Thinking Thin: How Body Image Issues Affect Information Processing

Thesis

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By

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Abstract

This research studies how chronic stress-induced by body image concerns affect how collegiate women process advertisements utilizing thinness depicting images. The first research question gauges chronic body-image stress by using several stress, body image and anxiety scales to determine which scale is the best measure of the independent variable. The project finds theoretical grounding in the Elaboration Likelihood Model (Petty & Cacciopo, 1981), the Extended ELM (Slater, 1997) and the Unimodel (Kruglanski et al, 1999). It was hypothesized that high chronic body-image stress would lead to a greater number of thoughts about the model and lower recall of thinness-depicting brands. Results indicated that those participants who demonstrated high chronic body-image stress, indicated by their scores on the Social Appearance Anxiety Scale (Hart et al, 2008, 1996), had more thoughts about the model and recalled less brand features of the advertisements with thinness-depicting images. The findings imply that current advertising practices that utilize thin models to sell products may not be the most effective way to target the young adult market because those with high chronic body-image stress process less of the brand features when presented with a thinness-depicting advertisement.
Dedication

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Fields of Study

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Chapter 1: Introduction

This study aimed to elucidate how chronic stress levels specific to body image affect the cognitive processing of information in a thinness-depicting advertisement. To date, much of the research on body image has looked at behaviors as opposed to cognition and exactly how a message is processed. Yet, stress literature clearly delineates a connection between high stress levels and diminished resource allocation, recall of messages and overall health. While some stress is more general in nature, stress specific to body image and appearance perception lies on a continuum that, at its extreme, causes people to develop body dysmorphia. Body dysmorphia is the preoccupation with one’s appearance and differs from normal appearance anxiety in that it interferes with normal functioning in its most extreme forms (NIH, 2009). Until now, body dysmorphia has not been explicitly linked with stress and a current measure of chronic body-image stress has not been created. The development of this scale helps to illuminate the nature of high chronic body-image stress and its connection to body dysmorphic tendencies. The current research utilizes this information to consider how collegiate women with high chronic body-image stress process advertisements with thin female models and without thin models. Additionally, the researchers used recall measures to gauge attention to thinness-depicting aspects of the images and to central brand features.

According to the National Institute of Health (2009), 1 to 2 percent of people suffer from clinical body dysmorphic disorder. Body dysmorphia is characterized by
preoccupation with appearance and viewing oneself as ugly, unattractive or overweight even when viewed by others as normal. Body dysmorphia differs from negative body image because it interferes with work, school and social lives of those affected by the disorder (NIMH, 2009). Though the NIH reports that 1 to 2 percent of the global population suffers from clinical body dysmorphia, the stigma associated with the disorder often leads to underreporting of symptoms. Experts estimate that the true number of people suffering from some variation of the disorder is probably closer to 10-15 percent of the population (NIH, 2009). While statistically only a small percentage of the population is affected by clinical dysmorphia, it can be thought of in terms of a spectrum of behaviors and mental health, much like autism and depression. Body dysmorphia often leads to eating disorders and other restrictive eating behaviors in sufferers. According to the National Institute on Mental Health, nearly 4.5 percent of Americans suffer from an eating disorder annually (NIMH, 2009). Like body dysmorphia, underreporting of eating disorders deflates this number considerably. Body dysmorphia is a particularly troubling social problem because it increases the likelihood of suicide in sufferers by 45 times and causes nearly 1/3 of sufferers to seek cosmetic enhancement (NIH, 2009). The study aims to show that this spectrum of body dysmorphia can be gauged in college students and can help to elucidate mental health effects on information processing.
Chapter 2: Literature Review

In order to look at how chronic body-image stress affects information processing, it is imperative to understand the extant literature on body image and information processing. The theoretical foundations for the current study come from careful consideration of the negative effects found in media effects research on body image and from theoretical models that explain the motivations and mechanisms behind how people view and internalize messages. The current study uses the theoretical lens of the ELM and the Unimodel to mesh body image and stress research with information processing. This study extends the knowledge base of how people process messages with thinness-depicting images and how body-image stress contributes to this processing. The discussion of these foundations begins with body image research and traces stress, anxiety, the ELM, the Unimodel and recall as components of the theoretical structure used in the current study.

*Body Image*

Previous research has established that media images can negatively affect body image, which is defined as the way in which one sees his or her physical appearance and how it relates to an ideal set by the culture (Brouwers, 1990; Brown, Cash, & Lewis, 1988; Butters & Cash, 1987; Fisher, 1986; Frey & Carlock, 1989; Hutchinson, 1985) This includes the aesthetics of the body as well as the utility of the body as perceived by the individual (Fredericks & Robertson, 1997). Harrison’s early work on body image focused on magazine content and self-reported body image responses. Her study with Cantor
(1997) showed that this content affected self-image as well as eating behaviors in collegiate women. The self-image and eating behavior findings held for women with normal body image, but was more pronounced in those who entered the study with low body image. Participants experienced greater body dissatisfaction when exposed to thinness-depicting images as opposed to non-body image related content. The study also looked at drive for thinness, which is a person’s motivation to be or to stay thin. In addition to body dissatisfaction, drive for thinness was significantly correlated to exposure to the stimulus and to self-reported body dissatisfaction (Harrison & Cantor, 1997). The above study shows a link between media messages, low body image and body dissatisfaction, constructs that form the basis for body dysmorphic tendencies and inform my research on the connections between body image and media messages.

Additionally, media usage (i.e. magazines, television and web browsing) magnifies disordered eating and disordered self-perception in those vulnerable to social comparison (Aubrey, 2008). Specifically, people with disordered body image tend to monitor and survey their own appearance when exposed to media stimuli that makes salient their own body image. This habitual monitoring, or body surveillance, can lead to body dysmorphia and to disordered eating behaviors, especially when coupled with an objectified view of the body (NIH, 2009).

Body objectification refers to the propensity of a person to neglect their body’s utility in favor of how they look to themselves and to others (Fredericks & Robertson, 1997). Put differently, people who engage in objectified thinking often have cognitions related to how they look instead of what their body can do for them. For example,
someone who objectifies their body may think, “My thighs look fat in these jeans” instead of “My leg muscles really helped me to run fast in my workout today”. Both body objectification and body surveillance lead to more negative body image and can ultimately cause dysmorphic symptoms in people. In a 2008 study, Jennifer Aubrey looked at the effect of sexually charged images on collegiate women’s levels of body surveillance (Aubrey, 2008). The researcher found that the levels of body surveillance, body consciousness and negative self-image were negatively correlated with exposure to sexually ideal women. Again, those who entered the study with low body image reported more body dissatisfaction and social comparison behaviors. The addition of body surveillance in this study leads to temporal effects not studied in previous research. Body surveillance continued beyond exposure to the stimulus and led to self-reported negative body image in participants. The current study expands this idea of body surveillance and objectification to the realm of information processing.

