Thin-Ideal Images and Affect: An Investigation Using
Magazines and Minimizing Demand

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Abstract

Women and girls generally experience slightly reduced satisfaction with their appearance following exposure to thin-ideal media images. Inconsistent findings have been obtained regarding the impact of such images on positive and negative affect. However, in experimental studies, researchers have typically exposed participants to a concentrated dose of such images, isolated from context, instead of showing them in an everyday context such as within a fashion magazine. This has implications for external validity because the context in which thin-ideal images are viewed may change their effects. Concentrated exposure also increases demand characteristics. The present study investigated the effect of thin-ideal images presented in magazines on viewers' affect, while manipulating the level of demand characteristics.

Undergraduate female students ($N = 172$) were assigned to three groups (Implied Demand, Minimized Demand, and Control), two of which were exposed to fashion magazines; the third group was exposed to control magazines containing no thin-ideal images. Demand characteristics were manipulated when the experimenter provided the magazines during a putative break period, and participants' affect was assessed both pre- and post-exposure. Our results indicated that exposure to fashion magazines was no different from exposure to control magazines in the effects on participants' affect.

Keywords: media images, thin ideal, affect, demand characteristics, fashion magazines

Statement of public significance: Prior research has shown that exposure to a series of thin-ideal media-images extracted from fashion magazines and presented by themselves can cause detrimental effects, such as increased negative affect, among female viewers. This study examined whether such images also cause these effects when presented in context – namely, when participants view them in actual fashion magazines. The effects of exposure to fashion

magazines on participants' affect were similar to exposure to control (non-thin-ideal) magazines, suggesting that, in context, such images may have no unique effects on participants' affect.

Thin-Ideal Images and Affect: An Investigation Using Magazines and Minimizing Demand

The past three decades have seen a surge in research investigating the effects of *thin-ideal* media images – images of physically attractive women with small waists and little body fat – on female viewers (see Ferguson, 2013; Grabe, Ward, & Hyde, 2008; Groesz, Levine, & Murnen, 2002; Holmstrom, 2004; Want, 2009 for meta-analyses). Much of this research has found small but detrimental effects on at least some viewers' satisfaction with their own appearance. A smaller literature concerns the effects of the images on viewers' affect. However, the majority of these experimental studies have presented participants with a series of thin-ideal images stripped of any accompanying contextual information, such as captions, logos, or text (Want, 2014). This presents challenges to our ability to generalize conclusions from this body of laboratory work to everyday life. Firstly, written messages that accompany thin-ideal images in everyday life may change the effects of the images (Martin & Gentry, 1997). Secondly, the stripped-down presentation of the images in the lab may increase demand characteristics – cues that convey the experimental hypothesis to participants (Orne, 1959). These cues may be problematic, as participants may change their behaviour to accord with an experimental hypothesis if they believe they know it (Mills, Polivy, Herman, & Tiggemann, 2002; Nichols & Maner, 2008; Orne, 1962). The current study addressed these twin threats to external validity by presenting thin-ideal images in a naturally-occurring context, namely within fashion magazines, and varying the demand characteristics present in two different conditions. Effects were assessed by asking participants to complete measures of positive and negative affect before and after exposure to the magazines.

The Effects of Thin-Ideal Media Images in Typical Laboratory Experiments: Appearance Dissatisfaction and Affect

TV programs, movies, popular magazines, and the advertisements within those media and in other forms (e.g., billboards), have all been criticized for under-representing larger body types, over-representing thin body types, and manipulating images to present unrealistically thin and flawless women. Several content analyses have indeed confirmed that images of slim and attractive women predominate across a multitude of media platforms (e.g., Bonafini & Pozzilli, 2011; Buote, Wilson, Strahan, Gazzola, & Papps, 2011; Byrd-Bredbenner, Murray, & Schlusell, 2005; Seifert, 2005; Sypek, Gray, & Ahrens, 2004), although some advertising campaigns (e.g. Dove's #RealBeauty, #AerieREAL) have begun to de-emphasize such images in recent years.

Conclusions from meta-analyses of overlapping sets of studies of the effect of exposure to thin-ideal images on female viewers' satisfaction with their own appearance are mixed. Three such analyses concluded that they have small detrimental effects overall (Grabe, Ward, & Hyde, 2008; Groesz, Levine, & Murnen, 2002; Want, 2009); one found little to no general effect (Holmstrom, 2004), and two found non-trivial effects for only a subset of viewers already in some way concerned with their appearance (Ferguson, 2013; Hausenblas et al., 2013).

Nevertheless, the predominant view is that thin-ideal images can have small deleterious effects on appearance satisfaction, at least for some viewers. Such effects are thought to be the result of upward social comparisons (Festinger, 1954) that viewers make between their own appearance and the appearance of the women in the images (Want, Botres, Vahedi, & Middleton, 2015; Want & Saiphoo, 2017). Given that the women in the images are generally thinner and more physically-attractive than average, these comparisons trigger lowered self-evaluations, at least temporarily.

