body anxiety* and the *susceptibility to sociocultural attitudes toward appearance* were expected to moderate these effects. It was predicted that body image disturbance induced by exposure to media images would be *less* pronounced for women showing *low* levels of trait body anxiety compared to the exposure-induced effects on body image disturbance of women with *high* levels of trait body anxiety.

Similarly, exposure-induced body image disturbance of women with *low* susceptibility to sociocultural attitudes toward appearance was expected to be *less* grave compared to that of women with *high* levels of susceptibility. The analysis of appearance schema activation was exploratory due to a lack of adequate measures in the German language. As has been confirmed in earlier studies (Brown & Dittmar, 2005; Hargreaves & Tiggemann, 2002), appearance schema was predicted to be activated after exposure to appearance-related images but inactive after exposure to appearance unrelated images. A possible mediation of the effects was considered.

Method

PARTICIPANTS

The present study was conducted on four consecutive days at Zeppelin University (ZU), a private university in Friedrichshafen, Southern Germany. Participants were recruited during a series of assessment centers for prospective students conducted by Zeppelin University as part of its admissions procedure. On the pre-night of their university entrance assessment center, prospective students of Zeppelin University were invited to take part in a voluntary study as a way to familiarize themselves with empirical research methods. Only female applicants were recruited for the present study.

91 female applicants to Zeppelin University (ZU) agreed to take part in the study. Three participants had to be eliminated from the final sample due to the omission of essential height and/or weight items. The final sample consisted of 88 participants between the age of 17 and 25 years. Demographic information collected included age, height, and weight. Additionally, information on daily television consumption, magazine reading, experience with dieting, and frequency of dieting was collected.

FIGURE 2. Weight Distribution of Participants According to WHO Standards.
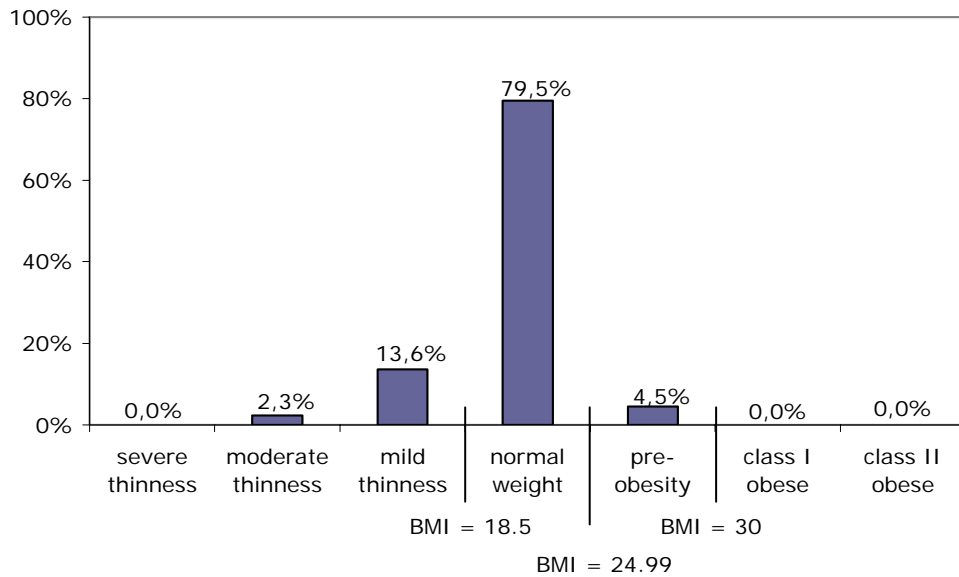
The average age of participants was 20.39 years ($SD = 2.11$), and the median age was

20. Using the self-reported information on height and weight of each participant, the

respective body mass index (BMI = weight in kg/ (height in m)^2) was calculated. BMI

ranged from 16.85 to 28.04 with a mean BMI of 21.07 ($SD = 2.3$). According to the

World Health Organization (2006), a body mass index between 18.5 and 24.99 signifies

normal weight for the respective age group. As can be seen in Figure 2, following the

WHO standard yielded that 15.9% of the women in the sample had mild to moderate

underweight, 79.5% were of normal weight, and 4.5% in the sample were in a pre-obese

stadium of overweight. The mean BMI in the group is comparable to the statistics of the

2005 micro census for German females in the respective age range published by the

Statistisches Bundesamt Deutschland (2007). However, the percentage of women who are

underweight deviates from the national mean. For ages 18-25, the mean percentage of

women who had a BMI of 18.5 or less was 12.3 percent in the 2005 German micro

census. Also, there was no case of obesity in the present sample.

Daily television consumption ranged from 0.0 to 4.0 hours a day with a mean of 1.27 ($SD = 1.08$). 5.7% of the participants indicated they read fashion magazines like Glamour, Cosmopolitan or InStyle every week; 33% once or several times a month, 51.1% less than once a month, and 10.2% stated they never read fashion magazines. When asked about their experience with dieting, 61.4% of the participants indicated they had experience with dieting. Out of these participants, 39.8% said they had been on 1-2 diets in the past, 13.6% had been on 3-4 diets, and 8% indicated that they had been on more than four diets in their life.

DESIGN

The present study was a between subjects factorial design with two experimental groups and a control group. All participants received the same set of questionnaire material, only stimulus material varied according to the three groups. Participants in the thin-ideal experimental group were given stimulus material showing models whose body features matched the popular sociocultural attractiveness norm. The natural-ideal experimental group was exposed to stimuli containing models that were markedly closer to the national mean in bodyweight. Participants in the control group received stimuli containing no models and no explicit references to beauty.

MATERIALS AND MEASURES

Images. Each condition received three print advertisements that were taken from international, English-speaking magazines. Products advertised were female underwear (Victoria Secret/ Playtex), body lotion (Nivea/Dove), and yoghurt (Yoplait/Fit Light) in the experimental conditions and toilet paper (Kleenex), tampons (Tampax), and yoghurt (Yoplait) in the control condition. Models in the two experimental conditions were all

dressed in underwear or were not wearing any clothes at all. All delicate parts of the body were covered, however, for all models. Participants were explicitly asked to focus on the advertisement as a whole and on their overall impression when evaluating each advertisement.

Pilot Study: General Liking of Advertisements; Attractiveness of Models. In order to control for undesired confounds due to differences in general liking of the stimuli in all three conditions and possible differences in perceived model attractiveness in the experimental conditions, a pilot study was conducted one week prior to the actual data collection. A sample of thirty female university students was recruited via e-mail and asked to rate a set of three advertisements (all three advertisements in a set were either thin-ideal, natural-ideal or control). First, participants rating the stimulus material for the two experimental conditions (containing a model) were asked to indicate what size they thought each model would wear giving options ranging from extra small (XS) to extra extra large (XXL). Then, all advertisements were rated on a 5-point Likert scale ranging from completely disagree (1) to completely agree (5) with respect to *general liking* of the ad, *design aesthetics* of each ad, and *model attractiveness* (in the experimental conditions, only). All participants were blind to the purpose of the study. One of the three sets of advertisements was distributed to each participant on a random basis.

