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The values you endorse set the body you see: The protective effect of intrinsic life goals on men's body dissatisfaction

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The mass media portrayal of a muscular body type ideal has been increasingly tied to men's body image dissatisfaction. We examined the role of self-determination theory's intrinsic life goals within this body image ideal and its potential as a moderator of this dissatisfaction. We first tested the moderating effect of intrinsic life goals on the link between magazine consumption and body image dissatisfaction via an online questionnaire (Study 1; $N = 826$), then experimentally manipulated these goals and exposure to images of muscular male models (Study 2; $N = 150$). A robust protective effect of intrinsic goals on body image satisfaction was observed – the relationship between magazine consumption and body image dissatisfaction was only significant among individuals with a lower level of intrinsic life goal orientation. When participants' intrinsic goals were momentarily heightened, they reported significantly less body image dissatisfaction, compared to those not receiving a strengthening of these goals. The results are the first to find a protective effect of intrinsic life goals on men's body image, and have important implications for intervention.

Key words: Men body image, body dissatisfaction, muscular body ideal, intrinsic life goals, self-determination theory.

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INTRODUCTION

An increasingly muscular male body ideal that is both unrealistic and likely unobtainable has become pervasive in the mass media (Barlett, Vowels & Saucier, 2008). This portrayal may be playing a significant role in the rise of body image dissatisfaction in men and the maladaptive psychological and behavioral correlates that result (Hausenblas, Campbell, Menzel, Doughty, Levine & Thompson, 2013). The confluence of two factors, one, men's susceptibility to body image dissatisfaction as a result of exposure to mass media body ideals, and two, the presence of moderators that may alter this susceptibility, argues strongly for research in this area. Building on work uncovering the role of self-determination theory (SDT) (Deci & Ryan, 2002) in explaining this susceptibility, we proposed that values and goals that are intrinsic in nature could buffer individuals from the relentless onslaught of the muscular body ideal in the media and hence could alter the negative link between media exposure and body dissatisfaction. This is because the motivational forces that underlie SDT intrinsic life goals – accepting oneself, forging meaningful relationships, and helping others in need – are in direct opposition to those that focus on gaining an appealing physical appearance, and seeking popularity among peers (Grouzet, Kasser, Aaron *et al.*, 2005; Kasser & Ryan, 1996). Hence, by proposing and examining the protective effect that intrinsic life goals may have on men's body dissatisfaction, we aimed to contribute to the theorization of body image, and shed light on a valuable but also viable intervention model.

Body image dissatisfaction among men

The phrase *body image* refers to a complex and multifaceted construct describing the mental image an individual has of their own body, and attitudes, beliefs, and feelings about their appearance (Cash, 2004). These images may be healthy or unhealthy. Negative body images often consist of inaccuracies (i.e., distortions) in the way the body is perceived and broad dissatisfaction with body image, and are associated with adverse feelings and attitudes (Daniel & Bridges, 2010). Although comparable rates of body image dissatisfaction exist across the sexes (Drewnowski, 1987), historically, research in this area focused primarily on the female experience (see Grabe, Ward & Hyde, 2008, for a meta-analysis). However, in a large US national survey ($N = 12,176$), Frederick, Sandhu, Morse and Swami (2016) found extreme weight dissatisfaction in 15% of men and 20% of women. In another US national survey (Frederick & Essayli, 2016), dissatisfaction with weight was found in 39% of heterosexual men and 44% of gay men. The extant literature thus suggests pervasive body dissatisfaction, that is by no means limited to women, or to minorities such as gay men.

The increase in weight concerns and body dissatisfaction among men has led to a surge in research attempting to define, measure, and explain the experience of body image in men. One of the key components in this pursuit involves defining body image ideals. Qualitative studies have suggested a close relationship between male body image and a drive for muscularity (e.g., Bottamini & Ste-Marie, 2006; Labre, 2005). Quantitative studies have built upon this research by examining group

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differences. Thus, adolescent males appear to experience greater body satisfaction than their female counterparts (Crespo, Kielikowski, Jose & Pryor, 2010; Eisenberg, Meumark-Sztainer & Paxton, 2006) and some longitudinal studies suggested an increase in this satisfaction over time (e.g., Rosenblum & Lewis, 1999). However, more recent work finds a notable drop in body satisfaction from early to late adolescence in both sexes (Crespo *et al.*, 2010; Eisenberg *et al.*, 2006; Frost & McKelvie, 2004) so that by university age, men tend to experience considerable body dissatisfaction (Turel, Jameson, Gitimu, Rowlands, Mincher & Pohle-Krauza, 2018). Many young men desire an ideal body that is significantly more muscular and leaner than their own (Olivardia, Pope, Borowiecki & Cohance, 2004; Turel *et al.*, 2018).

