Chapter 5

Boost your body: Self-improvement magazine headlines increase body satisfaction in young adults

Veldhuis, J., Konijn, E.A., & Knobloch-Westerwick, S. (under review). Boost your body: Self-improvement magazine headlines increase body satisfaction in young adults, ...
“On the one hand, the sun and beach in the pictures make me feel happy. But on the other hand, I get more insecure about my own body. I compare myself to models, although I know that’s not realistic.”

Respondent, girl, 24-years-old
Boost your body: Self-improvement magazine headlines increase body satisfaction in young adults

Abstract

The verbal messages that contextualize exposure to idealized body imagery may moderate media users’ body satisfaction. Therefore, the present study applied social comparison motives as induced through magazine cover headlines. Hypotheses were tested in an experimental design with social comparison motives (self-improvement vs. self-evaluation vs. control) and recipient gender as between-subjects factors, and with body satisfaction as within-subjects factor (N = 150). Results showed that self-improvement headlines accompanying ideal body media models increased body satisfaction, compared to control headlines and baseline measures. In contrast, the self-evaluation headlines did not impact body satisfaction compared to body-irrelevant texts. Results imply that inconsistencies regarding effects from exposure to idealized body imagery are explained by the context in which media images are portrayed, evoking differential social comparison motives.

For citation purposes:
5.1 Introduction

Despite ample evidence that exposure to idealized body imagery in the media lowers body satisfaction (see meta-analyses by Grabe, Ward & Hyde, 2008, and Barlett, Vowels, & Saucier, 2008), large audiences are attracted to media outlets featuring abundant imagery of idealized body shapes with super-thin women and super-muscular men. The present work aims to tackle this paradox by considering the verbal messages in which idealized body imagery is embedded.

Social comparison theory has governed much of body image research. The impacts of social comparisons on the body perceptions of those viewing attractive media models with idealized body imagery features seem two-fold. Abundant research has yielded that recipients’ comparisons of their own bodies with media models’ bodies instigates body dissatisfaction (e.g., Cattarin, Thompson, Thomas, & Williams, 2000; Hargreaves & Tiggemann, 2009; Want, 2009). However, a few empirical studies showed that social comparison with models with idealized bodies can enhance body perceptions (e.g., Knobloch-Westerwick & Crane, 2011; Mills, Polivy, Herman, & Tiggemann, 2002). Although most studies have included social comparison as a uniform concept (e.g., Cattarin et al., 2000; Dittmar & Howard, 2004; Tiggemann & McGill, 2004), some scholars suggested that the inconsistency in impacts of such body comparison results from different viewers’ motives for comparing (Halliwell & Dittmar, 2005; Knobloch-Westerwick & Romero, 2011; Martin & Gentry, 1997; Mills et al., 2002). In fact, the texts that typically accompany idealized body imagery in the media may encourage different motives for social comparisons. The present study investigates how media users’ body satisfaction is affected by magazine headlines accompanying images with idealized bodies.

Thus far, only a few studies in body-image research have manipulated motives for social comparison and tested their causal effects on body-related perceptions (Halliwell & Dittmar, 2005; Knobloch-Westerwick & Romero, 2011; Martin & Gentry, 1997; Mills et al., 2002). However, previous studies mostly studied social comparison motives as induced separately, before exposure to models with idealized bodies (e.g., see Halliwell & Dittmar, 2005). To create more naturally occurring media exposure (see also Knobloch-Westerwick & Romero, 2011; Want, 2009), we simultaneously showed idealized body imagery and headlines that induced different social comparison motives as an integrated display on magazine covers. Furthermore, we included both women and men—while most studies on social comparison motives have included women only (Halliwell & Dittmar, 2005; Martin & Gentry, 1997; Mills et al., 2002), men are also impacted by exposure to models with ideal bodies and subject to social comparison (e.g., Agliate Tantleff-Dunn, 2004; Barlett et al., 2008; Hargreaves & Tiggemann, 2009).
In the following, we outline our theoretical rationale in how underlying motives for body comparison may affect body satisfaction in response to idealized body imagery. Then, we formulate our hypotheses preceding a description of our methodological approach to test hypotheses in an experimentally controlled design.

5.1.1 Media Exposure to Ideal-Bodies and Social Comparison

Prior work yielded inconsistent results for exposure to idealized body imagery impacting body perceptions and related measures (e.g., see Holmstrom, 2004; López-Guimerà, Levine, Sánchez-carracedo, & Fauquet, 2010). Among women, the vast majority of studies found that exposure to thin-ideal imagery raises internalization of this ideal and guides subsequent negative body-related issues such as body dissatisfaction, distorted body perceptions, weight control measures such as disordered eating, and depression (e.g., Grabe et al., 2008; Groesz, Levine & Murnen, 2002; Harrison & Cantor, 1997; Harrison, 2000; Jones & Smolak, 2011; López-Guimerà et al., 2010). Additionally, recent insights have revealed that men may also suffer from body image concerns (Cohane & Pope Jr., 2000). Exposure to ultramuscular body imagery inflicted body dissatisfaction, which was even further associated with depression and eating disorder symptoms (Agliata & Tantleff-Dunn, 2004; Barlett et al., 2008; Olivarda, Pope Jr., Browiecki, & Cohane, 2004; Wichstrøm, 2000). Recent meta-analyses and reviews confirmed these findings of exposure to idealized body imagery negatively impacting both women and men (Barlett et al., 2008; Grabe et al., 2008; Groesz et al., 2002; López-Guíméra et al., 2010). However, in contrast, other meta-analyses concluded that idealized body depictions resulted in only small to hardly any effects on body perceptions (Ferguson, 2013; Holmstrom, 2004). Moreover, some studies even found more positive body perceptions after exposure to models with idealized bodies (e.g., Knobloch-Westerwick & Crane, 2012; Mills et al., 2002). These differences might be dependent on how the idealized body imagery is presented: Contextualizing such ideal imagery may trigger different responses. For example, variations in textual framing of media models has been found to both increase (Veldhuis, Konijn, & Seidell, 2014a) and decrease body dissatisfaction (Veldhuis, Konijn, & Seidell, 2012; Veldhuis, Konijn, & Seidell, 2014b), depending on the content of accompanying verbal messages. In an attempt to further explain these different reactions to ideal-image exposure, we consider variations in how individuals compare themselves to thin-ideal models to be of pivotal importance.