Social comparisons with thin-ideal images are also thought to impact participants' positive and negative affect. Here the results are even more varied. A meta-analysis by

Hausenblas et al. (2013) identified a significant, moderate ($d = -.56$), overall *decrease* across varied measures of negative affect following acute exposure to thin-ideal images; they found a similarly-sized overall decrease ($d = -.49$) in positive affect as well. In other words, the results of this meta-analysis indicate that *both* positive and negative affect decrease following acute exposure to media images. However, Hausenblas et al. also identified significant heterogeneity among effect sizes for both negative and positive affect. This indicates that significant variability exists in the literature regarding the effects of thin-ideal images on viewers' affect. One crucial moderator of media effects may be the way in which these thin-ideal images are presented to participants.

The Presentation of Thin-Ideal Media Images in Typical Laboratory Experiments

In a typical lab-based experiment on the effects of thin-ideal media images, participants are exposed to a series of such images extracted from their real-world context (be it a magazine or website) and presented by themselves, devoid of captions, logos, or accompanying textual information (Want, 2014). This type of presentation of thin-ideal images can be viewed as consistent with what Ferguson (2016) called the *hypodermic needle model* of media influence. Under this model, “injections” of media content are thought to exert direct and general effects on passive recipients. To continue Ferguson's analogy, in a typical experiment on the effect of media images on appearance satisfaction or affect, the active ingredient from the media – in this case, pictures of thin and physically-attractive women – is extracted and purified (removed from context, isolated from other ingredients such as text), and viewers are exposed to a concentrated dose (an extended series of such images) in order to observe their reactions.

Such a hypodermic needle approach to the presentation of thin-ideal images creates at least two clear problems, both of which limit external validity: (1) it removes the surrounding

context of the images, which may change their effects, and (2) it increases demand characteristics. To be sure, accurate generalization of effects beyond the laboratory is not always the primary concern of an experimenter (v); researchers themselves may simply be attempting to discover whether or not concentrated doses of purified thin-ideal images *can* have detrimental effects on people under controlled laboratory conditions. However, when such results from the laboratory are then used to argue that media images typically *do* have detrimental effects on people in everyday life, we must confront problems of external validity.

(1) The problem of context. The hypodermic delivery of a concentrated dose of images, purified of their everyday context, limits our ability to generalize their effects because evidence suggests that the surrounding context of thin-ideal images matters. Beginning with Martin and Gentry (1997) a small handful of experiments have demonstrated that written messages that accompany images of thin and attractive women and that emphasize that their appearance can be attained by the viewer (e.g., “You can learn how to be just as beautiful!”; Martin & Gentry, 1997) either eliminate any detrimental effects on self-perceptions (Martin & Gentry, 1997) or result in improvements to the same (Mills, Polivy, Herman, & Tiggemann, 2002; Veldhuis, Konjin, & Knobloch-Westerwick, 2017). One plausible explanation is that attainability messages can switch a viewer’s motives for comparing from self-evaluation to self-improvement. Comparing oneself to superior others with an eye to evaluating the self typically results in lowered self-evaluations and increased negative affect. However, comparing with the aim of improving the self (attaining similar status to the superior other) can result in less detrimental and more beneficial effects (Halliwell & Dittmar, 2005; Lockwood & Kunda, 1997).

The moderating influence of attainability messages is important because thin-ideal images and attainability messages co-occur frequently in at least some of the contexts in which

they are encountered in everyday life. For example, Buote, Wilson, Strahan, Gazzola, and Papps (2011) found a total of 317 attainability messages across four individual editions of high-circulation magazines aimed at women (one edition each of *Cosmopolitan*, *Marie Claire*, *Lucky*, and *Vogue*). These magazines thus frequently present thin-ideal images accompanied by written messages “suggesting that the ideal body is attainable (e.g., via self-control, use of specific products or strategies, etc.)” (Buote et al., 2011, p.329). It is therefore at least conceivable that some of the short-term detrimental effects typical of a concentrated and context-less dose of thin-ideal images given in a lab might be diluted when images are viewed in the everyday context of a magazine.

Despite the potential impact of such contextual information, few studies have presented idealized images in the context of actual magazines. Two studies examined the immediate impact of viewing magazines containing thin-ideal images. Turner, Hamilton, Jacobs, Angood, and Dwyer (1997) left undergraduate women waiting in a room for 13 minutes with either fashion magazines (*Vogue*, *Bazaar*, *Elle*, and *Allure*) or news magazines to read. Those left to read the fashion magazines scored significantly lower on three out of eleven measures of body satisfaction compared to those left with the news magazines. However, given the small sample size ($N = 49$, split between the two conditions in a between-participant design) the statistical power to detect typically-sized experimental effects of thin-ideal images ($d = -.35$; Want, 2009) in this study was low. Loeber et al. (2016) used a similar waiting-room method and a more statistically powerful pre- to post-test design. They found that leafing through a magazine containing thin-ideal images (compared to a magazine containing landscape images) had no significant effects on women’s body satisfaction or positive affect. Loeber et al.’s null result held

for women diagnosed with a mood or anxiety disorder ($n = 31$), women diagnosed with an eating disorder ($n = 68$), and a normal-weight control group ($n = 51$).