With respect to the perceived size in clothes of each model, the median size for the thin-ideal models was small (S), while the median size for the natural-ideal models was large (L). It is thus confirmed that models in the thin-ideal condition were perceived to be markedly skinnier than models in the natural-ideal condition. Univariate analyses of variance (ANOVA) were run for *general liking* of the ads and *design aesthetics* of the ads. Analyses revealed no significant differences between the three sets of stimuli for

general liking of the ads ($F_{2,29} = .88$, *ns*) and design aesthetics ($F_{2,28} = 1.13$, *ns*). With

respect to *model attractiveness* in the experimental conditions, an independent samples t-

test was conducted. No significant differences were found for model attractiveness

between the natural-ideal ($M = 1.97$, $SD = .78$) and thin-ideal ($M = 2.1$, $SD = .57$)

experimental conditions, $t_{20} = -.44$, *ns*. Thus, using these three sets of stimuli should not

produce confound due to differences in liking and perceived design aesthetics, nor should

weight and attractiveness be confounded. Thin-ideal and natural-ideal models were rated

equally attractive although models in the natural-ideal condition were perceived as

markedly heavier than models in the thin-ideal condition.

In order to be able to control for any of these potential confounds in the present study,

a series of questions on how participants liked the advertisement in general, the

anticipated impact of the advertisement on the brand, and the anticipated personal

purchase intention was included. Additionally, participants in the experimental conditions

were asked how attractive they thought the model in each advertisement was, whether

they could identify with the model, and how similar they thought the model was to them.

MEASURES

Social Attitudes Towards Appearance Questionnaire-3 (SATAQ-3). The Social Attitudes

Towards Appearance Questionnaire (SATAQ) was developed by Heinberg, Thompson, &

Stormer (1995) and is designed to capture individual differences in chronically activated

body schema and the susceptibility to societally sanctioned standards of thinness and

attractiveness. In the present study, items from the recently updated version SATAQ-3

(Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) plus non-appearance

filler items were used as a measure of the susceptibility to sociocultural norms of

appearance. The measure consists of three subscales: internalization (general and athlete),

pressure, and information. The internalization subscale measures the extent to which a female agrees with statements like "I compare my appearance to the appearance of people in magazines" and thus indicates the internalization of the thin-ideal propagated in the media. The subscale for pressure, on the other hand, measures the degree to which women feel pressured to meet the beauty ideal propagated by the media and agree with statements like "I have felt pressured by television or magazines to go on a diet." With items like "Magazine advertisements are an important source of information about fashion and "being attractive,"" the information subscale tries to detect the extent to which a female takes information about beauty and attractiveness from the media. To serve the purpose of this study, items designed for athletes were neglected as were items pertaining to television or music channels, only. All remaining items were then translated into German by the author (cf. Appendix A). On a 5-point Likert scale ranging from definitely disagree (1) to definitely agree (5), participants indicated their agreement with 17 statements. Thompson et al. (2004) conducted two studies with comparable female college samples and report reliabilities of .96/.92 for the general internalization subscale, .92/.94 for the pressure items, and .96/.94 for the information subscale. For the sample in the present study, reliabilities were not quite as high. Cronbach's alpha for internalization was .75, .88 for pressure, and .72 for information. The comparably low reliability coefficients could be due to the elimination of items. However, a more plausible explanation is the inclusion of reverse-scored items as it was suggested by the main author in order to prevent response bias (Thompson, 2007). Reverse scoring was not applied in the reported studies by Thompson et al. (2004) and may thus have reduced internal consistency in the present sample.

Physical Appearance State and Trait Anxiety Scale (PASTAS). The Physical Appearance State and Trait Anxiety Scale (Reed, Thompson, Brannick, & Sacco, 1991) was used to collect data on the anxiety associated with different parts of the body. The original state and trait scales consist of 16 different body sites but only six of them are explicitly weight-relevant. Thus, the non-weight-relevant items were excluded for this analysis. All items were translated into German by the author (c. f. Appendix B). The trait body anxiety scale of the PASTAS measures the stable, dispositional anxiety that subjects experience regularly with respect to the different body parts ("In general, I feel anxious, tense or nervous about…my thighs/stomach/waist"). Participants indicate their level of trait body anxiety on a 1 (never) to 5 (always) Likert scale (Thompson et al., 1999). The state body anxiety scale of the PASTAS, on the other hand, measures anxiety with respect to certain body parts at a certain point in time ("Right now, I feel anxious, tense or nervous about…my thighs/stomach/waist") using a 5-point Likert scale where 1 equals "not at all" and 5 equals "exceptionally so". Scores on the state part of the PASTAS should thus vary on a time 1/ time 2 basis. Reported reliabilities in Reed et al. (1991) ranged from .82 to .92. In the present sample, alpha coefficients were comparably high. Cronbach's alpha was .81 for the state anxiety items, .77 for the trait anxiety items, and the overall internal consistency for both parts of the PASTAS was .87.

Word-stem Completion Task. A word-stem completion task was designed in order to measure temporary appearance schema activation. Similar tasks, albeit in the English language, were used in previous studies (Brown & Dittmar, 2005; Hargreaves & Tiggemann, 2002). Since the present sample consists of German native-speakers, however, a new set of ten three- to five-letter word-stems that could be completed to form either weight- and appearance-related or –unrelated words in the German language was

developed (c. f. Appendix C). For instance, a word-stem like "*SCHLA*…" can be completed to mean "*SCHLA*nk" (weight-related, meaning "slim") or "*SCHLA*f" (weight-unrelated, meaning "sleep"). This measure was designed as an exploratory trial version, as no German word-stem completion task for weight and appearance was available as yet. Participants with activated appearance schema were expected to generate more weight- and appearance-related words than participants with inactive appearance schema. Appearance schema was expected to be constantly active for participants high on trait body anxiety and with high susceptibility to sociocultural norms of attractiveness irrespective of the exposure condition. For participants low on the individual difference measures, appearance schema should be activated for participants in the two experimental conditions but not for participants in the control condition.

Visual Analogue Scales (VAS). Four visual analogue scales were used in the present study (c. f. Appendix D). Developed by Heinberg and Thompson (1995; Thompson, 1996), VAS are a commonly used measure for the state component of body dissatisfaction. Participants were asked to rate their overall body dissatisfaction and their weight dissatisfaction on a 100 mm continuum ranging from "no dissatisfaction" to "extreme dissatisfaction". Participants' level of disturbance is then calculated as distance from zero, measured from the left (Thompson et al., 1999).

Likewise, two VAS were used to assess ad liking and perceived model resemblance as potential confounds. The general liking of each stimulus and the perceived resemblance of each model with the participant were rated on a 100 mm continuum ranging from "very bad" to "very good" and "not at all like me" to "very much like me", respectively.

Actual vs. ideal weight. The discrepancy between the actual bodyweight and the desired, ideal bodyweight of each participant was assessed as a measure of <u>drive for thinness</u>. Participants were asked about their desire to lose weight, their aspired bodyweight, and their actual bodyweight. Indices of the aspired BMI and the aspired percentage change from the actual BMI were calculated on the basis of this data.

PROCEDURE

The study was administered in groups of twenty to thirty participants on four consecutive days. After greeting the participants, the researcher presented a carefully constructed cover story about personalized marketing strategies, in order to minimize demand effects. Survey packs containing identical questionnaire material but only one of three sets of stimuli (thin-ideal, natural-ideal, control group) were handed out to each participant on a random basis. All survey packs and stimuli were printed with the same high-resolution color printer and presented in a paper-and-pencil fashion. Participants were then asked to sign an informed consent form reassuring them that all information would be handled with strict confidentiality and would have no influence on their admission to Zeppelin University. Also, participants were informed of their right to withdraw from the study at any time. All participants then completed the questionnaire in silence.