In body image research, social comparison (cf. Festinger, 1954) with media models has been revealed as an important underlying mechanism for internalization of ideal standards and for developing body-perceptions (e.g., Cattarin et al., 2000; Dittmar & Howard, 2004; Hargreaves & Tiggemann, 2009; Tiggemann & McGill, 2004). Social comparison comes about both consciously and unconsciously and generally occurs with those who are similar on a
relevant domain, such as demographics (Festinger, 1954; Lockwood & Kunda, 1997; Suls, Martin & Wheeler, 2002). More specifically, appearance comparison and body comparison refer to comparison of appearance-related and body-specific qualities, such as weight, size, and shape (cf. Jones, 2001; Schutz, Paxton, & Wertheim, 2002). Research has revealed that media figures function as relevant targets for such comparisons on physical attributes (e.g., Botta, 1999; Jones, 2001; Milkie, 1999; Schutz et al., 2002). Hence, the present study focused on same-sex media models with ideally-toned bodied as reference points for body comparison. That is, women were exposed to ultrathin female models (e.g., Grabe et al., 2008, Groesz et al., 2002, López-Guimera et al., 2010) and men saw ultramuscular male bodies (e.g., Hargreaves & Tiggemann, 2009; Law & Labre, 2002).

Social comparison theory distinguishes upward and downward processes of comparison (Wills, 1981; Lockwood & Kunda, 1997), depending on whether one assimilates or contrasts oneself to superior or inferior others (Suls et al., 2002). Downward comparison refers to comparing oneself with those who are worse off (Wheeler & Miyake, 1992). However, as media models are mostly seen as more ideal and attractive than oneself, most likely upward social comparison mechanisms are triggered upon exposure to idealized body imagery (Wheeler & Miyake, 1992). Upward social comparison can either negatively or positively impact self-image (Helgeson & Mickelson, 1995; Suls et al., 2002), as detailed in the following.

On one hand, upward social comparison with media models can lead to experiencing self-ideal discrepancy, and developing disturbed and negative self-concepts regarding one’s body or weight (e.g., Bailey & Ricciardelli, 2010; Bessenoff, 2006; Greenwood, 2009; Groesz et al., 2002; Tiggemann, Polivy & Hargreaves, 2009; Tiggemann & Polivy, 2010). Likewise, social comparison has been found to take a mediating or moderating role in explaining the effects of media exposure to idealized body imagery on body dissatisfaction and negative affect (e.g., Dittmar & Howard, 2004; Hargreaves & Tiggemann, 2009; Tiggemann & McGill, 2004).

On the other hand, upward social comparison might also have an inspiring and motivating function and lead to behaviors to improve oneself, for example, restricting food intake (Festinger, 1954; Hargreaves et al., 2009; Knobloch-Westerwick & Crane, 2012; Mills et al., 2002; Wood, 1989; cf. self-discrepancy theory of Higgins, 1987). For the motivating function of upward social comparison, perceived attainability of such ideal bodies in combination with measures on how this can be achieved seems to play a key-role in guiding positive outcomes of upward comparison (Lockwood & Kunda, 1997; see also self-efficacy theory, Bandura, 1977). Supporting this claim, the study of Knobloch-Westerick and Romero (2011) found that body dissatisfied readers spent more time on ideal body ads when body-improvement articles about exercising and dieting, compared to body-unrelated control articles, were included in a magazine. The multi-faceted impact of upward social comparison
speaks to the versatile effects found for media exposure to idealized body imagery, which could be further explained by the various underlying motives that people may have for engaging in body comparison with models.

5.1.2 Motives for Social Comparison

Further specifying social comparison theory, scholars have postulated that the extent to and direction into which media models affect body-perceptions depends on the motive to compare oneself with these models (Halliwell & Dittmar, 2005; Knobloch-Westerwick & Romero, 2011; Levine & Murnen, 2009; Martin & Gentry, 1997). Three motives have been discussed to be most relevant here: self-evaluation, self-improvement (which both pertain to upward comparison), and self-enhancement (which pertains to downward comparison; Helgeson & Mickelson, 1995). As argued in the above, upon exposure to idealized body imagery, most likely upward social comparison will occur due to a self-ideal discrepancy (Bessenoff, 2006; Higgins, 1987; Tiggemann & McGill, 2004). Therefore, in media settings where media models with idealized bodies are prevailing, self-enhancement from downward comparison seems highly uncommon (Martin & Kennedy, 1994; also argued in Halliwell & Dittmar, 2005, p. 250). Thus, we focused on self-improvement and self-evaluation as underlying motives for upward comparison.