Two studies examined the longer-term effects of reading actual magazines. Knobloch-Westerwick and Crane (2012) exposed college-aged women to full magazine pages containing thin-ideal images, as well as accompanying ads and articles, from *Allure*, *Women's Health*, *Shape*, *Cosmopolitan*, *Redbook*, and *Self*, for five consecutive days. Baseline and daily measures of body satisfaction were completed. This form of exposure to thin-ideal images lead to an *increase* in participants' body satisfaction over time. In a much longer study, Stice, Spangler, and Agras (2001) randomly-assigned roughly half of a sample of adolescent girls to receive a subscription to the teen magazine, *Seventeen*. They found no main effects of the magazine on the girls' body satisfaction or negative affect over the 15-month period covered by the subscription, although some small and inconsistent detrimental effects were found for subsets of participants.

In sum, to date, one study suggested positive effects, one suggested no effects, and two suggested inconsistent detrimental effects (inconsistent across measures or participants), when women or girls see thin-ideal images the context of an actual magazine. One purpose of the present study was to add to this small body of work, by presenting thin-ideal images to participants within the everyday context of a magazine.

(2) The problem of demand characteristics. A second issue caused by the hypodermic delivery of thin-ideal images typical of most experimental research is the issue of demand characteristics. Orne (1962) recognized that participants in psychology experiments typically attempt to identify the true hypothesis of the study by reacting to cues (or *demand characteristics*) in the experimental setting. Orne's assumption, borne out by later research (Mills et al., 2002; Nichols & Maner, 2008), was that once participants know the study's hypothesis, their desire to

be a good subject will lead them to give responses confirming that hypothesis. Thus, instead of responding naturally to stimuli, participants may respond to them as they believe researchers want them to. It perhaps goes without saying that the presentation of a series of thin-ideal images, devoid of context, is likely to be a significant demand characteristic, alerting participants to the fact that identifying the effects of those images is the goal of the study. Moreover, it seems likely that participants who know that a study is investigating the effects of thin-ideal media images will assume that the hypothesized effects are detrimental; after all, a great deal of publicity has been given to concerns about the detrimental effects of media images. One possibility then, is that the detrimental reactions often obtained from the hypodermic delivery of thin-ideal images in the lab represent the effects that participants believe the researchers are looking for, rather than how participants actually react to them in everyday contexts.

Even in previous studies in which actual magazines were used to present the thin-ideal images (thereby avoiding hypodermic presentation), other demand characteristics have been present. For instance, Turner et al. (1997) explicitly told their participants they were studying body image satisfaction and, after their time in the waiting room with the magazines, gave them a questionnaire containing 31 questions about “their bodies and their dieting attitudes and behaviors” (p.607). Stice et al. (2001) assessed their participants’ exposure to the magazine they were subscribed to (*Seventeen*), along with other thin-ideal magazines, in the same questionnaire as they asked about their perceived pressure to be thin, thin-ideal internalization, dieting, bulimic symptoms, negative affect, and body dissatisfaction. So it is possible that previous studies in which detrimental effects of magazines have been found were confounded by demand.

The Present Study

The purpose of the present study was to examine the effect of thin-ideal images on young women's affect when those images are presented in context (in complete, unmodified, editions of popular fashion magazines), and demand characteristics are minimized. To minimize demand, measures of body image satisfaction were not used in the current study; instead, both implicit and explicit measures of affect were given. Due to the structure of the implicit measure (Hass, Katz, Rizzo, Bailey, & Moore, 1992), it was possible to present participants with a cover story for the study; namely, that it assessed subliminal information processing. Three conditions were tested. In one condition (Minimized Demand) exposure to the magazines appeared incidental to the study design, as participants were provided with the magazines during a ten-minute "break" from the study. In a second condition (Implied Demand), we increased the level of demand; participants were given the fashion magazines and instructed to pay special attention to the images. In the final condition (Control), participants were asked to read different magazines, with no thin-ideal imagery in them.

The comparison of the Implied and Minimized Demand conditions with the Control condition allowed for an assessment of whether or not thin-ideal media images have detrimental effects even when presented in the everyday context of a magazine. The comparison of the Implied Demand condition with the Minimized Demand condition then allowed for an assessment of the role that demand characteristics play in any such effects.

Method

Participants

One-hundred and seventy-two female participants were recruited from introductory psychology courses at [location withheld for masked review], for course credit. To keep the

sample relatively homogenous in terms of age, data from five participants over the age of 30 were excluded. Four participants were excluded because of technical issues, such as the computer not recording their responses. Finally, one participant did not complete the study. This resulted in a final sample of 162 participants with 54 in each condition.

Materials

Magazines. Two fashion (*Fashion* and *Elle*) and two scientific/factual (*Scientific American* and *Mental Floss*) magazines were used. To check that the issues we used were representative of fashion magazines in general, we used a procedure adapted from Buote et al. (2011), in which the female model images were rated on age, attractiveness, and body type (Table 1). Model images in which the face or body were not displayed were given a code of “unknown” and were not included in the respective component counts below. For example, if only the model’s face was shown, but the body shape was obscured, the model was given a rating of unknown for body type. In addition, the messages contained in the fashion magazines were also coded into six categories (Table 2). A second coder rated 30% of the images and messages; inter-rater reliability was 86% for model images and 80% for messages. Discrepancies between raters were resolved by further discussion. Neither the images nor content in *Scientific American* or *Mental Floss* were coded. The results of this content analysis are provided in the Results section.

