

Breaking the circle: Challenging Western sociocultural norms for appearance influences young women's attention to appearance-related media



Isabelle H.S. Mischner*, Hein T. van Schie, Rutger C.M.E. Engels

Behavioural Science Institute, Radboud University Nijmegen, The Netherlands

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ABSTRACT

Paying attention to thin media models may negatively affect women's self-evaluation. This study aimed to reduce the amount of attention that young women give to appearance-related information by challenging the sociocultural norms for appearance, and studied the moderating role of self-esteem. Seventy-one college women either received norm-confirming, norm-challenging, or no information regarding the sociocultural norms for appearance. Subsequently, participants' visual attention to appearance-related and neutral advertisements was measured using an eye-tracker. The results demonstrate that when no information or norm-confirming information was received, women with lower self-esteem paid more attention to the appearance-related advertisements than women with higher self-esteem. Importantly however, when norm-challenging information was received, women with lower self-esteem paid significantly less attention to the appearance-related ads than women with lower self-esteem who did not receive this manipulation. These findings indicate that challenging the sociocultural norms for appearance can attenuate the amount of attention women give to appearance-related media.

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Introduction

A substantial body of research has demonstrated that the current Western sociocultural norms for appearance, as depicted by the media, have negative effects on women's self-evaluation (Grabe, Ward, & Hyde, 2008; Groesz, Levine, & Murnen, 2002). By depicting thin and attractive models in an objectifying manner, the media convey the message that thinness and beauty are strongly valued in society and that a woman's worth is primarily determined by her appearance (Fredrickson & Roberts, 1997). Furthermore, the media reflect and exaggerate the generic beauty ideas that attainment of this sociocultural ideal leads to an ideal life. This is done by attributing positive characteristics (such as happiness, success, self-confidence, popularity and acceptance) to media characters that represent the beauty-ideal, and vice versa negative characteristics (like laziness, lack of self-control and social rejection) to media characters that do not fit this beauty-ideal (Fouts & Burggraf, 1999; Herbozo, Tantleff-Dunn, Gokee-Larose, & Thompson, 2004; Himes & Thompson, 2007). Women may internalize such sociocultural norms for appearance and may come to believe that they need to live up to the unrealistically high

beauty norms in order to be accepted and to attain social and personal success. In order to estimate and improve their relative attractiveness, these women may use media models as a comparison standard and a guide for personal appearance (Festinger, 1954). Because the beauty standard set by the media is unrealistically high if not impossible to attain, using this beauty ideal as a comparison standard may highlight the contrast between women's own body and the idealized female body, leading to feelings of incompetence and negative affect (Myers & Crowther, 2009).

Although the sociocultural norms for appearance can negatively affect women's self-evaluation, not all women are equally affected. Studies have shown that only women who are classified as vulnerable in the first place experience the negative effects. These are for example women who are dissatisfied with their body and women who internalize the thin-ideal as their own goal (Dittmar & Howard, 2004; Heinberg & Thompson, 1995; Posavac, Posavac, & Posavac, 1998). In addition to these individual vulnerabilities, the manner in which women process beauty-ideal messages is considered to play an important role in the impact of such messages. For example, the amount of social comparison to media models that women engage in and the level of attention that is directed at attractive media models (e.g., flicking through a magazine vs. prolonged and thorough processing) influence the intensity of the effects (Brown & Dittmar, 2005; Dittmar & Howard, 2004; Tiggemann & McGill, 2004).

* Corresponding author at: Behavioural Science Institute, Radboud University Nijmegen, P.O. Box 9104, 6500 HE, Nijmegen, The Netherlands. Tel.: +31 24 3611167.
E-mail address: i.mischner@pwo.ru.nl (I.H.S. Mischner).

Self-evaluation and Attention

Interestingly, it has been found that the amount of attention that women direct at attractive others is influenced by women's self-evaluation. For example, it has been shown that women who evaluate their body more negatively direct more attention at attractive others, or selectively at the most attractive body parts of others, than women who evaluate their body more positively (Blechert, Nickert, Caffier, & Tuschen-Caffier, 2009; Jansen, Nederkoorn, & Mulken, 2005; Maner, Holm-Denoma, Van Orden, Gailliot, Gordon, & Joiner, 2006; Roefs, Jansen, Moresi, Willems, van Grootel, & van der Borgh, 2008). Considering that meeting the existing social-cultural norms for appearance holds the promise of success, self-confidence and positive self-esteem, women with lower self-esteem may also be extra attentive to beauty images portrayed in the media, as these stimuli may be perceived as informative and useful in achieving personal appearance-related goals.

In line with this perspective, it has been demonstrated that especially women with lower self-esteem are concerned about fitting the sociocultural norms for appearance in order to be socially accepted, and are prone to internalize societal beauty ideals (Cusumano & Thompson, 1997; Leary, Tambor, Terdal, & Downs, 1995). Additionally, it has been shown that women with lower self-esteem, who lack self-confidence in their inner qualities and outer appearance, are more likely to turn to others for guidance (Tylka & Subich, 2004; Wayment & Taylor, 1995) and compare themselves more to media models than women with higher self-esteem (Martin & Kennedy, 1993; Mischner, Van Schie, Wigboldus, Van Baaren, & Engels, 2013; van den Berg, Paxton, Keery, Wall, Guo, & Neumark-Sztainer, 2007). Moreover, it has been demonstrated that whereas women with higher self-esteem preferably use personal standards information for self-evaluation and guidance, social comparison information is highly relevant for the self-evaluation of women with lower self-esteem (Wayment & Taylor, 1995).

Importantly, women's low self-evaluation has been found to influence the amount of attention that is directed at appearance-related media, leading to a vicious circle of selecting appearance-related media and subsequently lower self-evaluations. This study attempts to explore whether undermining this vicious circle by challenging and opposing the sociocultural norms for appearance can reduce the amount of attention that women with lower self-evaluations (i.e., lower self-esteem) give to appearance-related media.

Attentional Biases

The depth at which appearance-related messages are processed is thought to be directed by so-called self-schemas: cognitive structures of the self that organize and guide the processing of self-relevant information (Markus, 1977). Although every woman develops some sort of self-schema concerning her personal appearance, the complexity of this schema can vary between women. Women for whom appearance is a relevant aspect of their self-concept are thought to have developed more elaborate and complex self-schemas around appearance, and process appearance-related information in a biased way (Markus, Hamill, & Sentis, 1987). For example, it has been shown that these women more excessively attend to, memorize, and more negatively interpret appearance related information than women for whom appearance is a less important aspect of their self-concept. This has been shown both in clinical samples and high-risk non-clinical samples, e.g., in women with a high internalization of the beauty ideal (Ju & Johnson, 2010; Rosser, Moss, & Rumsey, 2010; Shafran, Lee, Cooper, Palmer, & Fairburn, 2007; Williamson, White, York-Crowe, & Stewart, 2004). Importantly, selective attention to,

and memory for appearance-related information may strengthen negative self-schemas and appearance concerns, leading to a self-reinforcing process.