**Self-improvement.** Research has indicated that negative effects from exposure to idealized body imagery can be counteracted when such images of media models are presented in specific contexts, such as accompanied by a message that the model is way too thin (Veldhuis et al., 2012; Veldhuis et al., 2014b). Related, even positive effects on body perceptions have been found from contextualizing idealized body imagery by inducing social comparison (Knobloch-Westerwick & Crane, 2012) or by reading attainability articles (Mills et al., 2002) before exposure to the images. The self-improvement motive for social comparison (see Helgeson & Mickelson, 1995) might explain these findings: The self-improvement motive directs not only comparison of oneself with others and experiencing self-ideal discrepancies, but also the motivation and inspiration to improve oneself as a result (Lockwood & Kunda, 1997). For example, a headline like ‘The Burn Fat-Build Muscle-Diet: A New You in 30 Days’ on Men’s Fitness magazine points at self-improvement measures such as dieting and, thus, suggests that the magazine directly provides information on how to reach the goal of an ideal weight. Suggestions and means on how to achieve the ideal-body goal are key elements in media exposure driving self-improvement, which motivates viewers to improve one’s body and reach the ideal (Harrison, Taylor, & Marske, 2006; Knobloch-Westerwick & Romero, 2011). As a result, people are expected to feel better about their body when self-improvement underlies body comparison.
Indeed, the few studies that have manipulated social comparison motives and tested their causal effects on body-related issues revealed that induction of self-improvement motives preceding exposure to idealized body imagery in magazine advertisements and articles can readdress negative effects from such exposure. More specifically, self-improvement guided more positive self-perceptions of physical attractiveness compared to self-evaluation or control groups in (pre-)adolescent girls (Martin & Gentry, 1997). Additionally, reading articles that are high in attainability measures (i.e., lose weight through dieting) before exposure to magazine advertisements with thin-ideal body images led to higher self-esteem and less negative affect in female restraint eaters compared to lower-attainability or body-irrelevant articles (Mills et al., 2002). Lastly, the study of Knobloch-Westrick and Romero (2011) found that including articles with attainability measures in a magazine (compared to a magazine with body-irrelevant articles) allowed for longer exposure to ideal-body ads in body dissatisfied adult women and men. Hence, we expected that verbal messages accompanying ideal body portrayals that induce self-improvement comparison would increase body satisfaction, compared to pre-exposure body satisfaction (H1a) and compared to ideal imagery with neutral messages (H1b).

Self-evaluation. Self-evaluation as a motive for social comparison underlies upward comparison in a way that yields unrealistic and usually unattainable ideals, such as with most body imagery in media portrayals. Such standards of idealized bodies are unrealistic since they deviate from actual body measures in society (Fouts & Burggraf, 2000), while they also have become increasingly thinner (for women) and more muscular (for men) over time (Agliata & Tantleff-Dunn, 2004; Klein & Schiffman, 2005; Park, 2005; Sypeck, Grey, & Ahrens, 2004). Self-evaluation is expected to occur when people evaluate their personal qualities, capacities, social norms, expectations and values against those of others who are seen as more capable, more attractive, and better than oneself (Festinger, 1954; Helgeson & Mickelson, 1995; Jones, 2001). For example, the headline ‘Mrs Skinny versus Mrs Muscle: the Two Body Trends’ on Grazia magazine might prompt self-evaluation of one’s body compared to the models portrayed on the cover. Given that no attainability measures are given on how to overcome the self-ideal body discrepancies, unlike in case of self-improvement, self-evaluation with ideal media models usually prompts negative body perceptions (Botta, 1999; Lockwood & Kunda, 1997). Indeed, the experimental studies of Halliwell and Dittmar (2005), and Martin and Gentry (1997) found that induced self-evaluation comparison before viewing magazine advertisements with ideal models, guided higher body-focused anxiety and more negative self-perceptions of physical attractiveness in women and girls. Likewise, research suggested that feedback of peers on thin-ideal body imagery made viewers focus on self-ideal comparisons without providing effective ideas on how to overcome self-ideal discrepancies, which increased body dissatisfaction.
In sum, the above theorizing led us to the assumption that exposure to ideal body imagery accompanied by verbal messages triggering self-evaluation comparison reduces body satisfaction, compared to pre-exposure body satisfaction (H2a) and compared to ideal imagery with neutral messages (H2b).

5.2 Method

5.2.1 Design and Participants

In order to examine the assumed subtle differences in motives underlying social comparison while viewing magazine covers that would lead to opposing effects on body perceptions, we designed a carefully controlled experiment. Based on the above theorizing, we included verbal references of self-improvement motives versus self-evaluation motives through headlines (to be contrasted with body-irrelevant control headlines) and visual representations of either female thin-ideal or male muscularity-ideal same-sex models on magazine covers. Furthermore, we included measures of body satisfaction before and after exposure to magazine covers. This mixed experimental design allowed to test the hypotheses as derived from combining theoretical principles and previous findings on social comparison motives.

A total of 173 late adolescents and young adults were recruited from introductory classes from various higher education organizations in the Netherlands. They participated in an experimental design with social comparison motives (self-improvement vs. self-evaluation vs. control) and recipient gender as between-subjects factors, and with body satisfaction as within-subjects factor (pre- versus post-exposure measures). To create a homogeneous group of higher-educated participants in so-called ‘emerging adulthood’ (aged 18-25 years; cf. Arnett, 2000; Nelson, Story, Larson, Neumark-Sztainer, & Lytlec, 2008), 23 participants have been removed from the original database (16 based on age, and 7 based on education). As a result, 150 participants were included in subsequent analyses (all higher-educated and aged 18-25 years; $M_{age} = 21.91, SD_{age} = 2.06$; 101 were females). The participants were randomly assigned to one of three experimental conditions (self-evaluation, $n = 53$; self-improvement, $n = 48$; and control, $n = 49$). Distributions of age ($F(2,147) = .241, p = .786$), gender ($F(2,147) = .791, p = .455$), Body Mass Index1 ($F(2,145) = .430, p = .651$), baseline measure of social comparison regarding physical appearance2 ($F(2,147) = .003, p = .997$), and magazine use3 ($F(2,147) = .468, p = .627$) were equal across conditions. Participation in this study was approved by the ethics

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1 Body Mass Index was calculated by dividing self-reported weight (in kilos) by squared height (in meters).
2 A trait measure of physical appearance comparison was measured with Physical Attractiveness Comparison Scale (PACS; Thompson, Heinberg, & Tantleff, 1991). These 5 items (4 indicative) on a 5-point scale (1 = totally disagree; 5 = totally agree) formed a reliable scale (Cronbach’s alpha = .72).
3 Magazine use was assessed with 1 item on how many magazines were read during the past week (11-point scale from ‘not at all’, ‘1’, ‘2’, ‘…’, ‘10 or more’).
committee of our institution, was entirely voluntary, completely confidential, and essentially anonymous.