Positive and Negative Affect Schedule (PANAS). The PANAS is a reliable and validated 20-item scale measuring both explicit positive and explicit negative affect (Crawford & Henry, 2004; Watson, Clark, & Tellegen, 1988b). Items such as *interested*, *attentive*, and *enthusiastic* measure positive affect, whereas items such as *scared*, *distressed*, and *jittery* measure aspects of negative affect. Participants are asked to rate the extent to which they feel the

various affect states “right now” on a Likert scale ranging from 1 = very slightly or not at all to 5 = extremely.

Visual Analogue Scales (VASs). As an additional measure of explicit negative affect, participants completed three VAS items (Heinberg and Thompson, 1995). The items were rated on a scale of 0 to 100, with endpoints of *happy-unhappy*, *angry-calm* and *confident-insecure*. Responses for the *angry-calm* item were reverse-scored and a mean VAS value was calculated for each participant (with higher scores indicating greater negative affect). These VASs have been used in recent studies (Want et al., 2015; Want & Saiphoo, 2017) in which the (hypodermic) presentation of thin-ideal media images has increased participants’ levels of negative affect.

Implicit affect measure. To measure implicit affect, a validated measure by Hass et al. (1992) was used. For this measure a “stimulus word”, which is actually a nonsense word (e.g. Iad), is flashed for 20ms on the screen, followed by a string of Xs. The duration of presentation does not allow the non-word to be accurately read, but participants often report having seen something. After the non-word is flashed on the screen, four response words are presented (e.g., Had, Lad, Pad, and Mad) and the participant is asked to select the one that “feels similar in meaning to the word that was flashed”. Of these four response words, one is sometimes a positive or negative affect adjective (e.g., Mad), while the other three are neutral. The response words are similar to the stimulus non-word in both length and physical appearance. There are 18 trials in each administration (pre-test and post-test), with each administration consisting of 8 negative and 8 positive adjective trials (and 2 trials in which no negative or positive adjectives are presented). The pre and post-test trials consist of different sets of words. The number of

positive and negative affect words participants select is thought to be an implicit measure of their positive and negative affect (Hass et al., 1992).

Individualism and Collectivism Scale, and Need for Cognition (Short Form) Scale.

To reduce demand characteristics, participants were informed that, in addition to determining the influence of taking a break on subliminal information processing, the researcher was also investigating the impact that different personality characteristics and current mood may have on participants' ability to process subliminal information. Therefore, the Individualism and Collectivism Scale (Triandis & Gelfand, 1998) and some items from the short form of the Need for Cognition Scale (Cacioppo, Petty, & Kao, 1984), were administered during the pre-test to strengthen this cover story. Data obtained from these measures were not analyzed.

Perceived Awareness of the Research Hypothesis (PARH) scale. This 4-item scale (Rubin, Paolini, & Crisp, 2010) was presented at the end of the study, prior to the debriefing session, to assess participants' confidence in their awareness of the study hypothesis. Participants were asked to provide ratings to the following four items: "I knew what the researchers were investigating in this research", "I wasn't sure what the researchers were trying to demonstrate in this research", "I had a good idea about what the hypotheses were in this research" and "I was unclear about exactly what the researchers were aiming to prove in this research". A 7-point Likert scale is used for responses (1 = strongly disagree to 7 = strongly agree) and items 2 and 4 were reverse-scored prior to analysis. The PARH scale has been found to have good internal consistency (Rubin, Paolini, & Crisp, 2010) and has been used in several studies to investigate the impact of demand characteristics. Mean values of the PARH scores were computed.

Open-ended questions. Participants were also asked two open-ended questions regarding their awareness of the true study hypothesis ("While completing the study, do you

believe you became aware of the study's true purpose/hypothesis? If yes, what do you believe the study's true hypothesis is?") as well as the point at which they became aware of the hypothesis ("If you do believe you became aware of the study's hypothesis/purpose, at which point during the study do you believe you became aware?"). Participants were coded as being aware of the study's purpose if their responses indicated knowledge of some association between exposure to the magazine images and the subsequent effects on affect (or other constructs such as confidence or self-esteem).