The questionnaire started off with twenty-four SATAQ- and filler items, ostensibly assessing the participant's brand personality, buying behavior, and media usage. Filler items included "I buy products due to their quality" and "I have felt pressured by friends to purchase a certain product". Following SATAQ, all participants answered the items from the PASTAS trait body anxiety questionnaire, ostensibly measuring their personal well-being, which could influence their willingness to buy. After these two parts that were identical for all groups, participants were asked to rate the expressiveness and

effectiveness of three separate print advertisements. They were explicitly asked to rate the advertisement as a whole. In all three conditions, three ads were presented, each followed by a short six to nine item battery inquiring about participant's liking and evaluation of the ad. Questions included the perceived willingness to buy the product on the basis of the ad, how well addressed they felt by the ad, how attractive they thought each model was, how well they could identify with the model, and how similar they thought the model was to themselves ("The model in the ad looks…a lot like me/ not at all like me"). These items were used to strengthen the cover story and to control for possible confounds due to ad liking and model attractiveness.

Following the third advertisement and item battery, all participants were presented with the same word-stem completion task. Ostensibly a word puzzle, participants were asked to complete ten word-stems with whatever word came to mind first.

The PASTAS state body anxiety items, a short mood questionnaire asking about current happiness, anxiety, and content as well as two VAS concerning the participant's current general body dissatisfaction and weight dissatisfaction, followed. Participants' experience with- and frequency of dieting were assessed as well as their desire to lose weight and their aspired bodyweight. Finally, the demographics questionnaire, the average daily television consumption, magazine reading habits, and a question assessing the perceived topic and goal of the study concluded the questionnaire. The last question was used to evaluate participants' naivety with respect to the true purpose of the study.

After completing the questionnaire, each participant received a candy bar as a small sign of gratitude. Also, a printed debrief explaining the true purpose of the study and offering a short introduction to the research in the field was handed out to the participants.

Results

GROUPS, DEMOGRAPHICS, MEDIA CONSUMPTION, DIETING EXPERIENCE, MOOD

All 88 participants were randomly assigned to one of the three conditions. This yielded a distribution to the groups as follows: 31 participants were in the thin-ideal condition, 30 in the natural-ideal condition, and 27 in the control group. Thus, all groups had comparable numbers of participants.

Analyzing the age structure revealed that although participants were randomly assigned to one of the three conditions, age was not distributed equally across groups. An analysis of variance showed a significant age difference for participants in the three conditions ($F_{2, 85} = 5.75$, $p < .01$). A Scheffé post hoc revealed that participants in the control group ($M = 19.3$, $SD = 1.30$) were significantly younger than participants in the thin-ideal condition ($M = 20.8$, $SD = 2.18$), $p < .05$, and significantly younger than participants in the natural-ideal condition ($M = 20.9$, $SD = 2.33$), $p < .01$. No significant age differences were found between the two experimental conditions. In order to detect possible systematic relationships with the dependent variables, age was entered as covariate in all statistical analyses.

With respect to BMI, no significant difference between the groups could be detected ($F_{2, 85} = .90$, ns) and the average BMI in each condition was normal compared to the German national sample for this age group. A positive correlation between BMI and age was found ($r = .01$, $p < .01$). This correlation is, however, not unexpected due to the biological tendency to gain weight with increasing age. The links between BMI and age were not significantly correlated for the three exposure conditions ($r_{thin} = .13$, ns; $r_{natural} = .30$, ns; $r_{control} = .19$, ns). Thus, systematic relationships with the dependent variables are not expected and BMI was not used as covariate.

Analyses revealed no significant differences between the three experimental conditions in terms of television consumption ($F_{2,85} = 0.09$, *ns*), magazine reading ($X^2_{8, n=88} = 4.47$, *ns*), experience with dieting ($X^2_{2, n=88} = .05$, *ns*), and dieting frequency ($X^2_{6, n=54} = 6.37$, *ns*) between the groups.

AD LIKING AND AD EVALUATION

In order to ensure that there was no confound due to differences in liking of the stimulus material between the three groups, univariate analyses of variance were run for all ad liking and ad evaluation variables. With respect to the perceived advertisement design aesthetics and general liking of the ads, no significant differences were found between the three groups ($F_{2,85} = 0.91$, *ns*; $F_{2,85} = 1.22$, *ns*). Thus, a manipulation of the results due to differences in liking of the stimulus is unlikely.

Likewise, the perceived attractiveness of the models displayed in the two experimental conditions was analyzed using independent samples t-tests. Neither general model attractiveness nor perceived resemblance of the model with the participant showed significant mean differences ($t_{59} = -1.3$, *ns*; $t_{59} = .7$, *ns*). Thus, model attractiveness and model weight were not confounded.

However, the degree to which participants felt they could identify with the models approached significance. Participants in the natural-ideal condition showed higher mean agreement with the statement "I can identify with the model in the advertisement" (*M* = 2.39, *SD* = .61) than participants in the thin-ideal condition (*M* = 2.12, *SD* = .74), *p* = .12. Even though significance was only approached, it can be speculated that natural-ideal models qualify more as reference points for social comparison than thin-ideal models.

Interestingly, there were significant differences in the anticipated consequences for the brand image between the three groups, $F_{2,85} = 3.96$, $p < .05$. A Scheffé post hoc showed that the mean agreement with the statement "This ad endows the brand with a respectable image" was higher for participants in the natural-ideal condition ($M = 3.03$, $SD = .64$) than for participants in the thin-ideal condition ($M = 2.62$, $SD = .41$), $p < .05$. No significant differences were found between the experimental conditions and the control group. Even though the liking for the ads and the perceived attractiveness of the models in the two experimental conditions is equal, the use of natural-size models is perceived to endow the brand with a respectable image more frequently than advertising containing thin-ideal models.

No significant differences were found across all groups with respect to how well participants felt addressed by the ads ($F_{2,85} = 1.95$, ns), and whether they could imagine buying the brand due to the advertisements ($F_{2,85} = 0.69$, ns).

Judging from the demographics, the ad liking, and ad evaluation, conditions for testing the hypotheses were set up successfully.

MEDIA CONSUMPTION

Judging from previous studies (Tiggemann, 2003), the effects of media images on body image disturbance may be influenced by the level of media consumption. In the present study, participants indicated how many hours of television they watched on an average day and how often they read fashion magazines like Glamour or InStyle. In order to find out whether media consumption was related to the measures of body image disturbance in the present study, a one-way ANOVA was carried out for television consumption and all four measures of body image disturbance but yielded no significant results (drive for

thinness: $F_{2,87} = .83$, *ns;* body dissatisfaction: $F_{2,87} = .97$, *ns;* weight dissatisfaction: $F_{2,84} = .65$, *ns;* state body anxiety: $F_{2,86} = .85$, *ns*). Pearson correlations between magazine reading and the four measures of body image disturbance also indicated that there was no relationship with any measure of body image disturbance (drive for thinness: $r = .12$, *ns*; body dissatisfaction: $r = -.04$, *ns*; weight dissatisfaction: $r = .13$, *ns*; state body anxiety: $r = .11$, *ns*). Thus, in contrast to earlier studies, media consumption did not affect body image disturbance directly in the present sample.

EXPOSURE CONDITION AS PREDICTOR OF BODY IMAGE DISTURBANCE

Exposure to advertising featuring a thin model was predicted to lead to a higher drive for thinness, higher state body- and weight dissatisfaction, and higher state body anxiety in the short term than exposure to a natural-ideal model. This hypothesis was tested using four ANCOVAs with age as covariate. The analyses disconfirmed the hypothesis. Independent of age, the nature of the images participants were exposed to did not have an effect on drive for thinness ($F_{2,84} = .59$, *ns*; $\eta^2 = .01$), state body dissatisfaction ($F_{2,84} = 1.44$, *ns*; $\eta^2 = .03$) or state weight dissatisfaction ($F_{2,84} = .02$, *ns*; $\eta^2 = .00$). The ANCOVA with state body anxiety as dependent variable approached significance ($F_{2, 83} = 2.86$, $p = .063$; $\eta^2 = .07$) and the pairwise comparison of estimated marginal means indicates that state body anxiety was significantly higher for participants in the natural-ideal condition ($M = 12.17$, $SE = .68$) than for participants in the control condition ($M = 9.69$, $SE = .75$), $p < .05$. This finding supplies even stronger evidence for the rejection of the first hypothesis. Contrary to the predictions, the concern must be raised that natural-ideal images may actually harm the body image of women more than thin-ideal images do. This new presumption needs further analysis.