*Stress and Anxiety*

The second important component is stress and its effects on information processing. Until now, little research has explicitly linked body image issues with stress and anxiety levels in young adults. Furthermore, most studies relating to weight and stress have induced stress and cortisol levels to find body satisfaction effects. Yet, chronically high levels of stress specific to body image may prove to have the same detrimental effects as chronic stress in a more general sense. A review of stress and anxiety follows to delineate how and why the proposed research seeks to look at stress as it relates to body image and information processing.
Since the 1950’s stress has been understood as both acute and chronic in nature. Hans Selye (1952) found that acute stress benefits humans by increasing immunity, reaction time and awareness for a short period of time. Yet, these positive effects then reach a point where they are no longer useful to the body and instead begin to cause harm. In acute stress, the reaction subsides and the body returns to a calm state. However, when the stress is chronic, the body remains at a heightened state of awareness and the negative immunity and reaction effects cause exhaustion. This leads to worse health overall and to emotional and psychological issues.

In 1997, psychologists Beck and Clark proposed a model of anxiety and information processing that helps to shed light on the cognitive processes that exist in people with high stress and anxiety when they encounter messages. The model posits three steps that anxiety induces when information is presented: initial registration of threat, activation of primal threat mode and activation of the elaborative mode of processing the threat stimulus (Beck & Clark, 1997). The authors argue that most often persons with high stress about particular issues will approach information about it in a negative manner and will automatically register it as a threat. The ensuing steps of appraising the threat and reflecting on how to cope with the threat requires more processing and may shift the processing from automatic to central (Beck & Clark, 1997). Automatic processing occurs when a person viewing a message attends to the aesthetics of the message such as color, speaker attractiveness, physical appeal of the product or celebrity endorsement to make a value judgment about the message. Central processing occurs when a person attends to the arguments and facts made in the message as well as to the credibility of the speaker and the information presented (Petty & Cacioppo, 1981).
Yet, this does not address whether the stressed person processes the central message or the peripheral message. The central message refers to the object of the advertisement or the intent of the message being sent. The peripheral messages refer to information being conveyed about the aesthetics of the message like the model’s position, what the thin model depicts about society and the background images used in the message. Kruglanski et al (1999) explain processing as more or less elaboration on either type of message cue and provide a basis for the current research. An in-depth discussion of their model can be found later in this paper. In the study, we aim to uncover whether a person with high chronic body-image stress focuses on appearance cues relating to the model and elaborates more on the thinness-depicting image while dismissing the brand features of the advertisement.

*Body Image and Stress*

A 2003 unpublished conference paper (Craig & Bolls) attempted to extend body image research into cognition by looking at attention and emotional valence outcomes of social comparison and cognitive dissonance. The researchers exposed collegiate women to social comparison and non-social comparison beauty images. They then measured the heart rate and skin conductivity of the participants to gauge physical response of attention and emotion. The authors found that women with low self-image had a greater increase in heart rate and skin conductivity, inferring greater attentional and comparison behaviors (Craig & Bolls, 2003). While this study lays the foundation for physiological and cognitive blending of research, it fails to find the actual cognitive processes at work in deciphering and internalizing socially comparative beauty ideals. The conception of
stress, as examined below, helps to explain the cognitive elements of body image dysmorphia and information processing within this study.

The previous studies used psychophysiology to look at body image and media messages, but the addition of chronic stress creates a new confound for the study of cognition and processing. Some research has studied stress effects on body image, but unlike the current study, past research has induced acute stress in participants. Putternam and Linden (2006) conducted a study that measured stress levels using cortisol and incorporated body image in collegiate women and found that those women with higher cortisol levels rigidly controlled their diet, while those with lower cortisol levels were more flexible in their eating habits. The researchers inferred that the participants’ cortisol levels were spiked throughout the day by exposure to body image in either media or interpersonal interactions.

Yet, this diurnal approach to cortisol and stress research did not allow researchers to easily study how increased hormone levels influenced cognitive processing in participants. Several studies induced high levels of cortisol, and found that recall was negatively influenced by the presence of this high stress hormone (de Quervain, Roozendaal, & McGaugh, 1998; de Quervain, Roozendaal, Nitsch, McGaugh, & Hock, 2000). A grouping of studies building upon one another found that attention was not hindered by increased cortisol, but that recall, specifically delayed recall, was less accurate and more effortful in participants given the dose of cortisol than those given a placebo (de Quervain, Roozendaal, & McGaugh, 1998; de Quervain, Roozendaal, Nitsch, McGaugh, & Hock, 2000). While this study induced short-term cortisol production, chronic stress releases the same hormones over a prolonged period of time, therefore,
leading to the same, measured deterioration in recollection capacity. In the current study, it was predict those with high chronic body-image stress would be less able to recall thinness-depicting brands presented to them because their focus was almost exclusively on the thinness-depicting images presented to them.

Though other studies have examined cortisol levels as an indicator of stress related to eating patterns (Epel et al, 2001), the studies by de Quervin et al come closest to measuring stress in a way that coincides with the effects of chronic body dysmorphia stress. Research on both forms of stress provide important answers as to why a message is processed in a certain manner, but chronic stress allows for a more dynamic and sustained explanation in the current study.

**ELM/EELM and Unimodel**

The Elaboration Likelihood Model (Petty & Cacioppo, 1981) provides a logical framework for body image processing that is further explained by Slater’s Extended Elaboration Likelihood Model (1997) and modified by the Unimodel (Kruglanski et al, 1999). Below, the three models and their theoretical linkages to motivated information processing are discussed in terms of the hypothetical model in the present study.