Procedure and Manipulation of Demand

Upon arrival, participants were seated at a computer and a consent form was provided. The experimenter told the participant she was investigating the impact of taking a break on subliminal information processing, which was described as processing information that is below our perceptual threshold. Participants were then notified that there were a number of components to the study (see Figure 1). First, there would be some questionnaires about their personality (the Individualism and Collectivism Scale and the Short Form of the Need for Cognition Scale) as well as their current mood (the PANAS and VAS). A supposed subliminal-information processing task would then ensue (actually the Implicit affect measure). Participants were then notified that they would have a ten-minute minute break and repeat some of the measures once again, notionally to assess the effects of their previous practice and the break on their processing of subliminal information, but actually a ruse to allow the magazines to be presented. The manipulation of demand occurred with the instructions given to participants during the break. In the Implied Demand condition, the experimenter provided the participant with fashion magazines and specifically instructed them to pay special attention to the images. Participants in this condition were told that the experimenter was investigating the effects of the magazines on

participants' ability to process subliminal information, as well as any effects the magazine images might have on their mood. Participants in the Minimized Demand condition were also provided with the same fashion magazines, but these participants were told that the magazines were just something that the researchers were asking all participants to read during the break, to ensure consistency in their experience during the break. Participants in the Control condition were provided with an issue each of *Scientific American* and *Mental Floss* and were also requested to read them as a way to ensure the consistency of their experience during the break. In addition to verbally prompting participants to read the magazines – similar to the procedure in Turner et al. (1997) – the experimenter also viewed participants through a one-way mirror from an adjoining room to ensure that all participants at least opened and looked at one of the magazines. Following this break, participants were notified that they would be completing the same mood (PANAS and VAS) and subliminal information processing measures (Implicit affect measure) as they had done before the break, as well as general demographic questions. The open-ended questions, as well as the PARH scale were then administered to determine participants' awareness of the study design.

Results

An anonymized, aggregated data set can be accessed and downloaded at following link:

<https://osf.io/9h34s/>

Magazine coding

Similar to Buote et al. (2011)'s analysis, model images in our fashion magazines were primarily young, thin, and attractive or very attractive. Furthermore, body types such as curvy, heavy, or fit were almost nonexistent. The majority of the messages were categorized as *Controllability/Attainability* messages, primarily written text that “focused on controlling aspects

of physical appearance to attain a desired appearance goal...” (Buote et al., 2011, p. 330). In their sample of magazines, Buote et al. (2011) found that messages of this type were second after those in the *Lifestyle* category. However, this discrepancy might be because the magazines in Buote et al.’s (2011) study included an equal number of Lifestyle and Fashion magazines; in contrast, we used magazines that are primarily considered Fashion magazines (*Fashion* and *Elle*).

Demographics

Age, body mass index (BMI) and self-reported ethnicity of participants are presented in Table 3. BMI values were calculated from participants’ self-reported height and weight (kg/m²). Participants in the three conditions did not significantly differ in regards to age, $F(2, 159) = .04$,

$p = .96$ or BMI, $F(2, 151) = 1.70, p = .18$.

Testing Hypotheses

PANAS negative affect. A 3 (Condition: Implied Demand vs. Minimized Demand vs. Control) $\times$ 2 (Time: Pre-Test vs. Post-Test) mixed design ANOVA on participants' scores on the negative affect scale of the PANAS revealed a significant main effect of Time, $F(1, 159) = 55.79, p < .001$. Participants reported significantly less negative affect at post-test compared to pre-test. There was no significant main effect of Condition, $F(2, 159) = .55, p = .58$, nor a significant interaction between Time and Condition, $F(2, 159) = .22, p = .80$.

PANAS positive affect. A 3 (Condition: Implied Demand vs. Minimized Demand vs. Control) $\times$ 2 (Time: Pre-Test vs. Post-Test) mixed design ANOVA on participants' scores on the positive affect scale of the PANAS revealed a significant main effect of Time, $F(1, 159) = 13.48, p < .001$. Participants reported significantly less positive affect at post-test compared to pre-test. Neither the main effect of Condition, $F(2, 159) = .032, p = .97$, nor the interaction between Time and Condition were significant, $F(2, 159) = .38, p = .69$.

VAS. A 3 (Condition: Implied Demand vs. Minimized Demand vs. Control) $\times$ 2 (Time: Pre-Test vs. Post-Test) mixed design ANOVA on participants' VAS scores revealed that neither Time, $F(1, 159) = 2.22, p = .14$, nor Condition, $F(2, 159) = .10, p = .91$, had a significant effect. The interaction between Time and Condition was also not significant, $F(2, 159) = .37, p = .69$.

Implicit negative affect. A 3 (Condition: Implied Demand vs. Minimized Demand vs. Control) $\times$ 2 (Time: Pre-Test vs. Post-Test) mixed design ANOVA on participants' scores on the negative items of the implicit affect measure revealed a significant main effect of Time, $F(1, 159) = 10.55, p < .001$. Participants chose significantly fewer negative affect words at post-test compared to at pre-test. No significant main effect of Condition, $F(2, 159) = .39, p = .68$ was

found. The interaction between Time and Condition was not significant, $F(2, 159) = .04, p = .96$.

Implicit positive affect. A 3 (Condition: Implied Demand vs. Minimized Demand vs. Control) $\times$ 2 (Time: Pre-Test vs. Post-Test) mixed design ANOVA on participants' scores on the positive items of the implicit affect measure revealed a significant main effect of Time, $F(1, 159) = 16.79, p < .001$. Participants chose significantly more positive affect words at post-test compared to at pre-test. No significant main effect of Condition, $F(2, 159) = 2.71, p = .07$ was found. The interaction between Time and Condition was not significant, $F(2, 159) = .115, p = .32$.