TABLE 1. Pearson Correlations of Body Image Disturbance Measures with Individual Difference Measures per Exposure Condition

Measures of Body Image Dist.	Exposure Condition	Individual Difference Measures							
		Internalization - SATAQ		Pressure - SATAQ		Information - SATAQ		Trait body anxiety - PASTAS	
Drive for thinness (%-change BMI)	thin-ideal	.53**	(.51**)	.57**	(.55**)	.06	(.03)	.55**	(.52**)
	natural-ideal	-.36	(-.36)	-.09	(-.07)	-.06	(-.04)	.35	(.38)
	control	.21	(.25)	.50**	(.50*)	.12	(.10)	.66***	(.66***)
	overall	.21	(.21)	.38***	(.38**)	.03	(.02)	.52***	(.51***)
Body dissatisfaction	thin-ideal	.27	(.26)	.38*	(.39*)	.02	(-.01)	.56**	(.53)**
	natural-ideal	-.12	(-.12)	.01	(-.01)	-.07	(-.08)	.27	(.22)
	control	.14	(.20)	.53**	(.54**)	-.00	(-.07)	.61**	(.62**)
	overall	.13	(.13)	.34**	(.35**)	-.06	(-.06)	.51***	(.50***)
Weight dissatisfaction	thin-ideal	.56**	(.54**)	.56**	(.53**)	.05	(.02)	.76***	(.75***)
	natural-ideal	-.25	(-.25)	.04	(.05)	-.01	(-.00)	.48**	(.44*)
	control	-.05	(-.10)	.33	(.33)	-.34	(-.30)	.67***	(.68***)
	overall	.17	(.14)	.35**	(.33***)	-.09	(-.12)	.63***	(.63***)
State body anxiety (PASTAS)	thin-ideal	.30	(.29)	.36	(.34)	-.05	(-.06)	.67***	(.68***)
	natural-ideal	-.03	(.04)	.24	(.32)	.21	(.35)	.57**	(.56**)
	control	.24	(.24)	.55**	(.55**)	.11	(.13)	.75***	(.75***)
	overall	.21	(.23*)	.40***	(.43***)	-.01	(.01)	.69***	(.69***)

Note. Correlations in brackets are partial, controlling for age. $*p < .05$, $**p < .01$, $***p < .001$.

ASSOCIATION OF SUSCEPTIBILITY TO SOCIOCULTURAL APPEARANCE NORMS AND LEVEL OF TRAIT BODY ANXIETY WITH MEASURES OF BODY IMAGE DISTURBANCE

It will be recalled that the susceptibility to sociocultural appearance norms and the level of trait body anxiety were assumed to moderate the effect of media images on body image disturbance. Even though for the sample as a whole, no main effects could be detected for exposure condition, it is conceivable that effects only occur combined with individual difference measures. Thus, Pearson correlations were conducted between all measures of body image disturbance (drive for thinness, state body dissatisfaction, state weight dissatisfaction, and state body anxiety) and all individual difference measures constituting possible moderators (thin-ideal internalization, pressure to be slim, sources of attractiveness-information, trait body anxiety). As can be seen from Table 1, zero-order correlations as well as partial correlations controlling for age (in brackets) were calculated. It is evident that there was no relationship between any of the body image disturbance measures and the *information subscale* of SATAQ. This subscale was asking participants for agreement with statements like "Advertisements in magazines are an important source of information concerning fashion and looks." The mere retrieval of

information concerning appearance from the media was not related to body image disturbance in this sample.

Surprisingly, the *internalization subscale* of SATAQ measuring agreement with statements like "I compare my looks with those of people in magazines" correlated strongly with drive for thinness and weight dissatisfaction in the thin-ideal exposure condition, only. This subscale can thus be assumed to predict drive for thinness and weight dissatisfaction after exposure to models conforming to the thin-ideal but it does not affect any of the other variables or conditions. Contrary to the predictions, thin-ideal internalization as a measure of the susceptibility to sociocultural appearance norms was only a relevant factor in the thin-ideal condition and only with respect to drive for thinness and state weight dissatisfaction.

The *pressure subscale* of the SATAQ measured the agreement with statements like "Sometimes I feel pressured by television and magazines to lose weight." Zero-order and partial correlations were high only for some measures of body image disturbance but point at a possible relationship between the perceived media pressure to be slim with drive for thinness and body dissatisfaction in all conditions except for the natural-ideal condition. This peculiar pattern is even more pronounced for *trait body anxiety* measured by PASTAS. Although trait body anxiety correlated very highly with all measures of body image disturbance in the thin-ideal and control condition, this pattern is discontinued for the natural-ideal condition. The data suggest that regularly experienced levels of body anxiety predict all measures of body image disturbance following exposure to thin-ideal or control images. However, for participants in the natural-ideal exposure condition, this relationship diminishes or disappears. Still, a relationship between trait body anxiety and body image disturbance seems very likely in spite of the lacking correlations in the natural-ideal condition.

TABLE 2. Cell-Sizes of Exposure Condition by Level of Body Image Anxiety

Exposure Condition	Trait Body Anxiety - PASTAS		
	low	high	total
thin-ideal	20	11	31
natural-ideal	12	18	30
control	18	9	27
total	50	38	88

In order to analyze this relationship further, a dichotomy was drawn between participants high and low on trait body anxiety on the basis of the PASTAS trait body anxiety scores. Participants quantified the anxiety they experience on a regular basis with respect to six weight-relevant body sites from "never" (coded as 1) to "always" (coded as 5). The maximum score in the present sample was 22 out of 30 possible points and the mean was at 14.8 ($SD = 4.35$). A median split at a score of 15 out of 30 possible points was considered reasonable for the present sample and also coincides with the sample mean. The resulting cell sizes for each exposure condition by level of trait body anxiety are displayed in Table 2. Although cell-sizes are small in some cases, analyses were run bearing in mind the limited statistical power. The effects of exposure condition (thin-ideal, natural-ideal, control) and level of trait body anxiety (high, low) on measures of body image disturbance (body-, weight dissatisfaction, state body anxiety, drive for thinness) were analyzed by 3 (condition) x 2 (trait body anxiety) ANCOVAs with age as covariate. F-values, significance levels, and partial η^2 for effect size are reported in Table 3.

Drive for Thinness. As expected, the ANCOVA with drive for thinness as dependent variable yielded a highly significant main effect for trait body anxiety ($F_{1, 81} = 22.03$,

TABLE 3. Predictors of Women's Body Image Disturbance After Exposure to Media Images

Variable	Dependent Variables - Measures of Body Image Disturbance											
	Drive for Thinness			General Body Dissatisfaction			State Weight Dissatisfaction			State Body Anxiety		
	F	η^2	Sig	F	η^2	Sig	F	η^2	Sig	F	η^2	Sig
Age (Covariate)	.00	.00	ns	.23	.00	ns	1.15	.01	ns	.12	.00	ns
Exposure Condition	1.00	.02	ns	.49	.01	ns	.91	.02	ns	1.21	.03	ns
Trait Body Anxiety	22.03	.21	< .001	14.94	.16	< .001	40.46	.33	< .001	41.21	.34	< .001
Exposure Condition x Trait Body Anxiety (high vs. low)	2.35	.06	p = .10	3.89	.09	< .05	2.24	.05	p = .11	2.45	.06	p = .09

Note. Eta squared are partial, controlling for age.