The relationship between media portrayal of muscularity and body image dissatisfaction in men

A muscular body, termed a *mesomorphic body type*, has long been viewed as the male ideal in western cultures (Sandow, in Morais, 2013). What has changed, however, is the media representation of this ideal, with an increasingly muscular portrayal, one that some scholars view as unobtainable (e.g., Baghurst, Hollander, Nardella & Haff, 2006; Halliwell, Dittmar & Orsborn, 2007; Law & Labre, 2002). This trend is apparent not only in expected venues, such as in advertisements in men's magazines (Frederick, Fessler & Haselton, 2005), but is also evident in films (Morrison & Halton, 2009), television (Dallesasse & Kluck, 2013), pornography (Leit, Pope & Gray, 2001), music videos (Mulgrew, Volcevski-Kostas & Rendell, 2014), videogames (Sylvia, King & Morse, 2014), and comic books (Avery-Natale, 2013). This trend is also developmental in nature, targeting the youngest of consumers, via increasingly muscular toy action figures (Baghurst *et al.*, 2006), exceeding that of even the largest body-builders (Pope, Olivardia, Borowiecki & Cohane, 1999), suggesting a male correlate to the unattainably thin female ideal perpetuated by Barbie dolls (Dittmar, Halliwell & Ive, 2006).

Accompanying the increasingly muscular body image ideal is the media's sexualization of men and objectification of the male body (Hatton & Trautner, 2011; Rohlinger, 2002). Since the 1990s, the number of semi-nude muscular male models in popular magazines has increased significantly (Pope *et al.*, 2001), and the "erotic male" has become one of the most common depictions of masculinity in advertisements (Rohlinger, 2002). This tendency is also evident in how celebrities are portrayed. Magill (2006, p. 129) argues that the core of contemporary celebrity culture is the production and circulation of body images, now consisting of a, "muscular, toned, flawless fiction." Hatton and Trautner's (2011) analysis of more than four decades of *Rolling Stone* magazine covers supports this contention – even though women were more frequently sexualized than men, there was a substantial increase in both the frequency and extent of male celebrity sexualization from 1967 to 2009.

The perpetuation of the highly sexual and muscular mesomorphic body ideal is worrisome because it has been increasingly linked to body image dissatisfaction in men (Frederick, Buchanan, Sadehgi-Azar, Peplau, Haselton & Berezovskaya, 2007; Olivardia *et al.*, 2004; Valls, Bonvin & Chabrol, 2013), and a host of

distressing emotions and maladaptive behaviors including disordered eating, excessive exercising, steroid abuse, and even plastic surgery (e.g., Hausenblas *et al.*, 2013; Kanayama, Hudson & Pope, 2012; Karaszia & Crowther, 2010; Parent & Moradi, 2011; Sarwer, 2019). Furthermore, this link does not appear to be correlational. A meta-analysis of 33 laboratory-based studies (Hausenblas *et al.*, 2013) found a moderate effect of the muscular body ideal on body image dissatisfaction and depression among high-risk participants, and a small to moderate effect on body image concerns, in addition to depression and low self-esteem in other participants.

Resilience in the face of the near ubiquitous muscular ideal is a crucial subject for study. Theoretical frameworks commonly used to explain the media's influence on body image dissatisfaction mostly propose an individual adoption of the cultural ideals delineated in the mass media (i.e., sociocultural norm theory, Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999) or a view of this delineation as the ideal self (i.e., self-discrepancy theory, Higgins, 1987). Subsequently, when one compares oneself to these cultural ideals portrayed in the media, body image dissatisfaction may result (i.e., social comparison theory, Festinger, 1954). While these frameworks are useful in explaining the psychological mechanism underlying the susceptibility to body dissatisfaction as a result of exposure to the media-portrayed body ideal, they tend to disregard potential individual differences in this susceptibility. In other words, a consideration of the potential moderating factors (which may in fact weaken this relationship) is needed. Indeed, it has been shown that while men exposed to images of a muscular superhero generally exhibit higher body dissatisfaction, this dissatisfaction is absent in men with a parasocial relationship (i.e., a one-sided psychological bond) with the superhero (Young, Gabriel & Hollar, 2013).