Petty and Cacioppo’s Elaboration Likelihood Model (1981) offers an important lens for studying cognitive processing of body image message processing and body dysmorphia. The model posits that people process a message either centrally or peripherally based on their motivation and ability in relation to a message. A highly motivated and highly able person will process a message using the central route and will elaborate highly on the message, meaning he or she will think through the arguments and link the information to previously existing knowledge structures within their brain (Petty
& Cacioppo, 1981). Conversely, a person with low motivation and low ability will use peripheral cues to process the message they receive (Petty & Cacioppo, 1981). Peripheral cues include color, attractiveness of the image, source recognition and message channel. For this study, the attractiveness of the image to the receiver affords the most important clues as to how a message is being processed. As shown in the above study by Putternam and Linden (2006), body dysmorphia causes spikes in cortisol stress levels during a typical day of media use. By applying the ELM to this stress research, we can infer that women with high chronic body-image stress will centrally process the appearance cues of the image rather than the brand features of the advertisement. The elaboration likelihood model states that elaborating on peripheral cues may be an effective means of internalizing a message, but that the source cues and main message will not be easily recalled over time (Petty & Cacioppo, 1981).

Slater’s (1997) extension of the ELM adds an important dimension to the study. The Extended ELM brings motivational use into focus when considering how people process messages in two specific subcomponents: involvement type and involvement intensity. In explicit persuasion attempts, like the advertisements used here, the motivations described by Slater include outcome-relevant, value-relevant and impression-relevant motivations (Johnson & Eagly, 1989). Value-relevancy refers to how well a message aligns with the current global beliefs a person has about the world and how they fit within the social structure (Slater, 1997). For the purposes of this study, I was most interested in how value-relevancy plays into a participant’s decision to look at an image and process it in a manner that aligns with and reinforces their values. The Extended-ELM posits that participants who view the image as value-relevant were more likely to
centrally process the image (Slater, 1997). While this may seem counter to our claim that body image stress with cause peripheral processing, it is not. The participant may centrally process part of the advertisement, that is, the part that is most value-relevant, meaning that the thinness-depicting image becomes the focus of the central processing at the exclusion of the main message of the advertisement. Now that the basis of motivations for information processing have been explained, a third theoretical model that is derived from the ELM and EELM will be discussed (Kruglanski et al 1999). This model provides compelling support for the hypotheses laid out in this study.

Kruglanski et al (1999) posit the Unimodel as an alternative explanation derived from the ELM theoretical explanations for information processing. While the ELM model dichotomizes message arguments as central and peripheral, the Unimodel sees message arguments on a continuous scale. The authors argue that the cues may be categorized as central or peripheral, but the processing that they require is not qualitatively different. Instead, people merely process information more or less, depending on the type of cue to which they are exposed. Petty & Cacciopo’s (1986) ELM categorized central and peripheral as different types of processing, whereas the Unimodel combines these processes.

Kruglanski et al (1999) discuss several motivations for processing and agree with the components of the ELM that delineate cognitive ability and motivation as requirements for information processing. However, the authors of the Unimodel diverge from the ELM in that they believe that these requirements influence the extent of processing, not the type of processing.
The current study utilizes this conception of information processing to explain the differences between how people high and low in body dysmorphia process information related to the model’s appearance and/or the brand depicted in the image. This study contends that those with high body dysmorphia will elaborate more on the model’s appearance and body, and less on the brand and product features.

A gap exists in the literature on how thinness-depicting messages are cognitively processed. When framed in terms of the Elaboration Likelihood Model (Petty & Cacioppo, 1981) and the Unimodel (Kruglanski et al, 1999), it can be inferred that the stress induced by body dysmorphia and negative self-perception may cause increased elaboration on the model and less elaboration on the brand features. Body image should cause dysmorphic participants to attend to the image of the thinness-depicted model, instead of the main message in the ad. It appears as though peripheral processing based on body dysmorphia shows a different motivation for attention than advertisements without thin models. In light of the research previously done on body image and cognition as well as findings in dual processing, the field can extend theory through a better understanding of cognitive processes under stress in body image assessment.

Recall

In addition, the current study will explore how high chronic body-image stress influences brand recall in both thinness-depicting images and non-thinness depicting images. One study has shown that people with low self-esteem ratings report more uncertainty and ambiguity in their self-concept and lower recall for information processed (Campbell, 1990). This study argues that this lack of certainty in recall of behavior and events suggests a lack of confidence in one’s abilities and in one’s identity.
in social settings. The study seeks to link this self-concept as an integral part of how and why people consume thinness-depicting images when chronically preoccupied by their own appearance.

The goal of the study was to bring to light enough evidence of diminished brand recognition to encourage advertisers to rethink the use of thinness-depicting images in their marketing products. A significant effect using a highly targeted population like college students helps to bolster the argument that ads should utilize facts and product features to help sell a product, instead of relying on unhealthy depictions of women as objects of beauty and desire.

The first question brought about by careful review of the extant literature surrounds selection of a measure to indicate high chronic body-image stress in the target population. Many scales exist to gauge depression, stress and anxiety and many others exist to reveal body image issues and eating disorder behaviors. Yet, it was not immediately clear if a scale existed that would combine the two conceptions of stress and body image. By extension, I was uncertain about which variable would lead to the predicted dependent variable of recognition. Therefore, the research questions developed were:

RQ1: What chronic body-image stress variable best predicts recall of brands in the handbag advertisements?

RQ2: Is there a difference between the chronic body-image stress variable's prediction of recall between categories of advertisements?
From the above discussion of literature and theoretical background, the following hypotheses have also been derived:

H1: High chronic body-image stress is positively correlated with number of thoughts about the thinness-depicting image.

H2: High chronic body-image stress is negatively correlated with number of thoughts about the central message features (brand).

H3: High chronic body-image stress is associated with lower recall of the brand name in the advertisements with thinness-depicting images.
Chapter 3: Methods

Participants

The project required two separate data collection periods to obtain information regarding body dysmorphic tendencies and processing of advertisements. I obtained IRB approval to gather data on the internet in survey format for both sections of the study and to utilize approximately 350 participants total. The first collection period had 351 undergraduate respondents from introductory communication classes at The Ohio State University. All respondents who participated in the first study were invited to participate in the second study through a second recruitment announcement. Each participant received extra credit for their participation in both the pre-screening survey and in the experiment, regardless of whether they participated in both the first and second portions of the study. Participants were male (40%) and female (60%) and were between the ages of 18 and 23. The respondents were White (74%), Asian (15%), Black (7%), and Other (4%). The second portion of the study recruited from the same classes and the participants received additional extra credit for participating a second time in the study. The experimental portion of the study yielded 321 responses. The participants were male (47%) and female (51%) in this grouping and were White (75%), Asian (13%), Black (8%), and Other (4%).