As an illustration of the relation between women's self-concept around appearance and the selection of appearance-related information, an eye-tracker study by Ju and Johnson (2010) showed that women who internalize the sociocultural norms for appearance display an attentional bias to attractive models in magazine advertisements. Importantly, such attentional biases to appearance-related media might play a crucial role in the shaping of norms and beliefs about the typical and ideal body size for women. For example, it has been shown that perceived thinness norms and ideals are easily malleable by exposure. Glauert, Rhodes, Byrne, Fink, and Grammer (2009) demonstrated that brief exposure to thin bodies altered women's perceptions of body normality and body ideals, making them both thinner. An attentional bias to thin and attractive bodies might therefore result in thinner and more beautiful body norms and ideals, thereby contributing to lower self-evaluations. Moreover, by excessively focusing on appearance-related issues in the environment, women might be continually reminded of their own appearance and body concerns, leading to lower self-evaluations and increased body dissatisfaction and negative mood.

Recently, the role of attentional biases in the origin of body dissatisfaction has also been shown experimentally. For example, the induction of an attentional bias toward appearance through body checking (i.e., focusing on and inspecting the size of different body parts), resulted in an increase in women's body dissatisfaction (Smeets et al., 2011). Furthermore, Smith and Rieger (2009) demonstrated that inducing an attentional bias toward body shape, weight, and food related words using a modified dot probe task, exacerbated body dissatisfaction and intensified dietary restriction. These studies confirm the influence of attention on the increase of body dissatisfaction. It would be even more interesting to determine if such attentional biases toward appearance-related information might be reduced in women to protect them against the negative consequences of excessively attending to appearance-related information.

Challenging the Sociocultural Norms for Appearance

A possible way to reduce an attentional bias is by modifying women's maladaptive thoughts about appearance (Shafran, Lee, Cooper, Palmer, & Fairburn, 2008). As mentioned above, one of the maladaptive thoughts that women might have about appearance is that beauty and thinness are a prerequisite for personal and social success, acceptance and self-esteem, and that not fulfilling the beauty norms may lead to social rejection (Engeln-Maddox, 2006). Such maladaptive thoughts may increase the importance of bodily appearance in women's self-concept, and may enhance the amount of attention that women direct at appearance-related stimuli. By challenging and opposing women's conceptions on the importance of appearance (i.e., the current sociocultural norm for appearance), the relevance of thinness and appearance might be reduced, resulting in a reduced attentional bias to appearance-related media.

Previous studies have demonstrated that challenging the sociocultural norms for appearance leads to lower levels of internalization, increased body satisfaction, decreased dieting behaviors and intentions, and reduced social comparison with media models (Boivin, Polivy, & Herman, 2008; Stice, Mazotti, Weibel, & Agras, 2000; Strahan, Spencer, & Zanna, 2007; Strahan, Wilson, Cressman, & Buote, 2006). In addition, it was found that after the sociocultural norms for appearance were challenged, women based their self-esteem less strongly on appearance, which in turn resulted in higher body satisfaction and less concern with other people's

perceptions (Strahan, Lafrance, Wilson, Ethier, Spencer, & Zanna, 2008).

Because especially women with lower self-esteem are sensitive to be guided by others (Tylka & Subich, 2004; Wayment & Taylor, 1995), these women with lower self-esteem may be more receptive for and open to an experimental manipulation of the sociocultural norms than women with higher self-esteem. Consequently, women with lower self-esteem may alter their attitudes toward the sociocultural norms for appearance, and may devalue the importance of attaining an attractive appearance as a personal goal accordingly. Appearance-related media may therefore no longer be perceived as informative and useful, leading to reduced attention to this type of media in women with lower self-esteem. In contrast, the attitudes and personal goals of women with higher self-esteem may be more stable and less dependent on appearance-related media and other's opinions (Campbell, 1990; Swallow & Kuiper, 1988; Wayment & Taylor, 1995). Manipulating the sociocultural norms for appearance may thus be less effective for women with higher self-esteem, and may have less influence on the amount of attention that these women direct at appearance-related media.

The Current Study

The present study investigated the possibility that challenging and opposing the existing sociocultural norms for appearance may reduce young women's attention to appearance-related media. Moreover, it studied the role of self-esteem in this process. This research contributes to a growing body of literature on appearance-related processing biases and extends it in several ways, most importantly by trying to actively attenuate women's selection of appearance-related information in order to protect these women from the negative consequences of excessive attention to appearance-related information.

To investigate this, female participants either received norm-confirming, norm-challenging, or no information (i.e., no manipulation) regarding the sociocultural norms for appearance. Subsequently, participants' visual attention to neutral and appearance-related advertisements was examined using an eye-tracker. Participants could control exposure time to the advertisements themselves by pressing a button.

Following the idea that especially women with lower self-esteem are concerned about fitting the sociocultural norms (Leary et al., 1995), it was hypothesized that women with lower self-esteem would pay more attention to the appearance-related advertisements than women with higher self-esteem, both when the sociocultural norms for appearance were confirmed and when there was no information given regarding the norms. However, when the sociocultural norms for appearance were challenged and opposed – thereby reducing the importance of appearance and fitting the norms – it was expected that women with lower self-esteem would pay less attention to the appearance-related ads than women with lower self-esteem who did not receive this kind of information. Because the attitudes and personal goals of women with higher self-esteem may be more stable and less influenced by others (Campbell, 1990; Swallow & Kuiper, 1988; Wayment & Taylor, 1995), no or less strong effects of the norm manipulation on attention to the appearance-related ads were expected in women with higher self-esteem.

Exploratively, we investigated the attentional pattern within the appearance-related advertisements to test whether women low and high in self-esteem preferably seek information and guidance about their appearance through social comparison to media models, or through written information about appearance-related products. Furthermore, we were interested whether the manipulation of the sociocultural norms for appearance would influence

this attentional pattern. Because these analyses were explorative, we had no a priori hypotheses about the outcomes.

Method

Participants

A total of 86 college women from the Radboud University Nijmegen participated in the study. The data of 15 participants were excluded from further analysis, either due to a high rate (>25%) of missing eye-tracking data (nine participants), missing questionnaire data (two participants), or not believing the cover story about pupil dilation (four participants). These last four participants expressed their suspicions about the cover story during the experiment, and indicated that they consciously altered their gazing behavior because they thought that their eye movements were measured instead of their pupil size. Additional analyses in which the data of these four participants were included yielded similar results. The final sample consisted of 71 college women with an average age of 19.8 years ($SD = 1.9$, range = 18–27) and an average calculated BMI of 22.0 ($SD = 2.9$, range = 18.0–32.5). All participants were recruited through the online research participation system of the Radboud University Nijmegen and received course credits for their participation.

Procedure

In order to reduce the possible interfering effects of filling out questionnaires about the own body on selective attention to appearance related messages, the experiment consisted of two parts. The average time between the two parts was 12.4 days ($SD = 9.4$). During the first part, participants completed a set of online questionnaires in which self-esteem, sociocultural attitudes, and positive thinness expectancies were measured.