$p < .001$; $\eta^2 = .21$), suggesting that participants high on trait body anxiety experience a more pronounced drive for thinness ($M = 8.54$; $SE = .87$) than participants low on trait body anxiety ($M = 3.76$; $SE = .61$). As could be expected from the previous analyses, no main effect was found for exposure condition ($F_{2, 81} = 1.00$, *ns*; $\eta^2 = .02$), again disconfirming the first hypothesis. The nature of a media image – be it thin-ideal, natural-ideal, or control – was not a predictor of the perceived drive for thinness in the present sample. The interaction of exposure condition and trait body anxiety approached significance ($F_{2, 81} = 2.35$, $p = .10$; $\eta^2 = .06$). To further investigate the differences in susceptibility to media image effects due to differing levels of trait body anxiety, two ANCOVAs were conducted separately for participants high and low on trait body anxiety. Although there was no effect for age as covariate in the previous ANCOVA ($F_{1, 81} = .00$, *ns*; $\eta^2 = .00$), age was nevertheless included as covariate in the analyses. As can be seen from Table 4 and 5, the ANCOVA for low trait body anxiety did not yield significant differences in estimated marginal means. Drive for thinness of participants with low levels of trait body anxiety thus remained entirely unaffected by exposure condition. The difference in marginal means for participants high on trait body anxiety approached significance, however. There was a trend for participants with high levels of trait body

TABLE 4. Estimated Marginal Means of Measures of Body Image Disturbance
per Level of Trait Body Anxiety and Exposure Condition

TBA	Exposure Condition	Dependent Variables - Measures of Body Image Disturbance							
		Drive for Thinness		General Body Dissatisfaction		State Weight Dissatisfaction		State Body Anxiety	
		M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
low									
	thin-ideal	4.07	.95	2.31	.46	2.45	.55	9.30	.58
	natural-ideal	4.60	1.23	4.15	.59	2.82	.72	10.88	.73
	control	2.62	1.04	2.80	.50	2.45	.61	7.65	.62
	overall	3.76	.61	3.08	.34	2.57	.33	9.28	.36
high									
	thin-ideal	10.22	1.55	5.34	.61	6.37	.60	14.21	1.10
	natural-ideal	6.44	1.22	4.39	.48	4.53	.47	13.04	.86
	control	8.96	1.76	4.76	.69	6.25	.68	13.66	1.25
	overall	8.54	.87	4.83	.34	5.71	.33	13.64	.61

anxiety to have a higher drive for thinness after exposure to thin-ideal images ($M = 10.22$; $SE = 1.55$) than after exposure to natural-ideal images ($M = 6.44$; $SE = 1.22$). Contrary to the predictions of the second hypothesis, drive for thinness was virtually unaffected by exposure condition for high and low levels of trait body anxiety. The trend of participants scoring high on trait body anxiety experiencing an increased drive for thinness after exposure to thin-ideal images was, however, in line with the second hypothesis.

General Body Dissatisfaction. The same procedure was carried out for general body dissatisfaction as dependent variable. Again, a highly significant main effect for trait body anxiety ($F_{1, 81} = 14.94$, $p < .001$; $\eta^2 = .16$) was detected. Participants high on trait body anxiety experienced significantly more general body dissatisfaction ($M = 4.83$; $SE = .34$) compared to participants low on trait body anxiety ($M = 3.08$; $SE = .34$). No main effect was found for exposure condition ($F_{2, 81} = .49$, *ns*; $\eta^2 = .01$). For general body dissatisfaction, the interaction of exposure condition and trait body anxiety yielded a significant result ($F_{2, 81} = 3.89$, $p < .05$; $\eta^2 = .09$). The susceptibility to effects from media images differed with the level of trait body anxiety. Again, two ANCOVAs were

TABLE 5. Effects of Pairwise Comparisons:
Trait Body Anxiety * Exposure Condition on Measures of Body Image

| | | | Dependent Variables - Measures of Body Image Disturbance | | | | | | | |
| | | | Drive for Thinness | | General Body Dissatisfaction | | State Weight Dissatisfaction | | State Body Anxiety | |
TBA	Exposure Condition		Mean diff.	Sig	Mean diff.	Sig	Mean diff.	Sig	Mean diff.	Sig
low										
	natural-ideal	thin-ideal	-.52 (1.53)	ns	-1.84 (.74)	< .05	-.37 (.89)	ns	.05 (.05)	.09
	control	thin-ideal	-1.45 (1.44)	ns	.49 (.70)	ns	-.00 (.84)	ns	-.07 (.05)	.07
		natural-ideal	-1.98 (1.65)	ns	-1.35 (.80)	.10	-.37 (.96)	ns	-.02 (.06)	< .01
high										
	natural-ideal	thin-ideal	3.77 (1.96)	.06	.95 (.77)	ns	1.84 (.75)	< .05	.14 (.18)	ns
	control	thin-ideal	-1.25 (2.37)	ns	-.58 (.93)	ns	-.12 (.91)	ns	-.15 (.21)	ns
		natural-ideal	2.52 (2.17)	ns	.37 (.85)	ns	1.72 (.83)	< .05	-.01 (.20)	ns

Note. Based on Estimated Marginal Means. Standard error in parentheses.

conducted separately for participants high and low on trait body anxiety with age as covariate. The analyses revealed a surprising result. While there was no significant main effect for exposure condition for participants high on trait body anxiety ($F_{2, 34} = .97$, *ns*), those low on trait body anxiety did show a significant result ($F_{2, 46} = 3.43$, $p < .05$). Thus, general body dissatisfaction of participants high on trait body anxiety remained unaffected by the kind of media images they were exposed to. Participants low on trait body anxiety, on the other hand, showed significantly elevated scores for general body dissatisfaction in the natural-ideal condition ($M = 4.15$; $SE = .59$) compared to the thin-ideal condition ($M = 2.31$; $SE = .46$), $p < .05$. This disconfirms the second hypothesis, which predicted that participants high on trait body anxiety would be more vulnerable to the negative effects that media images may have on body dissatisfaction. It was the participants with low levels of trait body anxiety whose general body dissatisfaction was increased after the exposure to natural-ideal images compared to that of participants with low levels of trait body anxiety who had been exposed to thin-ideal images.

Weight Dissatisfaction. For state weight dissatisfaction, the ANCOVA yielded results comparable to those of drive for thinness. Exposure condition by itself did not influence

weight dissatisfaction of the participants, either ($F_{2, 81} = .91$, *ns*; $\eta^2 = .02$), and participants high on trait body anxiety reported significantly higher levels of weight dissatisfaction ($M = 5.71$; $SE = .33$) than participants low on trait body anxiety ($M = 2.57$; $SE = .33$), $F_{1, 81} = 40.46$, $p < .001$; $\eta^2 = .33$. Again, the two-way interaction between exposure condition and trait body anxiety approached significance ($F_{2, 81} = 2.24$, $p = .11$; $\eta^2 = .05$). The two ANCOVAs split for high vs. low trait body anxiety with weight dissatisfaction as dependent variable showed that participants high on trait body anxiety were significantly affected by the type of media images ($F_{2, 34} = 3.84$, $p < .05$) while there was no effect for participants low on trait body anxiety ($F_{2, 46} = .10$, *ns*). As can be seen in Table 4, for participants high on trait body anxiety, exposure to natural-ideal images yielded a mean weight dissatisfaction of 4.53 ($SE = .47$), which was significantly lower than the mean weight dissatisfaction of participants after exposure to thin-ideal images ($M = 6.37$, $SE = .60$), $p_{thin} < .05$, and after exposure to control images ($M = 6.25$, $SE = .68$), $p_{control} < .05$. Thus, while state weight dissatisfaction of participants low on trait body anxiety remains unaffected by exposure to media images, it significantly affects state weight dissatisfaction of individuals with high trait body anxiety. Partly confirming the second hypothesis, weight dissatisfaction of participants high on trait body anxiety was significantly lower after exposure to natural-ideal images than after exposure to thin-ideal and control images.