5.2.2 Materials

Social comparison motives in headlines. This study included three experimental conditions that varied only in the content of magazine covers’ headlines, whereas the images of models with idealized bodies and further presentation and lay-out of the magazine covers were kept identical throughout the experimental conditions. Two conditions varied in experimentally induced social comparison motives (i.e., self-evaluation vs. self-improvement) embedded in magazine headlines whereas the control condition used body-irrelevant (neutral) headlines.

Each experimental condition used a set of two magazine covers, which were created specifically for our study purposes. Each cover contained a headline consisting of a main headline and a headline copy. We strived to include a close to equal number of words per headline. An overview of the exact headlines in each experimental condition and the number of words used per headline is provided in Table 5.1. The headlines are generally similar for both genders, except that, following literature on features of ideal bodies, the word ‘slim’ is used for females (e.g., Grabe et al., 2008), and ‘muscular’ for males (e.g., Hargreaves & Tiggemann, 2009). See Supplement I. for an overview of the pre-test of the headlines 4.

Magazine cover. To ensure ecological validity, the stimulus materials combined texts and images in a magazine setting (following arguments in Aubrey, 2010; Harrison et al., 2006; Holmstrom, 2004; Knobloch-Westervick & Crane, 2012; Law & Labre, 2002). Research has shown that men reading sports magazines and women reading beauty magazines report increased levels of appearance-related worries (Botta, 2003; Morry & Staska, 2001). Furthermore, magazines have been identified as an important source of exposure to body-related content (Harper & Tiggemann, 2008; Law & Labre, 2002). This renders magazines a relevant setting for presenting our stimuli.

For the purpose of the present study, we developed full-color and full-screen presentations of magazine covers. Each cover presented three same-sex model images 5 and a headline emphasizing same-sex body-ideals. In contrast to Martin and Gentry (1997), we included idealized body imagery in our control group in order to be able to attribute the effects

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4 The information in Supplement I. has been added for the purpose of this dissertation, and is not included in the orginal manuscript.

5 In the main study, respondents evaluated the portrayed models’ thinness (10-point scale: very thin - very big, out of shape) and attractiveness (10-point scale: very unattractive, ugly - very attractive, beautiful); measurements were in line with previous studies (e.g., Veldhuis et al., in press; Martin and Gentry, 1997). Scores for both covers within an experimental condition added up to sum scores for model thinness (r = .369, p < .01) and model attractiveness (r = .342, p < .01). A MANOVA revealed that the portrayed models’ thinness and attractiveness were evaluated similarly across experimental conditions (multivariate effect: Wilks’ λ = .974, F(4,292) = 1.03, p = .392, ηp² = .01; univariate F-tests: p = .381 for model thinness, and p = .338 for model attractiveness).
to variations in headline content. The same regularity of magazine lay-out was pursued for both females and males (following Martin & Gentry, 1997, who stress stimuli consistency).

In each condition, the first cover was called “Trend Magazine” and included the following sub-headlines: “New Season Trends” for both females and males, and “Beach Shorts - Under €30” for males or “Beach Bikinis - Under €30” for females. Additionally, three pictures displayed models with ideal bodies (female models for female participants and male models for male participants) and some background beach images. The second cover used in each experimental condition, was called “Women's Style” for females, and “Men's Style” for males, and included the following sub-headlines (similar for both genders): “Special Edition”, “This Month's Hot Stories”, “New Fab Shoes – Rule the World”, and “Music & Movies”. Finally, some smaller pictures of shoes and a small picture of hats were portrayed on the second cover.

The colors that were used for the magazine covers and for the texts mimicked colors that are generally displayed on commonly available magazines such as “Men's Health” and “Cosmopolitan”. Accordingly, the first cover used bright yellow, bright blue, and grey colorings for males, and bright yellow, bright pink, and grey for females. The second cover displayed red, blue and yellow for both males and females. Furthermore, each cover included a bar code in the right bottom corner.

5.2.3 Procedure

Participants were recruited at their educational institution and through e-mail. The study was conducted online by means of Qualtrics. This software allowed random assignment of participants to one of three same-sex experimental magazines targeting social comparison motives. The participants were assured that their answers were essentially anonymous and confidential, and would only be used for study purposes. The undergraduate students could receive extra credit for participation. Participants took only one session that lasted approximately 20 minutes.

The online questionnaire first asked participants for their socio-demographics (embedded in filler items), including age, educational ability, and gender. The latter allowed participants’ designation to covers portraying either female models or male models, while allocation to experimental conditions was random. This first part further asked for physical features (i.e., current body weight and height), trait social comparison regarding physical appearance, magazine use, and baseline body satisfaction. Hereafter, the two magazine covers from one experimental condition were presented one-by-one (online). The participants decided when to proceed from the first cover to the second cover, and from there to the remaining questionnaire. After stimuli exposure, post-exposure body satisfaction was asked. Then, again, the participants were shown the two magazine covers of their condition. This
time, after each cover manipulation check items were asked to check for possible confounders. Finally, the participants were thanked for their participation.