For the second part of the experiment, participants came to the lab and were randomly assigned (based on the order of participation) to one of three norm manipulation conditions: the norms confirmed condition ($n = 22$), the norms challenged condition ($n = 27$), or the no manipulation condition ($n = 22$). All participants received information about the study procedure and signed an informed consent which explicitly stated that they were free to discontinue the experiment at any time. Subsequently, participants were seated behind the eye-tracker device and their eye gaze was calibrated. To distract the participants of the actual goal of the experiment, we explained the study was about the influence of the familiarity of information on pupil size, that is whether pupils dilate when people read information or see an advertisement that is new or familiar to them. After calibration, the sociocultural norms for appearance were manipulated. This was done by exposing the participants to the conclusions of an alleged study by Psychology Magazine, a well-known Dutch magazine, on the importance and advantages of conforming (or not conforming) to the sociocultural norms for appearance.

In the norms confirmed condition, participants read 10 conclusions that strongly emphasized the relevance of the thin beauty-ideal, and stressed the advantages that women have who conform to the thin beauty-ideal (e.g., "Thin women have more friends and social contacts"). In the norms challenged condition, participants read 10 conclusions that challenged and opposed the relevance of the thin beauty-ideal and the presumed advantages that women have who conform to the thin beauty-ideal (e.g., "Thin women score lowest on life satisfaction"). To strengthen the impact of the cover story, participants had to indicate for each conclusion how new or familiar this information was to them. In the no manipulation condition, no sentences were presented to the

participants about the relevance or the advantages of conforming to the beauty-ideal.

Subsequently, all participants were exposed to nine custom-made advertisements, of which six were neutral in content and three were appearance-related. This 6:3 division was chosen to improve the accuracy of the attentional measure (i.e., the attentional measure did not depend on a single appearance-related advertisement), without making the goal of the experiment and our interest in appearance-related media too obvious. In the neutral advertisements, a nonappearance product and text were depicted (e.g., a car). In the appearance-related advertisements, an appearance-related product and text were depicted (e.g., self-tanning, perfume or shower gel), plus a thin and attractive model in bikini. The product and text covered one half of the appearance-related advertisements (either the left or right side), and the model the other half. Participants were instructed to look at the nine advertisements as if they were reading a magazine at home on the couch. They were able to control exposure time to the different advertisements themselves by pressing a button to go to the next ad. The advertisements were presented in a fixed order, of which advertisements three, six, and eight were appearance-related. After viewing all advertisements, participants were asked to indicate on a Visual Analogue Scale (VAS) how important it is for them to be thin. This question was only administered after the manipulation of the norms. Subsequently, participants were probed about their suspicions about the cover story. Lastly, participants' height and weight were taken and they were extensively debriefed about the goal of the study. They were informed that all the conclusions they read during the experiment were fictitious and that they were solely developed for the experiment to temporarily influence women's ideas about thinness and appearance. All participants were offered the opportunity to ask questions about the experiment and the manipulation. None of the participants expressed any discomfort due to the experimental manipulation. In total, this part of the experiment took approximately 30 min.

Measures

Self-esteem. The Rosenberg Self-Esteem Scale was translated into Dutch and used to measure trait self-esteem (Rosenberg, 1965). This scale contains 10 statements (e.g., "I take a positive attitude towards myself," reverse-scored) and participants indicate on a 4-point Likert scale (ranging from 0 = *strongly agree* to 3 = *strongly disagree*) to what extent they agree with the statement. Self-esteem scores were calculated by averaging the answers to the statements, with higher scores indicating higher self-esteem (scores could range from 0 to 3). For the present sample, Cronbach's α was .85.

Sociocultural attitudes toward appearance. The revised Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3) was translated into Dutch and used to measure sociocultural attitudes (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). On a 5-point Likert scale (ranging from 1 = *definitely disagree* to 5 = *definitely agree*), participants indicate to what extent they agree with the statements. The questionnaire consists of three subscales: internalization (9 items, e.g., "I would like my body to look like the models who appear in magazines," $\alpha = .92$ for the present sample), pressure (7 items, e.g., "I've felt pressure from TV or magazines to lose weight," $\alpha = .90$ for the present sample), and information (9 items, e.g., "Magazine advertisements are an important source of information about fashion and being attractive," $\alpha = .94$ for the present sample). For each subscale, scores were calculated by averaging the answers to the statements (scores could range from 1 to 5).

Thinness expectancies. The Thinness and Restricting Expectancy Inventory (TREI) was translated into Dutch and used to measure thinness expectancies (Hohlstein, Smith, & Atlas, 1998). This scale contains 30 statements (e.g., "If I were thin, I would feel more worthwhile") and participants indicate on a 7-point Likert scale (ranging from 1 = *completely disagree* to 7 = *completely agree*) to what extent they agree with the statement. Thinness expectancies scores were calculated by averaging the answers to all statements, with higher scores indicating more positive expectancies of being thin (scores could range from 1 to 5). For the present sample, alpha was .97.

Importance of being thin. Participants indicated on a 10-cm Visual Analogue Scale (VAS) how important it is for them to be thin (0 = *not at all* to 100 = *very*). VASs have been shown to have good reliability and validity in a range of settings (McCormack, Horne, & Sheather, 1988).

Selective attention. Eye movements were used as an index for selective attention, and were measured by an iView XTM Hi-Speed 500/1250 eye-tracker of SensoMotoric Instruments (SMI, Teltow, Germany). This eye-tracking device determines gaze positions by measuring the dark pupil and corneal reflection using an infrared camera, with a temporal resolution of 500 Hz. The eye-tracker apparatus was positioned at a distance of 50 cm from the computer screen. This computer screen had a resolution of 1024 × 768. During the experiment, the participant rested her chin on a chin-rest. Three selective attention measures were calculated and used as dependent variables: attention to the appearance-related advertisements as a whole, selective attention to the model in the appearance-related ads, and selective attention to the product in the appearance-related ads. Attention to the appearance-related advertisements as a whole was defined as the mean time the participant spent looking at the three appearance-related ads. This measure of selective attention was irrespective of the element of the ad (i.e., the model or the product) the participant focused attention on.

To measure selective attention to the model and product, the appearance-related ads were divided into two areas of interest: product plus text (covering one half of the advertisement), and model (covering the other half of the ad). These two areas of interest were mutually exclusive. Selective attention to the model (product) in the appearance-related advertisements was defined as the mean time the participant spent looking at the model (product) in the three appearance-related ads. To control for the general level of the participant's attention, attention to the neutral advertisements was calculated in the same way and used as a covariate in the analyses. Attention to the neutral ads was not related to the moderator self-esteem, $r(71) = .09$, $p = .48$, or to the independent variable norm manipulation condition, $F(2, 68) = 0.52$, $p = .60$. The values of extreme attention durations ($>3 SD$) were set to the highest remaining (non-outlying) attention duration (2.1% of the data). See Fig. 1 for an example of the gazing behavior of one of the participants to an appearance-related advertisement.