Participants were asked to complete online surveys to determine their level of chronic body-image stress. These surveys included the DASS21 (Lovibond & Lovibond, 1993), the Chronic Body-Image Stress Scale, a version of the DASS21 developed by the
researcher to gauge body-image stress and anxiety, and the Social Appearance Anxiety Scale (Hart et al, 2008). To obtain information regarding the link between chronic body-image stress and information processing, the data was sorted by gender and only those subjects who participated in both portions of the study were included in the final analysis. The experiment utilized 62 female participants from the undergraduate population at The Ohio State University. Participants then completed the experimental section of the study online, at their convenience, within a two-week period.

**Instruments and Measures**

*Pre-Screening Survey.* Participants were categorized by high and low chronic body-image stress based on the results of the SAAS (Hart et al, 2008) survey in the prescreening online survey, but the Chronic Body-Image Stress Scale was also administered to determine which scale was a better indication of high chronic body-image stress. For additional validity and as possible determinates of the independent variable, the Objectified Body Consciousness Scale (McKinley & Hyde, 1996), the Eating Attitudes Test (Garner et al, 1982), the DASS21 (Lovibond & Lovibond, 1993) and the Perceived Stress Scale (Cohen et al, 1983) were also administered. After analysis, these scales were omitted from use and from further analysis. Due to this omission, the aforementioned are beyond the scope of this paper.

*Social Appearance Anxiety Scale.* The SAAS (Hart et al, 2008) is a sixteen item scale used to distinguish anxiety related to social situations, appearance and social comparison. It includes items such as, “I feel comfortable with the way I appear to others” and “I worry people will judge how I look negatively”. The SAAS had high reliability within our data set, $r= .95$. 
Chronic Body-Image Stress Scale. The modified version of the DASS21 included items such as, “I find myself preoccupied with how I look” and “When getting ready to go out, I try on several items of clothing before I choose an outfit”. This scale had a reliability of $r = .92$. Upon analysis, the SAAS (Hart et al, 2008) emerged as the measure that best explained the independent variable of chronic body-image stress.

Image Stimuli. The second portion of the study utilized a second round of recruitment from the same participant pool as the first portion. All participants were invited to complete an online viewing of images as well as a multiple choice questionnaire and thought-listing activity as the second part of the study. The stimuli (see Appendix for full catalog of stimuli) included three categories with four images each featuring luxury cars, watches and handbags. The brands represented were BMW, Porsche, Mercedes, Lexus, Zenith, Calvin Klein, DKNY, Gucci, Fendi, Louis Vitton, Muxo and Jimmy Choo and were obtained through Internet searches of advertisements.

Recall and Familiarity. The multiple choice questions included items like, “What brand is the product you are currently viewing?” with responses that included two brands that appeared in the experiment and two brands that were not depicted in the images. This measured recognition of the brand and ability to recall the brands that were in the experiment. Other questions gauged familiarity, like, “How familiar are you with the brand?” The questions also asked how pleasant and unpleasant each image was to the participant. Each of these questions was asked while participants viewed the image without branding information.

Thought-Listing. Thoughts were collected on a single thinness-depicting image and allowed participants to list up to ten thoughts, without a set minimum number of
thoughts required. Participants were instructed to indicate any thoughts they had about the image on the screen as they viewed it. This technique allowed me to see what the respondents focused on, attended to and elaborated on as they viewed the image, without priming the responses with stem and response options (Shapiro, 1994). When done concurrently while viewing the image, it lessens the risk of memory loss and allows researchers to code responses pertaining to the research without causing participants to think explicitly about the research aims. Though some of the information gathered was unrelated to the study, thought-listing provides the most comprehensive means of obtaining what a participant is thinking about as they view a message (Shapiro, 1994). The thoughts were then coded as “About the Model” in the image, “About the Brand” and “Non-Specific Thoughts” to determine the focus of the participant while processing the image. Coders were told to include explicitly stated thoughts in the categories that were “About the Model” and “About the Brand”. Other thoughts that were less clear about the object of the thought were to be coded as “Non-Specific Thoughts”.

Experimental Procedures

Participants were exposed to a series of advertising images in random order. The advertisements included handbags with thinness-depicting images of female non-celebrity models as well as automobile advertisements without human depictions and men’s jewelry advertisements with male models. The addition of male models in the third category of the advertisement ensured that participants were not focusing on the handbag ad merely because it was the only set of ads depicting a person. Four advertisement images were shown in each category. The only text in each image was the brand name and it appeared in the same size, font and location on each image. Participants were
asked to answer a set of three multiple-choice questions, discussed above, about each advertisement image during the viewing process (see Appendix for advertisements and survey instruments).

Next, the computer appeared to randomly choose an image for the participant to view. However, the researcher programmed the computer to display a handbag advertisement with a thinness-depicting image in order to obtain information about processing and body image. Each participant was asked to complete a thought-listing activity (Merluzzi, Glass & Genest, 1981) while viewing the image to measure the salient attributes of the advertisement determined by coding of participant responses. The participants were asked to include descriptions of the advertisement as well as their thoughts and emotions regarding the advertisement and the images within it. The participant was informed that he or she had an unlimited amount of time to complete the exercises. Participants were asked to list any cognitions, thoughts and emotions related to the image as they viewed it in real time. The thought-listing responses were analyzed by placing them in three categories: Thoughts about the Model, Thoughts about the Brand and Non-Specific Thoughts. Three coders analyzed the data separately and achieved high intercoder reliability, intraclass correlation for single items, \( r = .83 \), and the average correlation across the items, \( r = .94 \).

Finally, participants were asked to recall the brands featured in the image after exposure to the collection of advertisements. The recall question was, “What brand is the product you are currently viewing?” with multiple choice responses featuring two brands represented in the exercise and two brands that were absent (Shapiro, 1994). Participants were also asked how pleasant the ad appeared to them, and how likely they were to buy
the product featured. Participants were lastly asked how familiar they were with the brands depicted in the images.

The answers to the questions asked during the viewing exercise helped to delineate what content was processed and what content was overlooked because of the focus on the thinness-depicting image. It was expected that those participants with high chronic stress would recall less of the main message content and more of the peripheral cues of the thin model.
Chapter 4: Results

Recruitment and Participants

The researchers recruited 351 and 321 total participants for each section of the study, respectively. Of those participants, the 62 females who participated in both sections of the study were analyzed as they were the respondents who were retained through all sections of the study and who fit the demographic criterion as explained in the “Methods” section of this paper. Participants were recruited during two two-week periods in January and February of 2011 and completed both portions of the study online at their leisure.