5.2.4 Measurements

**Body satisfaction.** The dependent variable body satisfaction was measured with 4 items on a 21-point semantic scale (-10 = very dissatisfied; 10 = very satisfied) which were embedded in 11 distracter items to avoid demand characteristics (cf. ‘Quality of Life Scale’ of Ferrans & Powers, 1985; also see Knobloch-Westerwick & Romero, 2011). The items assessed state body satisfaction by asking for the extent of one’s current satisfaction with personal appearance, body size and shape, and physical attractiveness. Body satisfaction was measured both prior to and after stimulus exposure (Cronbach’s alpha_{pre} = .93; Cronbach’s alpha_{post} = .94). Higher scores on the scale resembled more body satisfaction, whereas lower scores indicated more body dissatisfaction.

**Manipulation check.** Although the headlines’ contents [were pre-tested and] can be considered as intentional and intrinsic features of the stimuli (following O’Keefe, 2003), we included a manipulation check in the present study to ensure that interpretation of the magazine covers was correct. Each of the headlines was rated on its’ fit of belonging to a magazine with information on how to attain a better body shape (i.e., self-improvement) or to a magazine with information that allocated self-other body comparison (i.e., self-evaluation). Two items followed each headline and were rated on a ten-point scale (1 = totally disagree; 10 = totally agree): ‘This headline suggests that the magazine provides information on how to improve one’s body shape’ (i.e., indicative for the self-improvement condition) and ‘This headline suggests that the magazine provides information that allows comparing one’s own body shape to others’ body shape’ (i.e., indicative for the self-evaluation condition). Because the self-evaluation scores of both covers within an experimental condition correlated significantly \( r = .799, p < .01 \), these were added up to a sum score of self-evaluation ratings of the headlines in that condition. Similarly, the self-improvement scores for the two covers of an experimental condition correlated significantly \( r = .767, p < .01 \), and were subsequently collapsed to a sum score of self-improvement ratings of the headlines within that condition.

5.3 Results

5.3.1 Manipulation check

A MANOVA with experimental condition of social comparison motives (self-evaluation vs. self-improvement vs. control) and recipient gender as between-subjects factors, included the two manipulation check sum scores of headlines’ fit with 1) magazines on self-evaluation, and 2) magazines on self-improvement as dependent variables. Results revealed a multivariate effect
for the experimental condition of social comparison motives (Wilks’ λ = .349, \( F(4,286) = 49.52, p < .001, \eta^2 = .41 \)), which was confirmed by univariate F-tests for self-improvement ratings (\( F(2,144) = 69.98, p < .001, \eta^2 = .49 \)) and for self-evaluation ratings (\( F(2,144) = 44.67, p < .001, \eta^2 = .38 \)). Importantly, no multivariate effects were found for gender (\( p = .364 \)), or for the interaction between experimental condition and gender (\( p = .283 \)).

Further testing the significant main effects of the experimental social comparison motives condition, subsequent post-hoc tests (Bonferroni) specified that the headlines in the self-improvement condition were evaluated as significantly better fit to a magazine on improving one’s own body than the headlines in both other experimental conditions. Likewise, the headlines in the self-evaluation condition were perceived as significantly more indicative of belonging to a magazine that directed self-other body comparison than the headlines in the self-improvement and control condition (all \( ps < .001 \); see Table 5.1 for means and standard deviations). Hence, results confirmed our manipulation of the magazine cover headlines pertaining to social comparison motives in the intended direction.

### 5.3.2 Testing Hypotheses

Testing H1 and H2, we used a repeated measures ANOVA with experimental condition of social comparison motives and recipient gender as between-subjects factors, and body satisfaction (pre- versus post-exposure) as the within-subjects factor (See Figure 5.1 for means and standard deviations of pre-exposure and post-exposure body satisfaction per experimental condition). Multivariate tests revealed a significant interaction effect for the between-subjects factor experimental condition and within-subjects factor body satisfaction (Wilks’ λ = .950, \( F(2,144) = 3.76, p = .026, \eta^2 = .05 \)). Furthermore, no multivariate interaction effect was found for the within-subjects factor body satisfaction and between-subjects factor gender (\( p = .677 \)). Moreover, no multivariate three-way interaction was found for the between-subjects factors and the within-subjects factor (\( p = .452 \)).

Further testing the effect of self-improvement headlines (H1a), pairwise comparisons (Sidak) revealed a significant difference between pre-exposure an post-exposure measures of body satisfaction at the level of the self-improvement headlines (\( p = .002 \)). That is, body satisfaction significantly increased after exposure to self-improvement headlines when compared to baseline measures of body satisfaction. This effect is visualized in Figure 5.1.

Subsequent testing of the effect of self-evaluation headlines (H2a) by means of pairwise comparisons (Sidak) revealed no significant difference between pre-exposure and post-exposure measures of body satisfaction at the level of the self-evaluation headlines (\( p = .504 \)). Lastly, no significant difference was found for pre- versus post-exposure body satisfaction at the level of the control headlines (\( p = .511 \)).
Additionally, these results were confirmed by a univariate ANCOVA with the pre-exposure body satisfaction as covariate, experimental condition and gender as independent factors, and the post-exposure body satisfaction as dependent factor (cf. Senn, 2006). Results revealed a main effect of experimental condition on post-exposure body satisfaction, \( F(2,143) = 3.72, p = .027, \eta_p^2 = .05 \). Furthermore, a main effect of pre-exposure body satisfaction on post-exposure body satisfaction was found, \( F(1,143) = 1950.10, p < .001, \eta_p^2 = .93 \). No significant effects were found for gender \( (p = .704) \) or the experimental factor by gender interaction \( (p = .456) \). Subsequent pairwise comparisons (Sidak) showed that post-exposure body satisfaction following self-improvement headlines is significantly higher than following control headlines \( (p = .025) \), confirming H1b. Furthermore, self-evaluation headlines induced similar levels of body satisfaction compared to control headlines \( (p = .725) \), which does not support H2b.