Statistical Analyses

To test whether there were any initial differences in age, BMI, self-esteem, positive thinness expectancies, or sociocultural attitudes toward appearance between the three manipulation conditions, a series of ANOVAs was conducted. Subsequently, Pearson r correlations were calculated between participants' self-esteem, thinness expectancies, and their sociocultural attitudes toward appearance. To test whether the conditions differed in the importance women placed on being thin after the sociocultural norms for appearance were manipulated, an ANCOVA was conducted with the

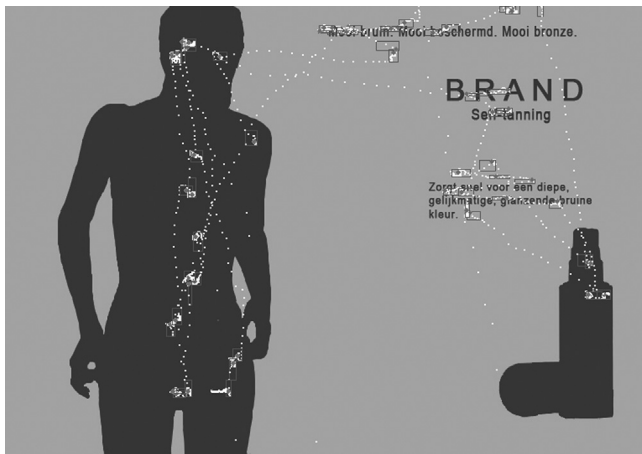


Fig. 1. Example of the gazing behavior of one of the participants to an appearance-related advertisement.

post hoc assessment of perceived importance of being thin as the dependent variable, and norm manipulation condition (no manipulation, norms confirmed, and norms challenged) as the independent variable. To control for initial group differences in positive thinness expectancies, the measure of participants' thinness expectancies was added as a covariate.

Next, a hierarchical regression analysis was performed to investigate the effects of the norm manipulation on attention to the appearance-related advertisements as a whole. Because attention to the appearance-related ads was positively related to the amount of attention that participants directed at the neutral ads ($r = .84, p < .001$), attention to the neutral ads was entered as a covariate in Step 1. Additionally, to control for initial group differences in positive thinness expectancies, participants' level of thinness expectancies was added as a covariate in Step 1. Both covariates were centered on their respective sample means. Subsequently, two dummy variables were created in which the no manipulation condition was contrasted with the norms challenged condition (D_{Chal}) and the norms confirmed condition (D_{Conf}). These dummy variables were entered in Step 2 of the regression model, together with self-esteem, which was centered on its sample mean. Finally, the interaction terms between the dummy variables and self-esteem were computed and entered in Step 3. To clarify the interactions between self-esteem and the dummy variables, simple slope analyses were performed, and additional regression analyses of simple effects were conducted in which self-esteem levels one standard deviation above, and one standard deviation below the average self-esteem score were used (Aiken & West, 1991).

To explore the attentional pattern within the appearance-related advertisements, and to test whether the change in attentional bias to the appearance-related ads was due to a change in attention to the model or the product in these ads, a three-way

mixed model ANCOVA was performed with area of interest (model and product) as the within-subject factor, norm manipulation condition (norms challenged, norms confirmed, and no manipulation) as the between-subject factor, self-esteem as the moderator, and the measure of participants' thinness expectancies and attention to the neutral advertisements as covariates.

Results

Randomization Check

Table 1 shows the means and standard deviations of all pre-measures for each manipulation condition. There were no significant differences between the three conditions in age, BMI, self-esteem, and sociocultural attitudes toward appearance. However, the conditions differed in the positive expectations women had of being thin, $F(2, 68) = 3.45, p = .04, \eta^2 = .09$. Prior to the manipulation of the sociocultural norms for appearance, the women in the norms challenged condition had significantly less positive expectations of being thin than both the women in the norms confirmed condition, $t(68) = 2.04, p = .05, \eta^2 = .06$, and the no manipulation condition, $t(68) = 2.40, p = .02, \eta^2 = .08$. The women in the norms confirmed condition and the women in the no manipulation condition did not differ in their expectations of being thin, $t(68) = 0.34, p = .73$.

Self-esteem and Sociocultural Attitudes toward Appearance

Pearson r correlations showed that, before the manipulation of the norms, lower self-esteem was associated with higher levels of internalization, $r(71) = -.50, p < .001$, perceived pressure to be thin, $r(71) = -.36, p = .002$, perceived importance of media models as a source of information about appearance, $r(71) = -.28, p = .02$, and higher positive outcome expectancies of being thin, $r(71) = -.26, p = .03$. This suggests that women with lower self-esteem find it more important, and feel more pressurized to conform to the sociocultural norms for appearance, than women with higher self-esteem.

Perceived Importance of Being Thin

An ANCOVA was conducted to test whether the conditions differed in women's perceived importance of being thin after the sociocultural norms for appearance were manipulated. Participants' level of positive thinness expectancies, which was added as a covariate, was positively related to women's perceived importance of being thin after the norm manipulation, $\beta = .35, t(67) = 3.23, p = .002, \eta^2 = .14$. Moreover, there was a main effect of norm manipulation condition, $F(2, 67) = 4.10, p = .02, \eta^2 = .11$, indicating that the conditions differed in women's perceived importance of being thin. The women in the norms challenged condition found it less important to be thin ($M = 50.51, SE = 3.51$), as indicated

Table 1
Means (standard deviations) of all pre-test measures for each group.

	No manipulation ($n = 22$)	Norms confirmed ($n = 22$)	Norms challenged ($n = 27$)	F
Age	19.9 (1.5)	20.0 (2.5)	19.5 (1.7)	<1
BMI	22.1 (2.7)	22.1 (2.8)	21.8 (3.2)	<1
Self-esteem	2.0 (0.5)	2.0 (0.4)	1.9 (0.4)	<1
Thinness expectancies	3.7 (1.2) ^a	3.6 (1.0) ^a	2.9 (1.3) ^b	3.45*
SATAQ information	3.1 (1.0)	2.9 (0.8)	3.0 (0.9)	<1
SATAQ pressure	2.6 (0.9)	2.2 (0.6)	2.4 (0.9)	<1
SATAQ internalization	2.9 (0.9)	2.7 (0.8)	2.7 (0.8)	<1

Note. SATAQ, Sociocultural Attitudes Towards Appearance Questionnaire.

^{a,b}Groups sharing the same superscript letter do not differ from each other, those with different superscript letters do differ significantly ($p < .05$).

* $p < .05$.

Table 2
Means (standard deviations) of all selective attention measures in seconds.