PARH. A one-way ANOVA on participants' mean PARH scores revealed no significant difference in participants' mean PARH scores across the three conditions, $F(2, 159) = .776, p = .46$. ($M = 3.08$ for Implied Demand, $M = 2.84$ for Minimized Demand, and $M = 3.01$ for Control.) Because higher ratings on the 7-point Likert scale indicate greater awareness of the research hypothesis, the obtained mean ratings suggest that participants had little awareness of the true study hypothesis.

Open-ended questions. A total of seventeen participants (10 in the Implied Demand and 7 in the Minimized Demand condition) were coded as being aware of the true study hypothesis, and/or aware that the true purpose of the study was to determine the effects of exposure to thin-ideal images. From pre- to post-test, scores of these participants did not significantly differ from the rest of the participants in the Implied and Minimized Demand conditions on any of the measures we used. In addition, half of the participants – 81 out of 162 – believed that the true purpose of the study was the cover story provided to them, or some aspect of it (i.e., the effects of mood and/or taking a break on subliminal information processing). A subset of participants

believed that the true purpose of the experiment was a reason other than the cover story provided or the true study hypothesis ($n = 15$). Finally, forty-nine participants did not provide an answer or stated they were unsure of what the hypothesis was.

Discussion

The aims of the current study were to investigate: (1) whether thin-ideal media images presented in the context of fashion magazines have detrimental effects on readers' affect, and (2) whether demand characteristics increase such effects. We found few detrimental effects on participants' affect from ten minutes of reading such magazines. Consistent with Hausenblas et al.'s (2013) meta-analysis, the magazine images seemed to decrease both positive and negative affect on the PANAS in both our Implied and Minimized Demand (and Control) conditions, but leave the VAS affect measure unchanged. Our implicit measure also demonstrated a decrease in implicit negative affect following exposure to media images and an *increase* in implicit positive affect. The same patterns of results was found in response to ten minutes of reading control magazines, suggesting no unique effects of exposure to thin-ideal imagery in fashion magazines.

Our results are surprising given that some previous research has shown that (hypodermic) exposure to media images results in detrimental consequences, including increases in negative affect and decreases in positive affect on some of the same measures used in the present study (Want et al., 2015; Want & Saiphoo, 2017). However, before addressing the extent to which the current results are externally consistent (i.e., consistent with previous research) it is important to address the extent to which they are internally consistent.

Internal Consistency: Comparing Across Measures in the Present Study

The results from some of the measures in the present study seem contradictory. Participants in all three conditions seemed to experience a decrease in positive affect as measured by the

PANAS, no change on the VAS measure, and an increase in positive affect as measured by the implicit measure. A closer inspection of these measures may help resolve this seeming inconsistency.

Activation versus pleasantness in affective states. The individual items of the three affect measures in the present study (the PANAS, the VAS, and the implicit affect measure) might measure fundamentally different aspects of positive and negative emotion. Previous researchers (e.g. Feldman Barrett & Russell, 1999) have posited that in addition to the pleasantness of emotion (ranging from positive to negative), a second dimension is the *activation* of the emotion (ranging from activated to deactivated). Affect states such as *happy* are high in pleasantness and relatively high in activation, whereas the state of *contented* is high in pleasantness but relatively low in activation. In addition, states such as *stressed* are high in both unpleasantness and activation, whereas *depressed* is high in unpleasantness, but low in activation. On the PANAS, the majority of both positive and negative items measure high activation affect states – items such as *excited*, *alert*, and *determined* for positive affect and *jittery*, *hostile*, and *irritable* for negative affect. In contrast, the items from the implicit affect measure included items that were both high and low in activation, for both the positive and negative terms. Taken together, our findings might indicate that the experience of reading fashion magazines *deactivated* participants, resulting in decreases on both the positive and negative affect subscales of the PANAS. However, our results from the implicit mood measure – which had a more equal distribution of high and low activation affect states – indicate that participants who read fashion magazines might have had a *pleasant* experience, since negative mood decreased and positive mood increased from pre- to post-test on this measure.

External Consistency: Comparing the Present Study with Prior Research

Leaving aside the results from the PANAS (which, we have argued, may reflect changes in participants' activated affect states) our study appeared to show an increase in pleasant states as measured by the implicit affect measure, a decrease in unpleasant states on the same measure, and no effect on positive/negative affect states (e.g. happiness - unhappiness) on the explicit VAS measure. As mentioned, previous studies have sometimes found increases in negative affect and decreases in positive affect, sometimes even on the exact same measures as given here (Want et al., 2015; Want & Saiphoo, 2017). Below, we consider two potential explanations for the lack of detrimental effects in the present study: (1) Our study involved few demand characteristics; and (2) Our study used whole magazines which included many messages about the attainability of a thin-ideal appearance.

(1) Do the results of previous studies represent the effects of demand characteristics? We attempted to manipulate demand by creating one condition in which demand characteristics were minimized and one in which there was implied demand. It is possible that we did not find detrimental effects of magazine exposure in either condition because the level of demand – even in the Implied Demand condition – was so low.