In sum, results confirmed a positive effect of self-improvement headlines. More specifically, exposure to magazine covers with idealized body imagery increased body satisfaction when these magazine covers contained headlines with self-improvement measures, compared to control headlines and compared to baseline measures of body satisfaction. Furthermore, we found no support for self-evaluation headlines on magazine covers impacting body satisfaction.

Figure 5.1 Pre- and post-exposure body satisfaction per social comparison motive experimental condition (numbers indicate means ± standard deviations).

Note. Lines indicated with a * indicate a significant difference between pre- and post-exposure, and lines with different letters indicate a significant difference in post-exposure body satisfaction between experimental groups, based on pairwise comparisons (Sidak), \( p < .05 \).

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Senn (2006) discusses the (favorable) use of analysis of covariance (ANCOVA), compared to the simple analysis of change scores (SACS), for estimates of treatment effects and changes from baseline: including the baseline measure as a covariate, and the pre-treatment measure as dependent variable.
Table 5.1  Exact Statements for Headlines used in Stimuli for the Self-Evaluation, Self-Improvement and Control Conditions, and Means and Standard Deviations (per Gender and Total) of Manipulation Check Sum Scores per Experimental Condition.

<table>
<thead>
<tr>
<th>Social comparison motives</th>
<th>Headlines</th>
<th>Number of words</th>
<th>Fit with self-evaluation magazine</th>
<th>Fit with self-improvement magazine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Females</td>
<td>M</td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>(Cover-1) Are you this sexy, slim(^a) &amp; confident?</td>
<td>n = 30</td>
<td>15.82</td>
<td>8.58</td>
</tr>
<tr>
<td></td>
<td>Can you keep up with the beach-body trend?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Cover-2) Compare your body to the latest trend! Check if you can live up to the ideal!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-improvement</td>
<td>(Cover-3) Get this sexy, slim(^a) &amp; confident quickly</td>
<td>n = 30</td>
<td>5.73</td>
<td>14.83</td>
</tr>
<tr>
<td></td>
<td>How to shape up for the beach body trend!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Cover-4) Boost your body to the latest trend! Get inspired for action: the ultimate body work-out!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>(body-irrelevant)</td>
<td>n = 28</td>
<td>5.59</td>
<td>3.26</td>
</tr>
<tr>
<td>(Cover-5)</td>
<td>Take a break: 10 most relaxing trips Plus: fun facts on dazzling holiday resorts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Favorite time-out sound tracks: Rock hits Gift guide: Trendy vacation gadgets on page 7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Means in columns with different subscripts indicate significant differences based on pairwise comparisons (Bonferroni), \(p < .001\).
\(^a\)‘Slim’ is used in the headlines for female participants, whereas the word ‘muscular’ is used instead for male participants in these particular headlines.
5.4 Discussion

The present study aimed to shed light on the paradox of the large readership in magazines portraying models with ideal bodies despite evidence that such imagery induces body dissatisfaction among onlookers. Therefore, we tested the causal impact of verbal messages accompanying idealized body imagery in evoking different motives for social comparison. Self-evaluation and self-improvement motives were encouraged through headlines shown with thin-ideal (for women) or muscularity-ideal (for men) imagery. Our results demonstrate that self-improvement headlines accompanying ideal-body media models increase body satisfaction in young adults, both men and women, while self-evaluation headlines did not impact body satisfaction.

In line with hypotheses, self-improvement headlines on a magazine cover with thin or muscular body-ideal images prompted an increase in body satisfaction in our study. This effect was demonstrated in two ways: The level of body satisfaction after exposure to self-improvement headlines was higher 1) when compared to control headlines, and 2) when compared to one’s baseline body satisfaction (i.e., before exposure). The positive impact of self-improvement headlines on body satisfaction converges with previous studies on induced self-improvement and attainability measures before ideal-body exposure (e.g., Knobloch-Westerwick & Romero, 2011; Martin & Gentry, 1997). The suggestion how to attain the ideal body guided positive self-perceptions by motivating and inspiring the viewers to improve oneself.

Importantly, our finding that self-improvement motives increase body satisfaction, implies that the inconsistency in the extant literature regarding effects from ideal-body exposure and social comparison with media models can be explained by how media images are contextualized (cf. Helgeson & Mickelson, 2005; Suls et al., 2002). It also explains why people still read magazines portraying ideally-toned bodies, whereas a large body of research claims this causes negative effects (e.g., Barlett et al., 2008; Grabe et al., 2008): Self-improvement headlines like “The Burn Fat-Build Muscle-Diet: A New You in 30 Days” may instigate sparks of hope by offering new ideas on how to reach the ideal (cf. Lockwood & Kunda, 1997). In all, the consequences of exposure to ideally-toned bodies seem to be largely dependent on the context in which those images are portrayed, such as headlines and verbal messages accompanying the ideal imagery.

Contextualization of idealized body imagery by verbal references and taking into account underlying motivational processes is important in clarifying effects of media exposure (cf., Harrison et al., 2006; Levine & Murnen, 2009; Knobloch-Westerwick & Crane, 2012). Verbal message contextualization and visual representations of ideal bodies moderate how recipients are affected in their body satisfaction. For example, studies showed that verbal
feedback from relevant others (i.e., peers) further idealized an in-reach model, thereby decreasing body satisfaction (Veldhuis et al., 2014a). Likewise, textual information labels explicating the underweight status of thin-ideal images counteracted negative feelings from ideal-body exposure resulting in decreased body dissatisfaction (Veldhuis et al., 2012; Veldhuis et al., 2014b). In a similar vein, our findings for self-improvement text references to ideally-shaped models implied such a counteracting effect, resulting in increased body satisfaction.