	Total sample (n = 71)	No manipulation (n = 22)	Norms confirmed (n = 22)	Norms challenged (n = 27)
SA neutral ads	13.9 (4.9)	13.3 (4.7)	14.8 (4.8)	13.7 (5.2)
SA appearance-related ads	13.7 (5.3)	13.5 (4.6)	15.0 (5.4)	12.7 (5.6)
SA model	4.2 (2.8)	4.3 (2.2)	5.0 (3.6)	3.6 (2.4)
SA product	8.8 (3.5)	8.8 (3.3)	9.6 (3.7)	8.2 (3.5)

Note. SA, selective attention.

by a significant difference with the women in the no manipulation condition ($M = 65.24, SE = 3.83, t(67) = 2.78, p = .007, \eta\rho^2 = .10$, and a trend toward a significant difference with the women in the norms confirmed condition ($M = 60.68, SE = 3.80, t(67) = 1.94, p = .056, \eta\rho^2 = .05$). The women in the norms confirmed condition and the no manipulation condition did not differ in their perceived importance of being thin, $t(67) = 0.85, p = .40$. Including self-esteem in the analysis did not yield a significant interaction between self-esteem and norm manipulation condition, $F(2, 64) = 0.43, p = .66$, implying that both women low and high in self-esteem found it less important to be thin when the sociocultural norms for appearance were challenged than women low and high in self-esteem who did not receive this kind of information.

Attention to the Appearance-related Advertisements

Table 2 shows the means and standard deviations of all the selective attention measures. On average, participants directed an equal amount of attention to the neutral and the appearance-related advertisements, $t(70) = -0.67, p = .50$.

To investigate the effects of the norm manipulation on attention to the appearance-related advertisements and the moderating role of self-esteem, a hierarchical regression analysis was performed (see Table 3). This analysis yielded a significant main effect of the dummy variable D_{Chal} (contrasting the no manipulation condition to the norms challenged condition), which means that the women in the norms challenged condition paid significantly less attention to the appearance-related ads than women in the no manipulation condition. Additionally, there was a trend toward a significant main effect of self-esteem, suggesting that women with lower self-esteem paid more attention to the appearance-related ads than women with higher self-esteem.

Consistent with our hypothesis, these main effects were qualified by a significant self-esteem $\times D_{Chal}$ interaction, $\beta = .22, t(63) = 2.84, p = .006, \eta\rho^2 = .11$. This means that the relation between

self-esteem and attention to the appearance-related ads (i.e., the regression slope) differs between the norms challenged condition and the no manipulation condition. In contrast, self-esteem did not interact with the dummy variable D_{Conf} (contrasting the no manipulation condition to the norms confirmed condition), which indicates that the regression slopes for the norms confirmed condition and the no manipulation condition are similar.

Simple slope analyses illustrated that self-esteem and attention to the appearance-related ads were negatively related in both the no manipulation condition, $\beta = -.34, t(19) = -2.27, p = .04, \eta\rho^2 = .22$, and the norms confirmed condition, $\beta = -.30, t(19) = -3.17, p = .005, \eta\rho^2 = .36$, but were not related in the norms challenged condition, $\beta = .09, t(24) = 0.98, p = .34$, see Fig. 2. This means that when the sociocultural norms for appearance were confirmed, or when there was no information given on the sociocultural norms at all, women with lower self-esteem paid more attention to the appearance-related advertisements than women with higher self-esteem. However, importantly, this biased attention of women with lower self-esteem was absent when the sociocultural norms for appearance were challenged and opposed.

To clarify the interaction between self-esteem and the dummy variable D_{Chal} (contrasting the no manipulation condition to the norms challenged condition), two regression analyses of simple effects were conducted in which self-esteem levels one standard deviation above, and one standard deviation below the average self-esteem score were used. These analyses showed that when norm challenging information was received, women with lower self-esteem paid significantly less attention to the appearance-related ads than women with lower self-esteem who had not received any information about the sociocultural norms for appearance, $t(64) = -3.60, p = .001, \eta\rho^2 = .17$. In contrast, the women with higher self-esteem paid an equal amount of attention to the appearance-related ads, whether they had received norm challenging information, or no information regarding the sociocultural norms, $t(64) = 0.43, p = .67$.

Similar simple effects analyses were conducted to contrast the norms confirmed condition to the no manipulation condition, for women with lower and higher self-esteem separately. These analyses showed that the amount of attention that both women low,

Table 3
Hierarchical regression analysis predicting attention to the appearance-related advertisements.

	Attention to the appearance-related ads	
	ΔR^2	β at entry
Step 1	.71***	
Attention to neutral ads		.85***
T ₁ thinness expectancies		-.04
Step 2	.03 [†]	
D_{Chal}		-.17*
D_{Conf}		.003
Self-esteem		-.13 [†]
Step 3	.04**	
$D_{Chal} \times$ self-esteem		.22**
$D_{Conf} \times$ self-esteem		-.02

Note. T₁, Time 1; D_{Chal} , dummy variable contrasting the no manipulation condition to the norms challenged condition; D_{Conf} , dummy variable contrasting the no manipulation condition to the norms confirmed condition.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

[†] $p = .06$.

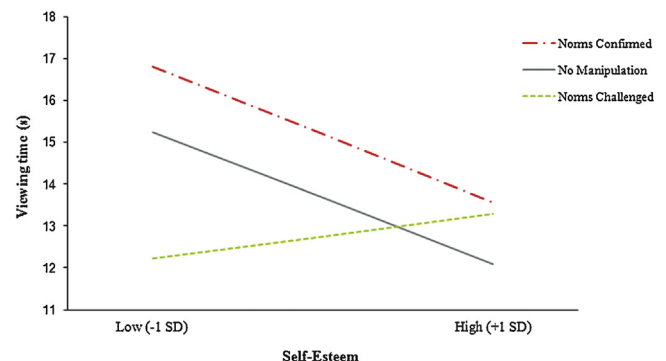


Fig. 2. The amount of attention that women directed to appearance-related advertisements after the sociocultural norms for appearance were manipulated, as a function of self-esteem.

$t(64)=0.31, p=.76$, and high, $t(64)=-0.12, p=.90$ in self-esteem paid to the appearance-related ads, was irrespective of whether they had received norm confirming information, or no information regarding the sociocultural norms.

Attentional Pattern within the Appearance-related Advertisements

To explore the attentional pattern within the appearance-related advertisements, and to test whether the change in attentional bias to the appearance-related ads was due to a change in attention to the model or the product in these ads, a mixed model ANCOVA was performed. This analysis yielded a main effect of area of interest, $F(1, 63)=250.03, p<.001, \eta^2=.80$, which means that the participants paid significantly more attention to the product in the appearance-related ads than to the model (see Table 2). The measure of participants' thinness expectancies interacted with area of interest, $F(1, 63)=13.14, p=.001, \eta^2=.17$. To clarify this interaction, additional regression analyses of simple effects were performed in which expectation levels one standard deviation above, and one standard deviation below the average expectation score were used. These analyses showed that women who had less positive expectations of being thin paid more attention to the product ($M=9.6, SE=0.31$) in the appearance-related ads than to the model ($M=3.9, SE=0.28$), $F(1, 63)=187.12, p<.001, \eta^2=.75$. Although women with more positive expectations of being thin also paid more attention to the product ($M=8.1, SE=0.30$) than to the model ($M=4.4, SE=0.27$), $F(1, 63)=79.53, p<.001, \eta^2=.56$, this difference was smaller compared to women with less positive expectations. This indicates that women who had more positive expectations of being thin paid relatively more attention to the model in the ads (35.2% of the total viewing time) than women who had less positive expectations of being thin (28.9% of the total viewing time).