Factor Loadings for Scales

The DASS21 Modified Scale yielded three factors in an exploratory factor analysis. The first factor is characterized as anxiety related to social appearance and had a factor loading range of .774-.841. The items are presented in Table 1 in the Appendix. This factor closely aligns with the Social Appearance Anxiety Scale (Hart et al, 2008, 1996) and was therefore used for further analysis of the data and for hypothesis testing. The second factor within this scale relates to conceptions of worth and appearance and had a factor loading range of .527-.862. The third factor has to do with perceptions of body image in relation to appearance behaviors and had a factor loading range of .484 to .796 (See Table 1 in the Appendix).

The Objectified Body Consciousness Scale was also broken down into two factors for this study. One factor related to control and the other factor related to surveillance. A
further discussion of this scale is not warranted, as it was not deemed the best predictor variable of brand recall.

*Scale and Experimental Descriptives*

The first portion of the study used several scales to delineate levels of chronic body-image stress. Participants (N=64) responded to the Social Appearance Anxiety Scale (Hart et al, 2008, 1996), with an obtained range of 19-76, M= 36.13, SD= 15.02. The social comparison stress factor of the Chronic Body-Image Stress Scale yielded, N=63, M=12.90, SD= 5.24. The stress factor of the Objectified Body Consciousness Scale (McKinley & Hyde, 1986) N=63, M=26.35, SD= 3.53.

The experimental variables used included three categories of recall and three types of thought-lists as coded by independent coders. Thoughts about the model yielded a 0-4 range, N= 64, M= 1.12, SD= 1.13. Thoughts about the brand had a 0-5 obtained range, N= 64, M= 1.63, SD= 1.09. Non-specific thoughts ranged from 0-8, N= 64, M= 2.63, SD= 1.93. Recall of the brand for handbags was N=64, M= 3.31, SD= .96. Recall for brand of watches was N=64, M=3.48, SD= .78. Recall for brand of cars was N=63, M= 3.63, SD= .73. Recall for handbags was the lowest of the three categories, with recall for watches in the middle and recall for cars was the highest among participants (See Table 2 in Appendix).

*Familiarity results*

Overall familiarity was the same for handbag and watch advertisements, N= 64, M= 1.77, but varied markedly for luxury cars, N= 64, M= 2.86. This difference in recognition rates may be nuanced by the inclusion of human depictions in both the
handbag and watch advertisements, or may be due to an innate familiarity with car brands.

*Recall results*

Results indicated that the recall for handbags was the only variable affected by the independent variable that indicated high chronic body-image stress (the SAAS). The results of the SAAS were correlated negatively with recall of handbag advertisements, \( r = -0.27, p < .05 \), and this was the only significant correlation among recall items. This indicates that participants who scored highly on the Social Appearance Anxiety Scale (Hart et al, 2008) were less able to recall the brands with thinness-depicting images since handbags were the only advertisements that featured thin models (See Table 3).

The other scales administered were found to be insignificant in predicting recall in the sample. These findings led to continued use of the SAAS (Hart et al, 2008) as an indicator of high chronic body-image stress, and the omission of the other scales from analysis.

*Research Questions & Hypothesis Testing*

The second research question asked whether or not the variable that predicted recall differed between the categories of brands. The data showed that the only significant affect the SAAS had on recall was for the handbag category, \( r = -0.27, p < .05 \). The other categories had no significant correlations between recall of their advertisements and scores of the SAAS.

H1: High chronic body-image stress is positively correlated with thoughts about the thinness-depicting image.
Hypothesis 1, that chronic body-image stress is positively correlated with the number of thoughts about the thinness-depicting image, was supported. The data revealed that the SAAS as a measure of chronic body-image stress had a positive correlation with the number of thoughts listed that related to the model in the handbag advertisement ($r = .398, p = .001$). Thoughts about the model included responses like, “She’s hot”, “I wish I looked like her” and “She’s skinny”.

In addition to this correlation, the correlation matrix below (Table 3) indicates that the SAAS was significantly correlated with thoughts about the model, $r = .40, p < .05$ and was negatively correlated with recall of the handbag brand, $r = -.27, p < .05$.

Figure 1 describes a hypothetical model that explains the predictions between indicators of high chronic body-image stress and thoughts about the thinness-depicting image.

H2: High chronic body-image stress is negatively correlated with thoughts about the central message features (brand).

The second hypothesis was not supported by the given data. Neither the SAAS nor the Chronic Body-Image Stress Scale were significantly correlated with thoughts about the brand, which the researchers defined as indicative of the central message features (see Table 3). Yet, the results for Hypothesis 1 show some variance in thought-listing can be explained by chronic body-image stress. Further study is necessary to reveal the mechanisms at work in one hypothesis versus the next.

Figure 1 also indicates a path from thought about the thinness-depicting image to recall about brand features, which is the focus of the third hypothesis.

H3: High chronic body-image stress was associated with lower recall of the brand name in the advertisements with thinness-depicting images.
In a linear model, the data shows that high chronic body-image stress trends toward inducing lower recall of branding in thinness-depicting advertisements, but this finding does not achieve significance, $\beta = -.364, p = .060$. This model uses the SAAS, and the first factor of the Chronic Body-Image Stress Scale to explain recall of brand names in the thinness-depicting advertisements (See Table 4 in the Appendix). The first factor of the Chronic Body-Image Stress Scale, which gauged “comparison anxiety”, did not significantly explain variance in recall of handbags, $\beta = .183, p = .338$.

The ANOVA of this model showed, F (3)= 1.518, p= .219, meaning more research should be done to create a better fitting model that obtains significance.

_Hypothesis 4_. In addition, the model shows a path between thoughts about the model and recall of brand. This was predicted to be negative, though not explicitly stated in the derived hypothesis. Though a negative correlation was found between thoughts about the model and recall of brands, $r = -.15$, it was not significant, meaning that thoughts about the model did not mediate recall of brands in this sample.

_Hypothesis 5_. A second implied path exists between thoughts about the brand and recall of brand names. Yet, this path also was non-significant, $r = -.02$, and was not in the predicted positive direction.

Figure 2 appears with all beta-weights listed. Figure 3 is the final path model listing only those paths that had significant findings.
Chapter 5: Discussion

Research Questions

Research Question 1. The question posed at the outset of this study asked what variable of interest best explained the recall outcome of brand names in thinness-depicting advertisements. To answer this question, a modified version of the DASS21 (the Chronic Body-Image Stress Scale) was developed as a possible contender for explaining variance in recall. The Social Appearance Anxiety Scale (Hart et al, 2008) also appeared as a possible independent variable. Upon analysis, the conclusion arose that the SAAS explained more variance in recall of the brand names than did the Chronic Body-Image Stress Scale.