State Body Anxiety. State body anxiety showed a similar pattern as general body dissatisfaction. In the absence of a main effect for exposure condition ($F_{2, 80} = 1.21$, *ns*; $\eta^2 = .03$), trait body anxiety showed a highly significant main effect ($F_{1, 80} = 41.21$, $p < .001$; $\eta^2 = .34$) with participants low on trait body anxiety experiencing lower state body anxiety ($M = 9.28$; $SE = .36$) than participants high on trait body anxiety

($M = 13.64$; $SE = .61$). The interaction between trait body anxiety and exposure condition approached significance ($F_{2, 80} = 2.45$, $p = .09$; $\eta^2 = .06$). The two one-way ANCOVAs split for high vs. low trait body anxiety yielded highly significant results for participants low on trait body anxiety ($F_{2, 45} = 5.37$, $p < .01$) while participants with high levels of trait body anxiety remained unaffected by exposure condition ($F_{2, 34} = .36$, ns). Estimated marginal means for participants with low levels of trait body anxiety revealed that state body anxiety was significantly higher after exposure to natural-ideal images ($M = 10.88$, $SE = .73$) than after exposure to control images ($M = 7.65$, $SE = .62$), $p < .01$. Also, there was a trend for state body anxiety to be higher after exposure to the natural-ideal than after exposure to the thin-ideal ($M = 9.30$, $SE = .58$), $p = .09$. The same trend existed for state body anxiety being higher after exposure to thin-ideal images and control images, $p = .07$.

MOOD

According to Pinhas, Toner, Ali, Garfinkel, and Stuckless (1999), exposure to thin-ideal images can have a negative influence on the mood of female participants. No information was collected on the influence of natural-ideal images on mood in their study. In order to see what influence the exposure to thin-ideal versus natural-ideal media images has on the mood of the participants, a few items were included in the present study. The items asked participants to rate how happy, tense, satisfied, depressed, relaxed, and dissatisfied they were on a scale from 1 (not at all true) to 5 (very true). Since data collection coincided with the pre-night of their university entrance assessment center, participants were expected to be tenser and less relaxed than they usually would. However, since this was true for all participants, randomization should have prevented any systematic variations between the groups.

One-way ANOVAs yielded significant results for happy ($F_{2,84} = 4.03$, $p < .05$) and tense ($F_{2,85} = 4.44$, $p < .05$). Scheffé post hoc comparisons revealed that participants were significantly happier ($M = 3.97$, $SD = .77$) and less tense ($M = 2.81$, $SD = 1.08$) after exposure to the thin-ideal than after exposure to the natural-ideal ($M = 3.30$, $SD = .99$; $M = 3.67$, $SD = 1.09$). There were no significant differences between the control condition and the two experimental conditions or any of the other mood items. These findings are contradictory to the findings by Pinhas et al. (1999) and again raise the concern that for some individuals, exposure to a natural-ideal could be even more harmful than exposure to thin-ideal images.

APPEARANCE SCHEMA ACTIVATION

The measurement of temporary appearance schema activation was exploratory due to the lack of established word-stem completion tasks for weight and appearance in the German language. All words produced by the participants were rated as either weight-related or weight-unrelated by an independent judge. The total amount of weight-related words was calculated ($M = 4.31$, $SD = 2.47$) and a median split was used to separate active from inactive appearance schema. The cut-off score was 4; appearance schema was considered inactive for all participants who produced four or less out of ten possible weight-related words. This yields the following distribution: appearance schema was inactive for 51.1%; appearance schema was active for 46.4% of all participants. A chi-square test was performed in order to find out whether appearance schema activation differed between the three groups. The test revealed a trend ($X^2_{2,\ n=84} = 5.55$, $p = .06$). For 64% of the participants in the thin-ideal condition, appearance schema was activated. This was true for 40% in the natural-ideal condition and for 35% in the control condition. Thus,

appearance schema was activated for a much higher percentage of the participants in the thin-ideal condition compared to the natural-ideal and control condition.

It was expected that appearance schema would be constantly active for participants high on trait body anxiety and for those with high susceptibility to sociocultural appearance norms. This expectation was not confirmed. The percentage of active and inactive appearance schema was about equally distributed among participants high on trait body anxiety ($X^2_{2, n=36} = 6.22$, *ns*) and for participants with high susceptibility to sociocultural appearance norms ($X^2_{2, n=43} = 2.27$, *ns*).

Further, participants low on trait body anxiety and susceptibility to sociocultural appearance norms were expected to have activated appearance schemas in the two experimental conditions but not in the control condition. These expectations were not fulfilled. For participants with low trait body anxiety, appearance schema activation was active for 80% of the participants in the thin-ideal condition but only for 27.8% in the natural-ideal condition and 13.4% in the control condition ($X^2_{2, n=48} = 6.24$, $p < .05$). For participants with low susceptibility to sociocultural appearance norms, a similar pattern unfolded but did not reach significance ($X^2_{2, n=41} = 4.96$, $p = .08$). 58.8% of the participants in the thin-ideal condition showed an activated appearance schema but the same was true for only 30% of the participants in the natural-ideal condition and for 17.7% in the control condition.

It thus seems like differences in the activation of appearance schema only exist for individuals low on the individual difference measures and is highly active for participants in the thin-ideal condition but not for participants in the other two exposure conditions. It is possible that appearance schema is not activated by exposure to natural-ideal images. However, regarding the remaining results of the study, this explanation is little convincing. Another possible reason is the lack of filler items that would have made the

measure less obtrusive. Due to the inconclusive results, the measure is useless for the present analysis. Further investigations will have to be conducted in the future in order to turn the German word stem completion task into a worthwhile measure of appearance schema activation.

Discussion

The present study investigated the influence of thin-ideal versus natural-ideal media images on different measures of body image disturbance in young adult females. The hypotheses were refuted for the most part. Exposure to advertisements showing thin-ideal models did not lead to a higher drive for thinness, higher state- or weight dissatisfaction or higher state body anxiety compared to exposure to advertisements showing natural-ideal models. Quite contrary to this first hypothesis, there was a trend for state body anxiety to be higher after the exposure to natural-ideal models, than after viewing thin-ideal models. The author raised the concern that this trend could hint at a detrimental rather than positive effect of natural-ideal images on female body image disturbance.

Parts of the second hypothesis were refuted due to the lacking influence of susceptibility to sociocultural appearance norms (SATAQ) on most measures of body image disturbance. Contradicting a sizeable number of empirical studies (Brown & Dittmar, 2005; Heinberg & Thompson, 1995; Heinberg et al., 1995), effects on the body image of women did not differ significantly with high or low levels of susceptibility to sociocultural appearance norms. The lack of support for this hypothesis could be explained in several ways. It is possible that the materials to measure sociocultural appearance norms were not adequately adapted to the German language. Also, the exclusion of those SATAQ-3-items that only pertained to music channels may have

rendered the measure invalid and unreliable. Future studies should select items more carefully and also be aware of the potential loss in reliability due to reverse-scored items.