Again, norm manipulation condition interacted with self-esteem, $F(2, 63)=5.68, p=.005, \eta^2=.15$, replicating the finding that the relation between self-esteem and attention to the appearance-related ads differed between the conditions. However, the 3-way interaction (area of interest \times norm manipulation condition \times self-esteem) was not significant, $F(2, 63)=0.25, p=.78$. This indicates that the interactive effect between the norm manipulation condition and self-esteem on the amount of attention that women paid to the appearance-related ads was comparable for viewing times at the model part and the product part of these advertisements. That is, women with lower self-esteem paid less attention to both the model and the product in the appearance-related ads than women with lower self-esteem who did not receive this kind of information. Area of interest did not interact with norm manipulation condition, $F(2, 63)=1.36, p=.26$, or self-esteem, $F(1, 63)=0.07, p=.79$.

Discussion

Paying attention to thin and beautiful media models may negatively affect women's self-evaluation. The present study investigated the possibility to reduce the amount of attention that women give to appearance-related information, by challenging and opposing the sociocultural norms for appearance. Because the malleability of women's attitudes and personal goals may depend on their level of self-esteem, it was expected that the effects of the norm manipulation would be strongest for women with lower self-esteem. Indeed, the results showed that self-esteem moderated the relationship between norm manipulation and young women's attention to appearance-related advertisements. When no information or norm-confirming information was

received regarding the sociocultural norms for appearance, women with lower self-esteem paid more attention to the appearance-related advertisements than women with higher self-esteem. Most importantly however, when norm-challenging information was received, this attentional bias of women with lower self-esteem was absent, and these women paid significantly less attention to the appearance-related advertisements than women with lower self-esteem that did not receive this kind of information. These results confirm the idea that women's self-evaluations influence the selection of appearance-related information, and that challenging and opposing the sociocultural norms for appearance can change this selection process. Furthermore, the fact that women responded similarly in both the norms confirmed condition and the no manipulation condition suggests that, in the absence of explicit information about the sociocultural norms, norm-confirming or stereotype-consistent ideas are default.

Self-esteem and the Perceived Importance of Being Thin

A main finding of the present study is that self-esteem played an important role in the selection of appearance-related information. This finding supports our idea that appearance plays a different role in the self-concepts of women with lower and higher self-esteem. The self-report measures further confirm the idea that especially women with lower self-esteem find it important to fit the sociocultural norms for appearance in order to gain personal and social success. That is, women with lower self-esteem expected more positive outcomes of being thin (such as higher self-esteem, more friends, and more success) than women with higher self-esteem. Furthermore, women with lower self-esteem were found to more strongly internalize the thin-ideal as their own goal, perceived higher social pressures to be thin, and placed more importance on media models as a source of information about appearance than women with higher self-esteem. These measures of self-report underscore the importance and relevance of thinness and appearance for women with lower self-esteem, and the idea that especially these women are motivated and inclined to use media models as a comparison standard and a guide for personal goals (Martin & Kennedy, 1993; Mischner et al., 2013; van den Berg et al., 2007; Waymunt & Taylor, 1995).

Additionally, our results show that the importance women place on being thin can be altered by challenging the idea that women need to live up to the unattainable beauty standards to be valued and successful in life. Similar findings were presented by Strahan et al. (2008) who showed that women based their self-worth more strongly on appearance after the sociocultural norms for appearance were confirmed, whereas they based their self-worth less strongly on appearance after these norms were challenged. In the present study we had hypothesized that mainly the attitudes and goals of women with lower self-esteem would be influenceable by the norm manipulation. Interestingly however, both women low and high in self-esteem devalued thinness as an important personal goal after the sociocultural norms for appearance were challenged. This finding suggests that the self-concepts of women with low and high self-esteem are equally amenable when directly presented with fictitious conclusions about the importance of appearance. However, it appears that the attentional consequences of changes in one's attitude to appearance are mainly expressed in women with lower self-esteem.

Self-esteem and Social Comparison

This difference in findings for women with different levels of self-esteem may be explained by the idea that women with higher self-esteem preferably use personal standards information for self-evaluation and guidance instead of social comparison

information (Wayment & Taylor, 1995). Because women with higher self-esteem do not use the appearance-related advertisements as social comparison information for self-evaluation and guidance of their personal goals, a change in their personal goals will not change the amount of attention to the appearance-related advertisements. On the contrary, for women with low self-esteem social comparison and selection of appearance-related information is highly relevant for self-evaluation. Consequently, one would expect that in this group a change in the personal goals by opposing the sociocultural norms for appearance will influence the selection of appearance-related information.

Further support for the idea that a norm manipulation can influence social comparison comes from studies on prevention programs. These prevention programs typically aim to reduce women's internalization of the thin beauty ideal as a personal goal and the amount of social comparison to media models by either giving information about the invalidity of media models as a relevant comparison standard, or by letting participants voluntarily argue against the thin ideal. Studies on the effectiveness of such prevention programs showed that women had lower levels of thin-ideal internalization, social comparison, body dissatisfaction, dieting, negative affect, and bulimic symptomatology after completing the program (Posavac, Posavac, & Weigel, 2001; Stice et al., 2000; Want, Vickers, & Amos, 2009; Yamamiya, Cash, Melnyk, Posavac, & Posavac, 2005). A reduction in social comparison to media models was thought to be the underlying mechanism of the effects, which may be related to the reduced attention to the appearance-related advertisements in the present study.

An additional mechanism that may have contributed to the successful reduction of attention to the appearance-related ads in women with low self-esteem is that challenging the sociocultural norms for appearance may have directly increased women's self-esteem. For example, by stressing the notion that thinner and more attractive women are not necessarily better or more highly valued than women who are less thin or attractive, the relative self-esteem of low self-esteem women may have been enhanced. In line with Wayment and Taylor (1995), an increase in self-esteem may have reduced the tendency of women to use social comparison information as a standard for self-evaluation, and instead increased the use of personal standards for self-evaluation. Further research using state measures of self-esteem directly after the manipulation of the norms may further investigate this possibility.