Research Question 2. The second research question asked about differences in recall between categories based on SAAS scores. The data revealed the handbag advertisement recall to be the only significant category affected by chronic body-image stress in this sample. This result has very encouraging implications in that it reveals that chronic body-image stress does negatively affect a person’s ability to recall brand features of a product in a manner that is unique to thinness-depicting advertisements. It shows that advertisements with thinness-depicting images are, indeed, processed differently than those without thinness-depicting images. The argument against thin models in advertisements is further strengthened by the fact that one of the two remaining categories depicted male models, refuting the idea that the participants focused on the model solely because she was a human figure. Instead, the results show that participants
focused on the model more than they did the male depictions or the advertisements without human images. More research is needed to determine the exact causal mechanism of this difference.

The answers to these two preliminary research questions provided the needed measures to conduct the rest of the analysis for the hypotheses below.

_Hypotheses_

**Hypothesis 1.** The first hypothesis stated that high chronic body-image stress will produce more thoughts about the model in the experiment. This was hypothesized because I believed a person with high chronic body-image stress would elaborate more on the thin model and, therefore, have more thoughts about the model than the brand. Correlations between SAAS scores and number of thoughts specific to the model supported this hypothesis, meaning that chronic body-image stress induced participants to think more about the model than those who were less stressed by their body image. This finding means that something about the thinness-depicting advertisement causes a high number of thoughts about the image in this demographic.

**Hypothesis 2.** The second hypothesis posited that number of thoughts about the brand would be correlated with high chronic body image stress, but this was not supported. This may have not been significant due to the nature of advertisement, which depicted a woman in a bathing suit carrying a handbag. The ambiguous nature of the product (Was the product being sold the handbag or the bathing suit?), meant that the participant may have had mixed feelings on the ad itself. Also, familiarity of the brand may have played a role in brand thoughts. The differences in familiarity of brands may prove to be an interesting follow-up study to the present project.
Hypothesis 3. The third hypothesis aimed to distinguish a link between high chronic body image stress and diminished recall of the brand in the handbag advertisement. In a linear regression model, the SAAS appeared to explain variance in brand recall of thinness-depicting images. This finding can most easily be attributed to the social anxiety components of the scale, which delved into the common habits and thoughts that are often associated with body dysmorphia, social comparison and social appearance anxiety. These results suggest that the same type of anxiety that women feel as they compare themselves to others in their daily lives, also translates to how they view media images of the thin ideal. These images conjure feelings of anxiousness and stress that then affect the ability of women to process the message and retain the branding information in recall later.

General Discussion. The research suggests that, indeed, people with chronic body-image stress (and therefore, body dysmorphic tendencies) are less able to recall brand information when the advertising utilizes thinness-depicting images. While the findings do not suggest a causal link, they help to explain an individual difference that causes people to have diminished processing. These findings support the Unimodel (Kruglanski et al, 1999) idea that elaboration is not necessarily in two distinct paths, but acts on a continuum of more or less thought on a subject. Instead of calling thoughts about the model, peripheral processing, the Unimodel approaches these thoughts as more elaboration on cues. These results do not negate the idea that elaboration is a mediating mechanism in how people with body dysmorphia process thinness-depicting images. Instead, they offer some insight into how best to answer the question of causation. Further study may bring to light mechanisms not found by the current methodology.
Scholars might consider other methods of collecting thought-listing, such as focus groups, think-aloud sessions and eye-tracking studies to better distinguish the type of processing being done.
Chapter 6: Limitations

This study aimed to examine how body dysmorphic tendencies affect information processing in college females. While the survey and experiment revealed some indications of a link between body dysmorphia and reduced recall of brands utilizing thinness-depicting images, a causal mechanism did not emerge from the existing data. Though participants obliged the request to enter as many thoughts as they could in the textboxes, many of the thoughts were coded as non-specific to the model and to the brand and did not glean much information about the true nature of a participant’s thoughts. These results may have been due to unclear instructions and may have been an artifact of the notion that people can not fully articulate what they are thinking about an object (Nisbett & Wilson, 1977). Also, the nature of the advertisement, depicting a thin bikini-clad model may have induced sensitive thoughts and thoughts that, especially those with high chronic body-image stress, would be less likely to share with other people.

The study results may also have been limited by the use of luxury items. A second study utilizing more commonly purchased items may be interesting in gaining a more generalizable and ecologically valid perspective on how body dysmorphia affects every day information processing. Future scholarship may also find differences in recognition rates by utilizing items in which their target population would be more likely to encounter in their daily lives, as opposed to the luxury items used in this study.
Lastly, I collected a lot of data that was not analyzed in this study, in order to answer my research question. Future research could be done utilizing this data to study other forms of stress and anxiety and information processing in an advertising context.
Chapter 7: Conclusions

Body dysmorphia affects a reported 1 to 2 percent of the world’s population, but that statistic suffers immensely from underreporting, and is often estimated to be as high as 10 to 15 percent (NIH, 2009). The extant literature on body dysmorphia links this disorder to stress and anxiety about one’s appearance, but the primary scholarship on body dysmorphia looks at mental health effects and physiological hardship of those suffering from the disorder. This study creates a path for looking at how stress specifically related to body image effects how people process information in an advertising context.

Future research in this line of work should also focus efforts on delineating the causal mechanism behind the reduced recall as well as finding contextual nuances, like ambiguity in the product being advertised, that help to better explain the variance in information processing. By taking a more focused approach to looking at stress specific to body image, communication scholars would be able to work toward a better understanding of how stress influences our communicative efforts, both in the media and in our daily lives. Taken in aggregate, this study also has many implications for the advertising world. Ironically, the bulk of advertising utilizes thinness-depicting images to help sell products. Yet, this study shows that brand recognition is, in fact, diminished by the very same images that ad designers use to sell their brands. Beyond scholarship, the industry could utilize this information to create better ad campaigns and to more
effectively target college students, who make up a large and lucrative section of the market.
References


de Quervain, D. J. F., Roozendaal, B., Nitsch, R. M., McGaugh, J. L., &


Kruglanski, A.W., Thompson, E.P. and Spiegel, S. (1999). Separate or equal?: Bimodal notions of persuasion and a single-process "unimodel." In S. Chaiken

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The Numbers Count: Mental Disorders in America (2009). *NIMH*. 