The current study lacked many of the demand characteristics present in previous research. There was no assessment of appearance or body satisfaction in a pre- to post-test manner in the present study. Nor did we present a concentrated set of images, presented one after another, with no written context, to participants. Furthermore, the present study included a reason for presenting the thin-ideal images to participants – in the form of a magazine that participants read to take a break – that participants may have found more plausible than the reasons given for exposure (if any) in prior research. This raises the possibility that many of the prior studies showing detrimental effects of thin-ideal imagery may have resulted from demand.

Future research might assess this suggestion by involving a variety of conditions, some of which minimize demand and others of which closely replicate the level of demand characteristics involved in typical laboratory research.

To be clear, the absence of a detrimental effect of exposure to the magazines on participants' affect does not mean that participants experienced no detrimental effects at all in the present study. It is possible that reading the fashion magazines did detrimentally affect participants' appearance dissatisfaction (which was not measured here). However, the inclusion of any appearance-related measure in a study in which participants are exposed to media images seems likely to perhaps unavoidably increase the demand characteristics of the study; as a result, we included only measures of participants' affect. Researchers who wish to assess the impact of thin-ideal images on appearance dissatisfaction without triggering demand effects will have to exercise considerable guile in designing their study.

(2) Does the use of whole magazines change the impact of thin-ideal images? A second possibility for the lack of detrimental effects in the present study may be the use of complete and unaltered magazines. This resulted in exposure not only to idealized images, but also the various messages included in the magazines. As found in our content analysis, the largest portion of messages in the fashion magazines we used described or advertised ways in which readers could attain a desired appearance. Previous research has shown that these attainability or *self-improvement* messages can actually increase self-perceptions of physical attractiveness, even when presented alongside thin-ideal images (Martin & Gentry, 1997; Mills et al., 2002; Veldhuis et al., 2017). Therefore, it is possible that attainability messages accompanying the idealized images in the present study mitigated any short-term detrimental effect on readers, by suggesting ways in which they could attain a desired look.

Conclusions

The current study aimed to examine the effect of thin-ideal media images presented in a magazine context on participants' affect, and the potential role that demand characteristics might have in any such effects. However, participants who read fashion magazines experienced similar changes in affect to control participants who read non-fashion magazines. The magazines appeared to decrease readers' activated affect states, and either leave unaltered, or reduce unpleasant affect, and to increase pleasant affect. Participants' reactions to the magazines did not differ according to our attempted manipulation of demand. Our results raise questions as to the external validity of typical laboratory research on the impact of thin-ideal imagery. One possibility is that reading a complete fashion magazine that is presented in such a way that seems incidental to the focus of the study – as opposed to being hypodermically exposed to a concentrated dose of images from one – is, at least for the average participant, a deactivating but not unpleasant experience. Future research reducing demand and using entire magazines, rather than just the images from them, is clearly warranted if we wish to generalize results from experimental studies to encounters with thin-ideal media images in everyday contexts.

References

- Bonafini, B. A., & Pozzilli, P. (2011). Body weight and beauty: The changing face of the ideal female body weight. *Obesity Reviews*, 12, 62-65. doi: 10.1111/j.1467-789X.2010.00754.x.
- Buote, V. M., Wilson, A. E., Strahan, E. J., Gazzola, S. B., & Papps, F. (2011). Setting the bar: Divergent sociocultural norms for women's and men's ideal appearance in real-world contexts. *Body Image*, 8, 322–334. doi: 10.1016/j.bodyim.2011.06.002
- Byrd-Bredbenner, C., Murrar, J., & Schlusel, Y. R. (2005). Temporal changes in anthropometric measurements of idealized females and young women in general. *Women & Health*, 41, 13-30. doi: 10.1300/J013v41n02_02
- Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, 48, 306-307.
- Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 43, 245–265. doi: 10.1348/0144665031752934
- Ferguson, C. J. (2013). In the eye of the beholder: Thin-ideal media affects some, but not most, viewers in a meta-analytic review of body dissatisfaction in women and men. *Psychology of Popular Media Culture*, 2(1), 20-37. doi: 10.1037/a0030766
- Ferguson, C. J. (2016). *Media psychology 101*. New York, NY: Springer Publishing Company.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117–140. doi:10.1177/001872675400700202
- Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns

- among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin*, 134, 460–476. doi:10.1037/0033-2909.134.3.460
- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media Images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders*, 31, 1-16. doi:10.1002/eat.10005
- Halliwel, E., & Dittmar, H. (2005). The role of self-improvement and self-evaluation motives in social comparisons with idealised female bodies in the media. *Body Image*, 2, 249–261. doi:10.1016/j.bodyim.2005.05.001
- Hass, R. G., Katz, I., Rizzo, N., Bailey, J., & Moore, L. (1992). When racial ambivalence evokes negative affect, using a disguised measure of mood. *Personality and Social Psychology Bulletin*, 18, 786–797. <https://doi.org/10.1177/0146167292186015>
- Hausenblas, H. A., Campbell, A., Menzel, J. E., Doughty, J., Levine, M., & Thompson, J. K. (2013). Media effects of experimental presentation of the ideal physique on eating disorder symptoms: A meta-analysis of laboratory studies. *Clinical Psychology Review*, 33, 168–181. doi: 10.1016/j.cpr.2012.10.011
- Heinberg, L. J., & Thompson, J. K. (1995). Body image and televised images of thinness and attractiveness: A controlled laboratory investigation. *Journal of Social and Clinical Psychology*, 14, 325-338. <https://doi.org/10.1521/jscp.1995.14.4.325>
- Knobloch-Westerwick, S. & Crane, J. (2012). A losing battle: Effects of prolonged exposure to thin-ideal images on dieting and body satisfaction. *Communication Research*, 39, 79-102. doi:10.1177/0093650211400596
- Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A

- practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, 4:863.
doi:10.3389/fpsyg.2013.00863
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality & Social Psychology*, 73, 91–103.
doi:10.1037/0022-3514.73.1.91
- Loeber, S., Burgmer, R., Wyssen, A., Leins, J., Rustemeier, M., Munsch, S., & Herpertz, S. (2016). Short-term effects of media exposure to the thin ideal in female inpatients with an eating disorder compared to female inpatients with a mood or anxiety disorder or women with no psychiatric disorder. *International Journal of Eating Disorders*, 49(7), 708-715.
doi:10.1002/eat.22524
- Martin, M. C., & Gentry, J. W. (1997). Stuck in the model trap: The effects of beautiful models in ads on female pre-adolescents and adolescents. *Journal of Advertising*, 26, 19-34.
doi:10.1080/00913367.1997.10673520
- Mills, J. S., Polivy, J., Herman, C. P., & Tiggemann, M. (2002). Effects of exposure to thin media images: Evidence of self-enhancement among restrained eaters. *Personality and Social Psychology Bulletin*, 28, 1687–1699. doi:10.1177/014616702237650
- Nichols, A. L., & Maner, J. K. (2008). The good-subject effect: Investigating participant demand characteristics. *The Journal of General Psychology*, 135, 151–165. doi:10.3200/GENP.135.2.151-166
- Orne, M. T. (1959b). The nature of hypnosis: Artifact and essence. *Journal of Abnormal and Social Psychology*, 58, 277-299.
- Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, 17,

776–783.

Rubin, M., Paolini, S., & Crisp, R.J. (2010). A processing fluency explanation of bias against migrants. *Journal of Experimental Social Psychology*, 46, 21-28.

<https://doi.org/10.1016/j.jesp.2009.09.006>

Seifert, T. (2005). Anthropomorphic characteristics of centrefold models: Trends towards slender figures over time. *International Journal of Eating Disorders*, 37, 271-274.

doi:10.1002/eat.20086

Stice, E., Spangler, D., & Agras, W. S. (2001). Exposure to media-portrayed thin-ideal images adversely affects vulnerable girls: A longitudinal experiment. *Journal of Social and Clinical Psychology*, 20(3), 270-288. <https://doi.org/10.1521/jscp.20.3.270.22309>

Sypeck, M. F., Gray, J. J., & Ahrens, A. H. (2004). No longer just a pretty face: Fashion magazines' depiction of ideal female beauty from 1959 to 1999. *International Journal of Eating Disorders*, 36, 342–347. doi:[10.1002/eat.20039](https://doi.org/10.1002/eat.20039)

Triandis, H. C. & Gelfand, M. J. (1998). Converging measurement of horizontal and vertical individualism and collectivism. *Journal of Personality and Social Psychology*, 74, 118-128.

Turner, S. L., Hamilton, H., Jacobs, M., Angood, L. M., & Dwyer, D. H. (1997). The influence of fashion magazines on the body image satisfaction of college women: An exploratory analysis. *Adolescence*, 32(127), 603-614.

Veldhuis, J., Konjin, E. A., & Knobloch-Westerwick, S. (2017). Boost your body: Self-improvement magazine messages increase body satisfaction in young adults. *Health Communication*, 32(2), 200-210. doi: [10.1080/10410236.2015.1113482](https://doi.org/10.1080/10410236.2015.1113482)

- Want, S.C. (2009). Meta-analytic moderators of experimental exposure to media portrayals of women on female appearance satisfaction: Social comparisons as automatic processes. *Body Image*, 6, 257-269. doi: 10.1016/j.bodyim.2009.07.008
- Want, S. C. (2014). Three questions regarding the ecological validity of experimental research on the impact of viewing thin-ideal media images. *Basic and Applied Social Psychology*, 36, 27–34. doi: 10.1080/01973533.2013.856783
- Want, S. C., Botres, A., Vahedi, Z., & Middleton, J. A. (2015). On the cognitive (in)efficiency of social comparisons with media images. *Sex Roles*, 73, 519-532. doi:10.1007/s11199-015-0538-1
- Want, S. C., & Saiphoo, A. (2017). Social comparisons with media images are cognitively inefficient even for women who say they feel pressure from the media. *Body Image*, 20, 1-6. doi: 10.1016/j.bodyim.2016.10.009
- Watson, D., Clark, L.A., & Tellegen, A. (1988b). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology*, 47, 1063-1070.