Attentional Pattern within the Appearance-related Advertisements

Exploratively, the attentional pattern within the appearance-related advertisements was studied to get a hint of how women attend to appearance-related ads, and to investigate whether manipulating the sociocultural norms for appearance influences this attentional pattern. Overall, women (both low and high in self-esteem) paid more attention to the product in the appearance-related advertisements than to the model. Keep in mind that the product part of the ads not only depicted the actual product, but also the brand name, slogan, and a few sentences about the product. Reading all this product-related information costs some time, and this might explain why women looked longer at the product part of the ads than at the model. Additionally, the cover story (i.e., our interest in the effect of the familiarity of information on pupil size) may have stimulated participants to actually read all the information that was included in the ads, thereby heightening women's attention to the product part of the ads. Interestingly, the amount of positive expectations that women had of being thin influenced the attentional pattern within the appearance-related advertisements. That is, women with more positive expectations of being thin paid relatively more attention to the model in the ads than women with

less positive expectations of being thin. This suggests that these women with more positive expectations of being thin are more inclined to seek information and guidance about their appearance through social comparison to media models than women with less positive expectations of being thin.

However, women's attentional pattern was comparable between all norm manipulation conditions, indicating that the norm manipulation only influenced the amount of attention women directed toward the appearance-related ads as a whole, and did not affect the attentional pattern within the appearance-related ads. That is, women low in self-esteem paid less attention to the appearance-related ads when the sociocultural norms for appearance were challenged, because they paid less attention to both the model and the product in these ads. This finding implies that challenging the social cultural norms for appearance affects the selection of appearance-related information in general, and is not limited to the amount of social comparison to attractive media models or the amount of attention to appearance-related products.

Limitations and Future Research

In this study the attention to appearance-related information was measured once, immediately after the manipulation of the norms. Therefore, we do not know how long the observed attentional effects would persist, both in the lab and outside. It would be very interesting to examine the longevity of such effects using longitudinal designs, in which the amount of attention women pay to appearance-related media are measured at subsequent time points (e.g., one day, week, and month) after the manipulation of the norms. Also, prolonged interventions may be developed in which the effects of repeating the norm manipulation every day can be tested. This can be done for example, by instructing the participants to read the norm-challenging information daily for several weeks, and ask participants to keep a diary in which they write about their daily (appearance-related) media exposure. In addition, studies may investigate the effect of age on the effectiveness of such interventions, to identify the age at which the intervention would be most beneficial. Moreover, a pre-measure might be added to future study designs so that actual changes in attention can be demonstrated. With the current design it is not possible to draw such conclusions.

It would also be very useful to investigate what kind of statements are most effective in manipulating the sociocultural norms for appearance. Keep in mind that the statements that were used in the current study were constructed by the authors and colleagues, and were not based on actual scientific evidence. Future studies may incorporate the conclusions of scientific studies in this domain to investigate the impact of actual empirical evidence on women's selective attention to appearance-related media. Dissemination of these scientific conclusions might further contribute to reducing the negative consequences of appearance related media in women.

The current study used magazine advertisements that were very explicitly appearance-related to measure the effect of the norm manipulation on the amount of attention to appearance-related information. An interesting question that may be addressed in future research is what the attentional effects of the norm manipulation are for different kinds of media (such as movies, music videos, commercials and TV programs), that stress the importance of appearance more explicitly or implicitly. In the case of media presenting explicit beauty norms for appearance (for example programs such as America's Next Top Model, Extreme Makeover, sexually objectifying music videos, and TV commercials and advertisements selling dieting products, make-up, lingerie and other kinds of appearance-enhancing products), women with low self-esteem might be best off to avoid such media as much as possible.

It would be interesting to know if a norm manipulation as in the present study is able to reduce the interest of these women in explicit appearance-related media, leading them to not select this type of media in the first place.

In addition to explicit appearance-related media, many TV shows and movies convey the importance of appearance more indirectly, by coupling positive life-outcomes to being thin and attractive. In these cases women might be best off by changing their attentional selection of information within that program and to minimize the amount of attention that is directed to the appearance of attractive media models, to be protected from negative effects. To address this question, eye-tracking studies may be conducted in which different types of media are used that stress the importance of appearance more explicitly or implicitly, and in which both the amount of attention to that type of media, and the attentional pattern within such media is measured after the sociocultural norms for appearance are challenged.

Finally, it would be relevant to examine the full vicious circle of self-evaluation and attention to appearance-related media. That is, future studies may investigate how changes in attention resulting from norm manipulation may influence changes in women's self-evaluation, mood, body dissatisfaction, state self-esteem and eating behavior. A recent study by Smeets et al. (2011) provides evidence for the idea that changing women's attention to appearance-related stimuli may positively influence their body satisfaction. In this study, body-dissatisfied women learned to attend to their attractive body parts, which in turn increased body satisfaction. Further support for the link between attention and eating behavior comes from studies that investigated the effects of cognitive-behavioral therapy, targeting the personal thoughts and beliefs about appearance in women with an eating disorder. These studies showed that women who were successfully treated by this therapy showed both a reduced attentional bias to appearance and eating-related stimuli and reduced eating disorder symptoms after treatment (Shafran et al., 2008). These findings support the idea that reducing women's attention to appearance-related media may positively affect women's self-evaluation and eating behavior. Future studies may be conducted in which both attention, self-evaluations and eating behavior are measured after the sociocultural norms for appearance are manipulated to further address this question.