Figure 1. Hypothetical Model with Directional Hypotheses
Figure 2. Fully Specified Model with All Beta Weights

High Chronic Body image Stress (SAAS) → Thoughts about Model

Thoughts about Brand → Recall of brand

\[ \beta = .40^* \]
\[ \beta = -.15 \]
\[ \beta = -.27^* \]
\[ \beta = .00 \]
\[ \beta = -.02 \]

\[ r^2 = .07 \text{ (p < .05)} \]
### Table 1

**Factor Loadings of Chronic Body-Image Stress Scale**

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I think about my appearance in relation to other people’s appearance, I feel tense.</td>
<td>0.778</td>
<td>0.226</td>
<td>0.448</td>
</tr>
<tr>
<td>When I think about my body, I can think of more negative than positive attributes.</td>
<td>0.820</td>
<td>0.080</td>
<td>0.328</td>
</tr>
<tr>
<td>When I think about my body, I can not name many positive attributes.</td>
<td>0.788</td>
<td>0.262</td>
<td>0.115</td>
</tr>
<tr>
<td>I get easily upset when I think about my body compared to the images I see in media.</td>
<td>0.841</td>
<td>0.105</td>
<td>0.165</td>
</tr>
<tr>
<td>Social situations make me anxious because I am always worried about how I look.</td>
<td>0.787</td>
<td>0.432</td>
<td>-0.003</td>
</tr>
<tr>
<td>I find myself comparing my appearance to others around me.</td>
<td>0.774</td>
<td>0.224</td>
<td>0.316</td>
</tr>
<tr>
<td>I find myself comparing my weight to others around me.</td>
<td>0.829</td>
<td>0.032</td>
<td>0.283</td>
</tr>
<tr>
<td>Thinking about my appearance interferes with my school and work activities.</td>
<td>0.190</td>
<td>0.692</td>
<td>0.436</td>
</tr>
<tr>
<td>It always takes me longer than I think to get ready in the morning.</td>
<td>0.157</td>
<td>0.670</td>
<td>0.098</td>
</tr>
<tr>
<td>Items</td>
<td>Factor 1</td>
<td>Factor 2</td>
<td>Factor 3</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>I do not have much worth as a person beyond my appearance.</td>
<td>.020</td>
<td>.862</td>
<td>.029</td>
</tr>
<tr>
<td>I use the media to determine what I think is beautiful.</td>
<td>.391</td>
<td>.527</td>
<td>.098</td>
</tr>
<tr>
<td>When thinking about my appearance, I find myself upset by trivial things.</td>
<td>.464</td>
<td>.110</td>
<td>.484</td>
</tr>
<tr>
<td>When clothing makes me look unattractive, I tend to overreact.</td>
<td>.308</td>
<td>.201</td>
<td>.796</td>
</tr>
<tr>
<td>I find myself preoccupied with how I look.</td>
<td>.333</td>
<td>.423</td>
<td>.600</td>
</tr>
<tr>
<td>When getting ready to go out, I try on several items of clothing before I choose an outfit.</td>
<td>.104</td>
<td>.018</td>
<td>.730</td>
</tr>
</tbody>
</table>

Note: Factor loadings using Varimax rotation method with Kaiser Normalization.
Table 2

*Means and Standard Deviations for all Study Variables*

<table>
<thead>
<tr>
<th></th>
<th>N=64</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Appearance Anxiety Scale</td>
<td>36.13</td>
<td>15.02</td>
<td></td>
</tr>
<tr>
<td>Familiarity- Handbags</td>
<td>1.77</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>Familiarity- Watches</td>
<td>1.77</td>
<td>1.28</td>
<td></td>
</tr>
<tr>
<td>Familiarity- Cars</td>
<td>2.86</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td>Recall- Handbags</td>
<td>3.31</td>
<td>.96</td>
<td></td>
</tr>
<tr>
<td>Recall-Watches</td>
<td>3.48</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>Recall- Cars*</td>
<td>3.63</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>Correct Recall</td>
<td>10.42</td>
<td>1.87</td>
<td></td>
</tr>
<tr>
<td>Chronic Body-Image Stress Scale (Factor 1)*</td>
<td>12.90</td>
<td>5.24</td>
<td></td>
</tr>
<tr>
<td>Thoughts on Model</td>
<td>1.12</td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td>Thoughts on Brand</td>
<td>1.63</td>
<td>1.09</td>
<td></td>
</tr>
<tr>
<td>Non-specific Thoughts</td>
<td>2.63</td>
<td>1.93</td>
<td></td>
</tr>
</tbody>
</table>

*Notes: * denotes N=63. Valid N (listwise)= 62.*
Table 3

**Bivariate Correlations among SAAS, Thoughts and Categorical Recall**

<table>
<thead>
<tr>
<th></th>
<th>Thoughts about Model</th>
<th>Thoughts about Brand</th>
<th>Non-specific Thoughts</th>
<th>Recall of Handbags</th>
<th>Recall of Watches</th>
<th>Recall of Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance Scale</td>
<td>.40**</td>
<td>.00</td>
<td>-.03</td>
<td>-.27*</td>
<td>-.17</td>
<td>.06</td>
</tr>
<tr>
<td>2. Thoughts about Model</td>
<td>1.00</td>
<td>.01</td>
<td>-.05</td>
<td>-.15</td>
<td>-.03</td>
<td>.05</td>
</tr>
<tr>
<td>Thoughts about Brand</td>
<td>---</td>
<td>1.00</td>
<td>-.22</td>
<td>-.02</td>
<td>.07</td>
<td>-.02</td>
</tr>
<tr>
<td>Non-Specific Thoughts</td>
<td>---</td>
<td>---</td>
<td>1.00</td>
<td>.000</td>
<td>-.23</td>
<td>-.14</td>
</tr>
<tr>
<td>Recall of Handbags</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1.00</td>
<td>.35**</td>
<td>.28*</td>
</tr>
<tr>
<td>Recall of Watches</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1.00</td>
<td>.51**</td>
</tr>
</tbody>
</table>

**p < 0.01, * p < .05**
Table 4

*Regression of SAAS on Handbag Recall*

<table>
<thead>
<tr>
<th></th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Appearance Anxiety Scale</td>
<td>-.364</td>
</tr>
<tr>
<td>DASS21- Modified</td>
<td>.183</td>
</tr>
</tbody>
</table>

*Notes:* $R^2 = .07 (p < .05)$
Appendix

Part I: Survey Items

We’d like to obtain your name and email address. May we contact you for a follow-up study in the future?