Interestingly, our study revealed that both women and men showed similar reactions to social comparison motives attached to displays of ideal bodies, which supplements the existing literature focusing mainly on women (e.g., Halliwell & Dittmar, 2005), while men are also susceptible to body-ideals in terms of experiencing negative body perceptions (Barlett et al., 2008). This finding could be expected because our stimuli included same-sex body-ideal models to specifically target women and men separately.

While results for self-evaluation headlines did not follow expectations, they do provide valuable information. Based on previous studies that explicitly drove self-ideal body comparisons while no attainability measures were given (Halliwell & Dittmar, 2005; Martin & Gentry, 1995; Veldhuis et al., 2014a), we expected that self-evaluation headlines accompanying ideal-body images would instigate lower levels of body satisfaction. However, self-evaluation headlines left body satisfaction unchanged in the current study. This result is not consistent with previous studies finding disturbed and negative body self-concepts following upward social comparison (e.g., Bessenoff, 2006; Greenwood, 2009). However, the lack of finding a difference between the self-evaluation and control headlines in impacting body satisfaction, could be because exposure to idealized body images automatically leads to self-evaluation comparisons, which were not further strengthened by self-evaluation motives. Such an explanation is in accordance with previous studies that found no difference between induced social comparison and spontaneously occurring social comparison in impacting body satisfaction (Knobloch-Westenerwick & Crane, 2012; Want, 2009).

As all studies, our study has several strengths and limitations that hold implications for future research. Although the present study focused on a homogenous group of higher-educated females and males in emerging adulthood, we did not consider individual differences that might further moderate the impact of texts and images on body perceptions. Several scholars have argued that some individuals are more likely to be affected by media’s ideal-bodies than others and that individual difference variables, such as trait levels of self-esteem or appearance schematicity, should be considered in body image research (Veldhuis et al., 2012; Veldhuis et al., 2014b; Ferguson, 2013; Roberts & Good, 2010). Including more participants in future research may allow segmentation of the target group in terms of individual differences that may interact with social comparison motives. For example, the current range of BMI...
among our participants was too small to create substantially different BMI groups. However, it is important to check the impact of social comparison motives among individuals differing in body-relevant variables such as BMI or self-efficacy to change one's body. Additionally, future research could apply a longitudinal approach (cf., Knobloch-Westerwick & Crane, 2012; Levine & Murnen, 2009), to further assess the long term impact on, for example, actual behavior to improve oneself such as dieting and exercising.

Furthermore, a note of caution must be made about individuals’ connotations made to ideal-body images. In response to an exploratory open-ended question about what the magazine images portrayed, some respondents answered in terms of stereotypes, pre-existing beliefs and prejudices, such as: “A bunch of skeletons in bikini”, “Slender and trained models that don’t comply with the average size of a woman”, or: “Photoshopped males with trained bodies”. It seems important to apprehend connotations in media effects research regarding idealized bodies, especially because mass media have probably already contributed to such associations before participants partake in research. Likewise, future research could extend to assessing the conscious versus unconscious processing of texts and images. In an inquisitive open-ended question to recall of headline content, some of our participants claimed that they had looked more at the pictures instead of the headlines: “Beach something. I forgot. Didn’t pay too much attention. The main attention was focused on the images”. Including eye-tracking measures will shed a light at the focus points of participants, allowing to investigate differences between image-focused versus text-focused media users (cf. visual versus verbal learners, Mayer & Massa, 2003).

Our study also entails several strengths. Simultaneously showing idealized body imagery and social comparison texts in a naturally occurring viewing setting like in magazine stores is a strength (Holmstrom, 2004; Ferguson, 2013; Want, 2009). This ecologically valid approach complements previous studies on experimentally manipulated social comparison motives in which the motives were mainly induced before ideal-body exposure (e.g., Hallliwell & Dittmar, 2005), or by using multiple induction moments within one participant (i.e., Martin & Gentry, 1997). The use of headlines is also in accordance with literature suggesting that texts should be short and simple in order to be effective and cause effects (Cowburn & Stockley, 2005). However, our approach could be further improved. Given the forced exposure of our present study, participants could hardly avoid the images as they can in daily life. Therefore, future research could show a full magazine, instead of covers only, in which participants decide themselves to be exposed to certain texts and images. Following Knobloch-Westerwick and Romero (2011), measuring selective exposure in case of the various social comparison motives seems relevant then. Another strength of our study is the two-fold approach: 1) comparison with baseline body satisfaction, and 2) comparison with body-irrelevant control headlines. In
doing so, we could rule out confounds and allocate causal effects from the type of social comparison motives that surround idealized body imagery on onlookers’ state body satisfaction (Holmstrom, 2004; Ferguson, 2013; Levine & Murnen, 2009).

In sum, our study provided important insights into the contextualization of media images by using verbal references that accompany idealized body imagery. In the present study, reading magazines with promising self-improvement headlines like “inspire for action with the ultimate body-work-out” can make viewers feel better about their body. This finding is relevant in view of explaining why some studies found positive effects of exposure to body-ideals on body satisfaction (e.g., Halliwell & Dittmar, 2005), in contrast to a vast majority of studies on the negative impact of such exposure (e.g., Grabe et al., 2008). Differentiation in viewers’ motives for comparison with media models’ ideal body shapes seems key here.