Trait body anxiety (PASTAS), on the other hand, showed main effects with all measures of body image disturbance. Confirming the validity of the measure, participants with high levels of trait body anxiety showed higher levels of body image disturbance than participants with low levels of trait body anxiety. Also, two-way interactions with all measures of body image disturbance were significant or approached significance.

The results for women with low levels of trait body anxiety give additional support to the presumption that natural-ideal images may actually harm the body image of some women. Individuals low on trait body anxiety had increased levels of *general body dissatisfaction* after the exposure to natural-ideal images compared to those who had been exposed to thin-ideal images. The same was true for *state body anxiety*. Participants with low levels of trait body anxiety showed significantly higher levels of state body anxiety after exposure to natural-ideal images than after exposure to thin-ideal images and higher levels of state body anxiety than participants who had been exposed to control images (significance was approached). *Drive for thinness* and *weight dissatisfaction* of women with low levels of trait body anxiety remained unaffected by exposure condition.

In the light of these results, it is justified to suspect that exposure to natural-ideal images has temporary detrimental effects on the body dissatisfaction and state body anxiety of women with low levels of trait body anxiety. Although these women are typically more content with their body than women who show high levels of trait body anxiety, exposure to models whose weight is closer to the national mean seems to raise dissatisfaction with their own body. In line with social comparison theory (Festinger, 1954) and self-discrepancy theory (Higgins, 1987) it can be speculated that due to the large discrepancy in body features, participants with a healthy body image reject ultra-

slim models as adequate reference points for their own attractiveness and thus do not engage in upward social comparison with the thin-ideal. Thus, the body image of healthy women remains unaffected by exposure to thin-ideal images. Natural-ideal images, however, may be perceived as more adequate reference points and thus trigger social comparison processes. The data support this notion with a trend according to which participants experienced higher mean levels of identification with natural-ideal models than with thin-ideal models. Although natural-ideal images were rated equally attractive as thin-ideal images in this study, it is highly probable that all participants were aware of the all-pervasive societally sanctioned standards of female thinness and attractiveness, which give clear preference to the thin-ideal models. Thus, exposure to natural-ideal images may have emphasized the fact that the participants' own body features are much closer to the natural-ideal and thus more discrepant from the thin-ideal attractiveness yardstick. In line with previous social comparison research (Wood, 1989), an upward drive to meet the societally accepted standards of beauty is triggered and depresses body satisfaction of the otherwise confident women. Since there were no significant differences in drive for thinness and weight dissatisfaction after the exposure to thin-ideal or natural-ideal images, it is suspected that participants with low levels of trait body anxiety develop a temporary general dissatisfaction with their body, which is not focused on weight in particular.

Conversely, women with high levels of trait body anxiety showed signs of an improved body image after natural-ideal exposure compared to post-thin-ideal- or post-control-image exposure. *Weight dissatisfaction* was lower after exposure to natural-ideal images than after exposure to either thin-ideal or control images. The same pattern was true for *drive for thinness,* albeit significance was only approached. Participants with high levels of trait body anxiety showed a lower drive for thinness after exposure to natural-

ideal images than after exposure to thin-ideal images. Again drawing on social comparison theory and self-discrepancy theory, individuals with a tarnished body image may evaluate natural-ideal images as more adequate points of reference than thin-ideal images. However, instead of experiencing an upward drive to conform to the societally accepted norms of thinness, individuals with high trait body anxiety may engage in downward comparison with the natural-ideal images and thereby bolster their own body image. Since the natural-ideal models used in this study were objectively much heavier than the average participant, women with high trait body anxiety may have realized that they are still skinnier than the natural-ideal models and thus closer to the aspired thin-ideal. The decrease in perceived discrepancy between their own body and the thin-ideal is likely to have lowered their drive for thinness and their weight dissatisfaction compared to individuals who had been exposed to thin-ideal or control images.

Further, the results indicate that the body features of the models that are used in advertisements have different impacts on the evaluation of the brand. Although this was not the main focus of the present study, the items on ad liking and ad evaluation yielded a significant difference in the anticipated consequences for the brand image depending on what kind of models were used in the ads. Advertisements using natural-ideal models were perceived to bestow the brand with a respectable image more frequently than advertisements using thin-ideal models. Buying intentions were not significantly different between the experimental conditions. This finding confirms earlier research, which showed that buying intentions are not dependent on the BMI of the models that are used in advertisements but merely correlated positively with model attractiveness (Halliwell & Dittmar, 2004). The influence of natural-ideal advertisements on brand image, brand loyalty and the like are, however, largely unknown and should be addressed in future studies.

Several limitations associated with the present study's implementation should be mentioned. First, the size and nature of the sample was not ideal. It would have been desirable to recruit a bigger sample in order to bolster the explanatory power of all statistical analyses. Also, applicants to a prestigious private university are unlikely to be representative of the general young-adult population in Germany. Although data are lacking, it is conceivable that women in the present sample come from above-average socio-economic status, enjoyed a much more profound education, and are likely to experience a more pronounced upward drive compared to the average German young adult female. According to Rodin and Striegel-Moore (1984 as cited in Rodin et al., 1985, p. 293), women with perfectionist standards who aspire to above-average occupational success have high expectations for their personal performance but also for their compliance with standards of attractiveness and thinness. Since applicants to a private university can be expected to be particularly achievement-oriented and to have superior perfectionist standards, the effects that were measured in the present sample may be more pronounced than would be true in a sample of average young adult females.

Also, the finding that media consumption did not affect body image disturbance may be due to comparably low levels of media consumption in the present sample. Again, data for comparison are needed but it is conceivable that applicants engaging in profound academic training have less time to spend and less interest in the consumption of fashion magazines and television programs compared to average young adults in the general German population.

The comparably high levels of education may also have influenced the participants' lack of naivety with respect to the true study purpose. In spite of a carefully constructed cover story, about one third of all participants had guessed the true study purpose by the end of the questionnaire. It is not known at what point the study purpose became obvious

to those participants. However, there is a possibility that systematic differences due to demand effects falsified the results. Thus, in order to add generalizeability to the findings of the present study, the study needs to be replicated with a more diverse sample.

Another potential limitation is the choice in stimulus material. In spite of the fact that all stimuli were matched for general liking and model attractiveness (in the experimental conditions), using actual advertisements always bears the risk of undetected confounds including allusions to sexual content, mood, and the like. Although there were no signs of confounds, one potential problem is the attractiveness rating of natural-ideal images itself. While all models were rated equally attractive, one cannot be sure that this rating reflects the true opinions and unconscious preferences of the women in the sample. It certainly still is the exception to see advertisements using models that do not fully comply with the societally accepted standards of thinness in the German media. Especially the Dove Campaign for Real Beauty was celebrated as liberation from the ultra-thinness norm by politicians, celebrities, and customers. However, this positive media echo may also have restrained women's honest evaluation of the natural-ideal attractiveness compared to thin-ideal attractiveness. Do women really think that big is beautiful or is this what they would like *others* to think and thus a mere strategy of derogating an ideal that they are unable to attain? Is it the true appreciation of a more natural beauty ideal or is it just an attempt to cease comparison with women who have a body they would actually love to have themselves? The honesty with which the stimuli's attractiveness was assessed is of vital importance for the validity and reliability of the effects that exposure has on the female body image.

Furthermore, the present study is the first known study with a German sample. Cultural influences are thus a possible, albeit unlikely source of variation. German media communicate a female body image that is comparable to US American media and

societally sanctioned standards of thinness and attractiveness can be expected to be largely comparable to those in the United States where most studies have been conducted in the past. Problems with the translation of the stimulus material may have occurred but were not detected by the researcher.