Instructions: Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past month. 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 time
3  Applied to me very much, or most of the time

DASS21
1 I found it hard to wind down.
2 I was aware of dryness of my mouth
3 I couldn't seem to experience any positive feeling at all
4 I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)
5 I found it difficult to work up the initiative to do things
6 I tended to over-react to situations
7 I experienced trembling (eg, in the hands)
8 I felt that I was using a lot of nervous energy
9 I was worried about situations in which I might panic and make a fool of myself
10 I felt that I had nothing to look forward to
11 I found myself getting agitated
12 I found it difficult to relax
13 I felt down-hearted and blue

14 I was intolerant of anything that kept me from getting on with what I was doing

15 I felt I was close to panic

16 I was unable to become enthusiastic about anything

17 I felt I wasn't worth much as a person

18 I felt that I was rather touchy

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)

20 I felt scared without any good reason

21 I felt that life was meaningless
High Chronic Body-Image Stress Scale (DASS 21 Modified)

When thinking about my appearance, I find myself upset by trivial things.

When clothing makes me look unattractive, I tend to overreact.

When I think about my appearance in relation to other people’s appearance, I feel tense.

Thinking about my appearance interferes with my school and work activities.

I find myself preoccupied with how I look.

When getting ready to go out, I try on several items of clothing before I choose an outfit.

It always takes me longer than I think to get ready in the morning.

I do not have much worth as a person beyond my appearance.

When I think about my body, I think of more negative than positive attributes.

When I think about my body, I can not name many positive attributes.

I get easily upset when I think about my body compared to the images I see in media.

Social situations make me anxious because I am always worried about how I look.

I use the media to determine what I think is beautiful.

I find myself comparing my appearance to others around me.

I find myself comparing my weight to others around me.
Objectified Body Consciousness Scale (McKinley & Hyde, 1996)

Surveillance
1. I rarely think about how I look.

2. I think it is more important that my clothes are comfortable than whether they look good on me.

3. I think more about how my body feels than how my body looks.

5. During the day, I think about how I look many times.

6. I often worry about whether the clothes I am wearing make me look good.

7. I rarely worry about how I look to other people.

8. I am more concerned with what my body can do than how it looks.

Control
17. I think a person is pretty much stuck with the looks they are born with.

18. A large part of being in shape is having that kind of body in the first place.

19. I think a person can look pretty much how they want to if they are willing to work at it.

20. I really don’t think I have much control over how my body looks.

21. I think a person’s weight is mostly determined by the genes they are born with.

22. It doesn’t matter how hard I try to change my weight, it’s probably always going to be about the same.

23. I can weigh what I am supposed to when I try hard enough.

24. The shape you are in depends mostly on your genes.
Social Appearance Anxiety (Hart et al, 2008)

1. I feel comfortable with the way I appear to others.

2. I feel nervous when having my picture taken.

3. I get tense when it is obvious people are looking at me.

4. I am concerned people would not like me because of the way I look.

5. I worry that others talk about flaws in my appearance when I am not around.

6. I am concerned people will find me unappealing because of my appearance.

7. I am afraid that people will find my unattractive.

8. I worry that my appearance will make life more difficult for me.

9. I am concerned that I have missed out on opportunities because of my appearance.

10. I get nervous when talking to people because of the way I look.

11. I feel anxious when other people say something about my appearance.

12. I am frequently afraid I would not meet others’ standards of how I should look.

13. I worry people will judge the way I look negatively.

14. I am uncomfortable when I think others are noticing flaws in my appearance.

15. I worry that a romantic partner will/would leave me because of my appearance.

16. I am concerned that people think that I am not good looking.
Eating Attitude Test-26 (Garner & Garfinkel, 1979; Garner, 1982)

1. I am terrified about being overweight.
2. I avoid eating when I am hungry.
3. I find myself preoccupied with food.
4. I have gone on eating binges where I feel that I may not be able to stop.
5. I cut my food into small pieces.
6. I am aware of the calorie content of foods that I eat.
7. I particularly avoid foods with a high carbohydrate content (ie bread, rice, potatoes, etc.)
8. I feel that others would prefer if I ate more.
9. I vomit after I have eaten.
10. I feel extremely guilty after eating.
11. I am preoccupied with a desire to be thinner.
12. I think about burning up calories when I exercise.
13. I other people think that I am too thin.
14. I am preoccupied with the thought of having fat on my body.
15. I take longer than others to eat my meals.
16. I avoid food with sugar in them.
17. I eat diet foods.
18. I feel that food controls my life.
19. I display self-control around food.
20. I feel that others pressure me to eat.
21. I give too much time and thought to food.
22. I feel uncomfortable after eating sweets.

23. I engage in dieting behavior.

24. I like my stomach to be empty.

25. I enjoy trying new, rich foods.

26. I have the impulse to vomit after meals.
Perceived Stress Scale (Cohen et al. 1988)

1. In the last month, how often have you been upset because of something that happened unexpectedly?

2. In the last month, how often have you felt that you were unable to control the important things in your life?

3. In the last month, how often have you felt nervous and “stressed”?

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

5. In the last month, how often have you felt that things were going your way?

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

7. In the last month, how often have you been able to control irritations in your life?

8. In the last month, how often have you felt that you were on top of things?

9. In the last month, how often have you been angered because of things that were outside of your control?

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
Interference in Life Activities

1. Have you ever been late to a scheduled appointment because you were concerned about how you looked?

2. Have you ever cancelled plans because you thought you looked unattractive?

3. In the last month, have you made people wait for you because you couldn’t find anything to wear?

4. In the last year, have you refused invitations to events where food would be served because you were trying to lose weight?

5. In the last month, have you felt compelled to exercise because you want to look like people you’ve seen the media?

6. In the past year, has someone in your life confronted you with concern about your appearance-related habits?
Part II: Questions During Image Viewing

Please answer the following questions for each image you view in this portion of the study. You have an unlimited amount of time to complete these questions for each image.

On a scale of 1 to 5 (not at all to very), how pleasant was this image to you?

On a scale of 1 to 5 (not at all to very), how unpleasant was this image to you?

If you encounter this product in the future, how likely are you to purchase it?

What brand is the product you are currently viewing:
- 2 responses to be brands represented in stimulus
- 2 responses to be brands unrepresented in stimulus

Now, the computer will randomly select an advertisement you have just viewed. Please list any thoughts you have about the product as well as a description of the advertisement as you view it.

Post Test Question

How familiar are you with the brands you saw in the images presented to you?

A. I’ve never seen them
B. I’ve seen them once or twice
C. I’ve seen them, but never purchased any of them
D. I’ve seen them and own products from at least one of the brands
Image also used for thought-listing activity