**Acknowledgements**

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References


Supplement I. Pre-Test of Headlines

The headlines for the social comparison motives manipulation were pre-tested in a separate sample (i.e., other than the main study) including 68 undergraduate students (women: n = 48; and men: n = 20). Each of the headlines was rated on its’ fit of belonging to a magazine with information on how to attain a better body shape (i.e., self-improvement) or to a magazine with information that allocated self-other body comparison (i.e., self-evaluation). Two items followed each headline and were rated on a ten-point scale (1 = totally disagree; 10 = totally agree): ‘This headline suggests that the magazine provides information on how to improve one’s body shape’ (i.e., indicative for the self-improvement condition) and ‘This headline suggests that the magazine provides information that allows comparing one’s own body shape to others’ body shape’ (i.e., indicative for the self-evaluation condition).

The headlines were analyzed for females and males separately (means and standard deviations are reported in Table S5.1). For females, paired-samples t-tests revealed that the self-evaluation headline of cover-1 was evaluated to be significantly more indicative of a magazine on body comparison compared to both self-improvement headlines (respectively: \( t(47) = 4.64, p < .001; t(47) = 3.27, p = .002 \)). The same accounted for the self-evaluation headline of cover-2 (respectively: \( t(47) = 8.93, p < .001; t(47) = 7.71, p < .001 \)). Furthermore, analyses showed that the self-improvement headline of cover-3 was perceived as significantly more belonging to a magazine on body improvement than both self-evaluation headlines (respectively: \( t(47) = 6.38, p < .001; t(47) = 6.18, p < .001 \)), and likewise for the self-improvement headline of cover-4 (respectively: \( t(47) = 6.76, p < .001; t(47) = 7.72, p < .001 \)).

Paired-samples t-tests revealed a similar pattern for males. For them, the self-evaluation headline of cover-1 was evaluated as significantly more related to a magazine on body comparison compared to both self-improvement headlines (respectively: \( t(19) = 2.75, p = .013; t(19) = 2.80, p = .011 \)), and likewise for self-evaluation cover-2 (respectively: \( t(19) = 5.79, p < .001; t(19) = 5.04, p < .001 \)). Furthermore, males rated the headline of self-improvement cover-3 as significantly more indicative of a magazine with body improvement information than both self-evaluation headlines (respectively: \( t(19) = 2.93, p = .009; t(19) = 3.90, p = .001 \)). The same applies to the self-improvement headline of cover-4 (respectively: \( t(19) = 5.63, p < .001; t(19) = 5.19, p < .001 \)).

In sum, for both females and males, the pre-test confirmed that the headlines were successfully chosen with regard to the social comparison motives they embedded. The self-improvement headlines matched a magazine on body-improvement, whereas the self-evaluation headlines fitted a magazine on body-comparison.
Table S5.1  Exact Statements for Headlines used in Stimuli for the Self-Evaluation, Self-Improvement and Control Conditions, and Pre-Test Means and Standard Deviations of Degree of Body Improvement and Body Evaluation per Headline and Gender.

<table>
<thead>
<tr>
<th>Social comparison motives</th>
<th>Headlines</th>
<th>Number of words</th>
<th>Fit with self-evaluation magazine</th>
<th>Fit with self-improvement magazine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Females</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Males</td>
<td></td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>(Cover-1) Are you this sexy, slim a &amp; confident?</td>
<td>6</td>
<td>Females</td>
<td>7.92</td>
</tr>
<tr>
<td></td>
<td>Can you keep up with the beach-body trend?</td>
<td>8 N_{total}= 14</td>
<td>Males</td>
<td>6.65</td>
</tr>
<tr>
<td></td>
<td>(Cover-2) Compare your body to the latest trend!</td>
<td>7</td>
<td>Females</td>
<td>9.50</td>
</tr>
<tr>
<td></td>
<td>Check if you can live up to the ideal!</td>
<td>9 N_{total}= 16</td>
<td>Males</td>
<td>8.35</td>
</tr>
<tr>
<td>Self-improvement</td>
<td>(Cover-3) Get this sexy, slim a &amp; confident quickly</td>
<td>6</td>
<td>Females</td>
<td>5.73</td>
</tr>
<tr>
<td></td>
<td>How to shape up for the beach body trend!</td>
<td>9 N_{total}= 15</td>
<td>Males</td>
<td>4.80</td>
</tr>
<tr>
<td></td>
<td>(Cover-4) Boost your body to the latest trend!</td>
<td>7</td>
<td>Females</td>
<td>6.54</td>
</tr>
<tr>
<td></td>
<td>Get inspired for action: the ultimate body work-out!</td>
<td>8 N_{total}= 15</td>
<td>Males</td>
<td>N/A b</td>
</tr>
<tr>
<td>Control (body-irrelevant)</td>
<td>(Cover-5) Take a break: 10 most relaxing trips</td>
<td>7</td>
<td>Females</td>
<td>N/A b</td>
</tr>
<tr>
<td></td>
<td>Plus: fun facts on dazzling holiday resorts</td>
<td>7 N_{total}= 14</td>
<td>Males</td>
<td>N/A b</td>
</tr>
<tr>
<td></td>
<td>(Cover-6) Favorite time-out sound tracks: Rock hits</td>
<td>6</td>
<td>Females</td>
<td>N/A b</td>
</tr>
<tr>
<td></td>
<td>Gift guide: Trendy vacation gadgets on page 7</td>
<td>8 N_{total}= 14</td>
<td>Males</td>
<td>N/A b</td>
</tr>
</tbody>
</table>

Note. a  ’Slim’ is used in the headlines for female participants, whereas the word ’muscular’ is used instead for male participants in these particular headlines. b  Headlines of the control conditions were not pre-tested.