Establishing a parasocial relationship with superheroes is admittedly not the most accessible way to buffer men from the onslaught of muscular images in the media. Nonetheless, Young *et al.*'s (2013) study provides evidence that individual differences can moderate the impact of this onslaught. In the present research, we propose that the values held by individuals may represent a fruitful area of study because these are important building blocks of self-concept (Verplanken & Holland, 2002). Given the well-established relationship between self-concept and body image (dis)satisfaction (e.g., Koff, Rierdan & Stubbs, 1990; Vartanian, 2009), it is highly plausible that different values may have different effects on men's attitude towards their body. In addition, research has shown that when values are activated, individuals make decisions and adopt behaviors in ways that are congruent with their values (Sagiv, Sverdlik & Schwarz, 2011; Verplanken & Holland, 2002). Hence, if values are indeed related to body image (dis)satisfaction, then value activation might be used as an intervention. As such, we turn to self-determination theory, an empirically derived theory of human values and motivation (Deci & Ryan, 2002), as a means of identifying possible moderators.

The possible moderating effects of intrinsic life goals in the relationship between media exposure and men's body image dissatisfaction

Self-determination theory (Deci & Ryan, 2002) proposes that all human beings share three innate needs: autonomy (i.e., feeling a

sense of choice and volition in what one does), mastery (i.e., effective functioning in the physical and social world), and relatedness (i.e., feeling connected with other people and with the world). When exploring moderators that may be utilized in interventional programs to increase men's body image satisfaction, it is important to consider a variable closely related to SDT needs – intrinsic life goals. Life goals are motivational drives that direct behavior to achieve needs satisfaction, and they can be intrinsic, in that they directly satisfy basic needs, or they can be extrinsic, in that they are merely a means to an end (Deci & Ryan, 2002). Kasser and Ryan (1996) propose three intrinsic life goals that are instrumental to the SDT needs satisfaction – self acceptance, affiliation, and community feelings – and are satisfying in and of themselves.

The theorization of life goals is supported across cultures. When tested in 15 different societies, not only did individuals from diverse socio-cultural backgrounds recognize and understand these goals, but they could be represented in a circumplex fashion consistent across cultures (Grouzet *et al.*, 2005). Within the circumplex, the three intrinsic goals of self acceptance, affiliation and community feelings cluster together on the intrinsic end of the intrinsic-extrinsic axis, and are directly in opposition to the conflicting extrinsic goals of financial success, popularity, and physical appearance (Grouzet *et al.*, 2005).

These findings have important implications for goals-based intervention programs, because like most motivational drives, goals can vary in salience and accessibility (Maio, Pakizeh, Cheung & Rees, 2009), as a result of internal and external experiences. Furthermore, when a set of goals are made salient, they not only predict goal-congruent behavior, but they may inhibit the accessibility of opposing sets of goals (Maio *et al.*, 2009). Chilton, Crompton, Kasser, Maio and Nolan (2012) showed that even in individuals adopting strong extrinsic goals, simply asking them to consider the importance of intrinsic goals is sufficient, at least momentarily, in increasing their concerns with social justice issues such as child impoverishment and environmental issues such as climate change. While these changes may not be dispositional, the results nevertheless demonstrate how easily one source of influence can “turn on” other values of a compatible nature.

There is some evidence to suggest that an intrinsic goal orientation may moderate the effect of body image portrayal in the media among women. Mask and Blanchard (2011), using “thin physique salient” and “thin physique non-salient” videos, found that the “thin physique salient” videos decreased body satisfaction in women with a low level of self-determination, but not in those with a high level of self-determination. As far as we are aware, no studies have yet explored this relationship among men. But more importantly, the causal and moderating effects that intrinsic life goals may have on body image (dis)satisfaction cannot be determined without experimentally manipulating these goals. Therefore, the present project aimed to fill this important research gap by drawing on an experimental paradigm, values manipulation (Maio *et al.*, 2009), to evaluate the protective effect that intrinsic goals (Kasser & Ryan, 1996) may have on men's body dissatisfaction. To this end, we first explored the moderating effect of intrinsic goals on the relationship between magazine consumption and body image dissatisfaction in a correlational

study with a sample of male adults (Study 1). We then experimentally manipulated intrinsic life goals, and exposure to images of muscular male models, in adolescent school boys in a small pilot study. Based on the results from the pilot study, we designed an experiment that tested the main and interactive effects between life goals and muscular image exposure with young men between 18 and 25 years of age (Study 2). The general hypothesis of the research project was that intrinsic life goals would moderate the relationship and reduce the strength of the link between exposure to images of muscular male models and body image dissatisfaction. The university's institutional review board approved all three studies.