In spite of these limitations, the results of the study support the notion that temporary effects from exposure to media images on female body image disturbance are not clear-cut and depend on an array of individual difference variables (Champion & Furnham, 1999). Contrary to the expectations, merely exchanging skinny models for big models did not lower signs of body image disturbance in all cases. It actually raised them for some women. Thus, the key to fighting the normative discontent may not be an adaptation of media images but to go deeper into the sociocultural structures. In Western societies, not conforming to the thin-ideal is equated with personal failure to manage the own body. Although a biological ceiling determines the extent to which an individual can adapt to a given beauty standard, it is taken as a sign of weakness not to conform to it fully. A particularly revealing result in the present study was the aspired body mass index of the participants. While none of the participants was currently obese, 18 percent aspired a body mass index of less than 18.5. This signifies underweight according to WHO standards (World Health Organization, 2006). Although the current societally sanctioned thinness-ideal is biologically unattainable for a large part of the *healthy* female population, it seems that thinness is seen as a key to success and pursued for better or for worse.

As the present study suggests, the prevailing discussion should not be about using skinny or chubby models to advertise the latest total effects body lotion; it should be about the roots of body image disturbance. If thin-ideal and natural-ideal images can trigger body image disturbance, the media may not be the key to a healthier body image

of the general female population but merely a powerful tool of communicating what is already cooking at the roots of society. Thus, discussions should shift back to the other agents of socialization like the family, peers, and school that need to communicate what is important with respect to body and health. The focus should not be on thin versus big but rather on how to become and stay healthy and fit. It may thus be advisable for future studies to analyze what motivates individuals to find adequate, real-life comparison-targets for health and fitness rather than turning to artificially developed images of underweight models as reference points for thinness and attractiveness. Because after all it is neither skinny nor big but *healthy* that is really beautiful.

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Appendix A

Social Attitudes Toward Appearance Questionnaire – 3 (SATAQ-3)

Internalization Subscale

Ich vergleiche mein Aussehen mit dem der Models in Zeitschriften wie Cosmopolitan,

InStyle und Glamour.

Es ist mir egal, ob mein Körper so aussieht, wie der von Leuten im Fernsehen.

Ich hätte gerne, dass mein Körper so aussieht, wie der von Models in Zeitschriften.

Ich vergleiche meinen Körper <u>nicht</u> mit den Körpern von Leuten aus Zeitschriften.

Ich vergleiche mein Aussehen mit dem Aussehen von Leuten im Fernsehen.

Ich glaube, dass Kleidung besser an dünnen Models aussieht.

Information Subscale

Fernsehwerbung ist eine wichtige Informationsquelle bezüglich Mode und Aussehen.

Artikel in Zeitschriften sind <u>keine</u> wichtige Informationsquelle bezüglich Mode und

Aussehen.

Werbung in Zeitschriften sind eine wichtige Informationsquelle bezüglich Mode und

Aussehen.

Bilder in Zeitschriften sind eine wichtige Informationsquelle bezüglich Mode und

Aussehen.

Berühmte Leute sind eine wichtige Informationsquelle bezüglich Mode und Aussehen.

Pressure Subscale

Ich fühle mich durch Fernsehen und Zeitschriften <u>nicht</u> unter Druck gesetzt, attraktiv

aussehen zu müssen.

Ich habe mich schon einmal durch das Fernsehen oder durch Zeitschriften unter Druck gesetzt gefühlt, Gewicht zu verlieren zu müssen.

Ich habe mich schon einmal durch das Fernsehen oder durch Zeitschriften unter Druck gesetzt gefühlt, schlank zu sein zu müssen.

Ich habe mich schon einmal durch das Fernsehen oder durch Zeitschriften unter Druck gesetzt gefühlt, einen perfekten Körper haben zu müssen.

Ich habe mich schon einmal durch das Fernsehen oder durch Zeitschriften unter Druck gesetzt gefühlt, eine Diät zu halten.

Ich habe mich schon einmal durch das Fernsehen oder durch Zeitschriften unter Druck gesetzt gefühlt, mein Aussehen zu verändern.

Appendix B

Physical Appearance State and Trait Anxiety Scale (PASTAS)

Trait Body Anxiety Subscale

Im Allgemeinen bin ich besorgt, angespannt oder nervös in Bezug auf...

...die Tatsache, dass andere denken, ich sei übergewichtig.

...meine Oberschenkel.

...meinen Bauch.

...meine Hüften.

...meine Taille.

...meinen Po.

State Body Anxiety Subscale

Momentan bin ich besorgt, angespannt oder nervös in Bezug auf...

...die Tatsache, dass andere denken, ich sei übergewichtig.

...meine Oberschenkel.

...meinen Bauch.

...meine Hüften.

...meine Taille.

...meinen Po.

Appendix C

Word Stem Completion Task

KÖR_____

ÜBER_____

BRU_____

ZIER_____

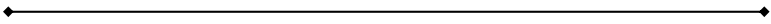SCHLA_____

LEI_____

SPIE_____

BAU_____

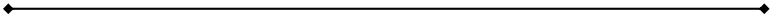GEW_____

GES_____

Appendix D

Visual Analogue Scales

Body Dissatisfaction:

Wie unzufrieden sind Sie momentan mit Ihrem Körper insgesamt?
Bitte setzen Sie ein Kreuz an der für Sie adäquaten Stelle.

keine   extreme
Unzufriedenheit   Unzufriedenheit

Weight Dissatisfaction:

Wie unzufrieden sind Sie mit Ihrem momentanen Körpergewicht? Bitte setzen Sie
ein Kreuz an der für Sie adäquaten Stelle.

keine   extreme
Unzufriedenheit   Unzufriedenheit

Ad Liking:

Im Allgemeinen gefällt mir diese Anzeige...

sehr   sehr
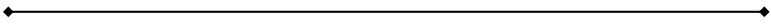schlecht   gut

Perceived Model Resemblance:

Das Model in der Anzeige sieht mir...

sehr   sehr
unähnlich   ähnlich

Appendix E

Ad Liking and Ad Evaluation Items

Ich finde die Gestaltung der Werbeanzeige ästhetisch.

Das Model in der Anzeige ist unattraktiv.

Ich fühle mich von dieser Werbeanzeige angesprochen.

Ich kann mich mit dem Model in dieser Anzeige identifizieren.

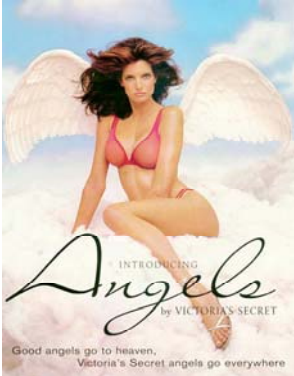Diese Werbeanzeige verleiht der Marke ein seriöses Image.

Diese Art der Werbung schadet der Marke mehr, als dass sie Kunden zum Kauf anregt.

Ich könnte mir vorstellen, das Produkt aufgrund dieser Werbeanzeige zu kaufen.

Appendix F

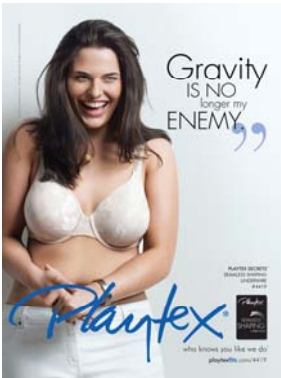## Stimulus Material

Experimental Group 1: thin-ideal

Experimental Group 2: natural-ideal

Control Group