In conclusion, the present study showed that women's self-evaluations influence the selection of appearance-related information, and that challenging and opposing the sociocultural norms for appearance can change this selection process in women with lower self-esteem. This finding may be of value for interventions that aim to break the vicious circle of women with low self-evaluations who continually use unrealistic appearance-related media for self-evaluation.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Blechert, J., Nickert, T., Caffier, D., & Tuschen-Caffier, B. (2009). Social comparison and its relation to body dissatisfaction in bulimia nervosa: Evidence from eye movements. *Psychosomatic Medicine*, 71, 907–912.
- Boivin, M. K., Polivy, J., & Herman, C. P. (2008). An intervention to modify expectations of unrealistic rewards from thinness. *Eating Disorders*, 16, 160–179.
- Brown, A., & Dittmar, H. (2005). Think "thin" and feel bad: The role of appearance schema activation, attention level, and thin-ideal internalization for young women's responses to ultra-thin media ideals. *Journal of Social and Clinical Psychology*, 24, 1088–1113.
- Campbell, J. D. (1990). Self-esteem and carity of the self-concept. *Journal of Personality & Social Psychology*, 59, 538–549.
- Cusumano, D., & Thompson, J. (1997). Body image and body shape ideals in magazines: Exposure, awareness, and internalization. *Sex Roles*, 37, 701–721.
- Dittmar, H., & Howard, S. (2004). Thin-ideal internalization and social comparison tendency as moderators of media models' impact on women's body-focused anxiety. *Journal of Social and Clinical Psychology*, 23, 768–791.
- Engeln-Maddox, R. (2006). Buying a beauty standard or dreaming of a new life? Expectations associated with media ideals. *Psychology of Women Quarterly*, 30, 258–266.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117–140.
- Fouts, G., & Burggraf, K. (1999). Television situation comedies: Female body images and verbal reinforcements. *Sex Roles*, 40, 473–481.
- Fredrickson, B. L., & Roberts, T.-A. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, 21, 173–206.
- Glauert, R., Rhodes, G., Byrne, S., Fink, B., & Grammer, K. (2009). Body dissatisfaction and the effects of perceptual exposure on body norms and ideals. *International Journal of Eating Disorders*, 42, 443–452.
- 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.
- 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.
- 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.
- Herbozo, S., Tantleff-Dunn, S., Gokee-Larose, J., & Thompson, J. K. (2004). Beauty and thinness messages in children's media: A content analysis. *Eating Disorders*, 12, 21–34.
- Himes, S. M., & Thompson, J. K. (2007). Fat stigmatization in television shows and movies: A content analysis. *Obesity*, 15, 712–718.
- Hohlstain, L. A., Smith, G. T., & Atlas, J. G. (1998). An application of expectancy theory to eating disorders: Development and validation of measures of eating and dieting expectancies. *Psychological Assessment*, 10, 49–58.
- Jansen, A., Nederkoorn, C., & Mulken, S. (2005). Selective visual attention for ugly and beautiful body parts in eating disorders. *Behaviour Research and Therapy*, 43, 183–196.
- Ju, H. W., & Johnson, K. K. P. (2010). Fashion advertisements and young women: Determining visual attention using eye tracking. *Clothing and Textiles Research Journal*, 28, 159–173.
- Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality & Social Psychology*, 68, 518–530.
- Maner, J. K., Holm-Denoma, J. M., Van Orden, K. A., Gailliot, M. T., Gordon, K. H., & Joiner, T. E. (2006). Evidence for attentional bias in women exhibiting bulimic symptoms. *International Journal of Eating Disorders*, 39, 55–61.
- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality & Social Psychology*, 35, 63–78.
- Markus, H., Hamill, R., & Sents, K. P. (1987). Thinking fat: Self-schemas for body weight and the processing of weight relevant information. *Journal of Applied Social Psychology*, 17, 50–71.
- Martin, M. C., & Kennedy, P. F. (1993). Advertising and social comparison: Consequences for female preadolescents and adolescents. *Psychology and Marketing*, 10, 513–530.
- McCormack, H. M., Horne, D. J., & Sheather, S. (1988). Clinical applications of Visual Analogue Scales: A critical review. *Psychological Medicine*, 18, 1007–1019.
- Mischner, I. H. S., Van Schie, H. T., Wigboldus, D. H. J., Van Baaren, R. B., & Engels, R. C. M. E. (2013). Thinking big: The effect of sexually objectifying music videos on bodily self-perception in young women. *Body Image*, 10, 26–34.
- Myers, T. A., & Crowther, J. H. (2009). Social comparison as a predictor of body dissatisfaction: A meta-analytic review. *Journal of Abnormal Psychology*, 118, 683–698.
- Posavac, H. D., Posavac, S. S., & Posavac, E. J. (1998). Exposure to media images of female attractiveness and concern with body weight among young women. *Sex Roles*, 38, 187–201.
- Posavac, H. D., Posavac, S. S., & Weigel, R. G. (2001). Reducing the impact of media images on women at risk for body image disturbance: Three targeted interventions. *Journal of Social and Clinical Psychology*, 20, 324–340.
- Roefs, A., Jansen, A., Moresi, S., Willems, P., van Grootel, S., & van der Borgh, A. (2008). Looking good. BMI, attractiveness bias and visual attention. *Appetite*, 51, 552–555. <http://dx.doi.org/10.1016/j.appet.2008.04.008>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rosser, B. A., Moss, T., & Rumsey, N. (2010). Attentional and interpretative biases in appearance concern: An investigation of biases in appearance-related information processing. *Body Image*, 7, 251–254.
- Shafran, R., Lee, M., Cooper, Z., Palmer, R. L., & Fairburn, C. G. (2007). Attentional bias in eating disorders. *International Journal of Eating Disorders*, 40, 369–380.
- Shafran, R., Lee, M., Cooper, Z., Palmer, R. L., & Fairburn, C. G. (2008). Effect of psychological treatment on attentional bias in eating disorders. *International Journal of Eating Disorders*, 41, 348–354.
- Smeets, E., Tiggemann, M., Kemps, E., Mills, J. S., Hollitt, S., Roefs, A., & Jansen, A. (2011). Body checking induces an attentional bias for body-related cues. *International Journal of Eating Disorders*, 44, 50–57.
- Smith, E., & Rieger, E. (2009). The effect of attentional training on body dissatisfaction and dietary restriction. *European Eating Disorders Review*, 17, 169–176.
- Stice, E., Mazotti, L., Weibel, D., & Agras, W. S. (2000). Dissonance prevention program decreases thin-ideal internalization, body dissatisfaction, dieting, negative affect, and bulimic symptoms: A preliminary experiment. *International Journal of Eating Disorders*, 27, 206–217.

- Strahan, E. J., Lafrance, A. I., Wilson, A. E., Ethier, N., Spencer, S. J., & Zanna, M. P. (2008). Victoria's dirty secret: How sociocultural norms influence adolescent girls and women. *Personality and Social Psychology Bulletin*, *34*, 288–301.
- Strahan, E. J., Spencer, S. J., & Zanna, M. P. (2007). Don't take another bite: How sociocultural norms for appearance affect women's eating behavior. *Body Image*, *4*, 331–342.
- Strahan, E. J., Wilson, A. E., Cressman, K. E., & Buote, V. M. (2006). Comparing to perfection: How cultural norms for appearance affect social comparisons and self-image. *Body Image*, *3*, 211–227.
- Swallow, S. R., & Kuiper, N. A. (1988). Social comparison and negative self-evaluations: An application to depression. *Clinical Psychology Review*, *8*, 55–76.
- Thompson, J., Heinberg, L., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment and treatment of body image disturbance*. Washington, DC: American Psychological Association.
- Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of magazine advertisements on women's mood and body dissatisfaction. *Journal of Social and Clinical Psychology*, *23*, 23–44.
- Tylka, T. L., & Subich, L. M. (2004). Examining a multidimensional model of eating disorder symptomatology among college women. *Journal of Counseling Psychology*, *51*, 314–328.
- van den Berg, P., Paxton, S. J., Keery, H., Wall, M., Guo, J., & Neumark-Sztainer, D. (2007). Body dissatisfaction and body comparison with media images in males and females. *Body Image*, *4*, 257–268.
- Want, S., Vickers, K., & Amos, J. (2009). The influence of television programs on appearance satisfaction: Making and mitigating social comparisons to "Friends". *Sex Roles*, *60*, 642–655.
- Wayment, H. A., & Taylor, S. E. (1995). Self-evaluation processes: Motives, information use, and self-esteem. *Journal of Personality*, *63*, 729–757.
- Williamson, D. A., White, M. A., York-Crowe, E., & Stewart, T. M. (2004). Cognitive-behavioral theories of eating disorders. *Behavior Modification*, *28*, 711–738.
- Yamamiya, Y., Cash, T. F., Melnyk, S. E., Posavac, H. D., & Posavac, S. S. (2005). Women's exposure to thin-and-beautiful media images: Body image effects of media-ideal internalization and impact-reduction interventions. *Body Image*, *2*, 74–80.