STUDY 1: THE INTERACTION EFFECT OF INTRINSIC LIFE GOALS AND MAGAZINE CONSUMPTION ON MEN'S BODY DISSATISFACTION

The first study was an online questionnaire survey of men's attitudes towards their own bodies, their orientation towards intrinsic life goals, and their degree of exposure to the muscular ideal in the mass media. Due to the complexity, if not impossibility, of developing a precise measurement of the extent and duration with which men encounter the mesomorphic body ideal in the media, researchers have devised proxy measurements. Due to the prevalence of muscular models in magazine advertisements, one such proxy is the consumption of magazines (e.g., Halliwell *et al.*, 2007; Jung, 2011).

Men's magazines, both in their print and online forms, are one of the most popular channels disseminating the male body ideal, often via large, professionally edited images of muscular and lean models (Harrison & Bond, 2007). Magazines targeted at men tend to portray a more muscular male body ideal than magazines aimed at a female audience (Frederick *et al.*, 2005). Additionally, men's magazines often provide guidance on how to achieve this ideal, via editorials and advertisements (Labre, 2005). Thus, messages of implied attainability of the ideal body contribute to body dissatisfaction partly by prescribing specific and explicit means for doing so, via products, strategies, and/or self-control. As such, the responsibility of attaining the ideal lies within the self, so that a failure of such attainment may lead to body-related guilt or shame (Crocker *et al.*, 2014). Even though Buote, Wilson, Strahan, Gazzola and Papps (2011) argue that attainability messages are far more prevalent in women's magazines than men's, they clearly find this influence in men's magazines to be non-negligible. That is, when coding all written text in four popular men's magazines (*Men's Journal*, *Details*, *GQ*, and *Maxim*), the researchers found that a single issue contained 134 messages pertaining to the attainability of a muscular ideal body (Buote *et al.*, 2011).

Method

Participants and procedure. As the study is the first to explore the protective effect of intrinsic life goals on men's body dissatisfaction, we did not conduct a power analysis but instead aimed to recruit as many participants as our resources allowed. Participants were recruited via the UK-based crowdsourcing platform Prolific (<https://www.prolific.co/>) and were paid £1 (US\$

1.38) for their participation. Study recruitment notices clearly stated that the study would ask participants about their feelings towards their body. Exclusionary criteria included a self-reported current psychiatric diagnosis (including body dysmorphic disorder or an eating disorder, which were emphasized). When participants clicked on the study link posted on Prolific, they were taken to Qualtrics (<https://www.qualtrics.com/uk/>), a cloud-based software platform where the study was hosted. The study started with an information sheet that explained the general purposes and aims. It was stated again that the study would enquire about participants' feelings towards their body and that individuals who suffered from any form of eating disorder and/or body dysmorphic disorder should not participate in the study. Afterwards, participants' rights to confidentiality, anonymity, and withdrawal were explained. Lastly, participants indicated their consent by ticking one of the two options: "I agree to participate" or "Take me back to Prolific."

Eight hundred and fifty men agreed to participate in the study, but 24 failed the attention check question and were therefore removed from analyses. The final sample consisted of 826 men between 18 and 64 years of age ($M = 24.78$, $SD = 6.21$). Over half of the respondents were employed (47.1% full-time and 10% part-time), and nearly a third were students (29.1% full-time and 2.5% part-time). The rest were between-jobs (6.3%), full-time homemakers (0.6%), retired (0.8%), or preferred not to report their job status (3.5%). In terms of ethnicity, 87.4% were white, 6.5% Asian, 2.4% mixed, 1.7% black, and 0.7% selected "prefer not to say." The majority of respondents were single (59.9%), 22.2% were in long term relationship or cohabiting, 16.5% were married or in a civil relationship, and 1.3% chose not to disclose their relationship status.

Measures Body image dissatisfaction. Body image dissatisfaction was measured with the Male Body Attitudes Scale (MBAS) (Tylka, Bergeron & Schwartz, 2005). This 24-item questionnaire consists of men's subjective assessment of their own body parts, particularly the views they hold regarding their own muscularity, body fat, and height. A six-point Likert scale was utilized, as part of which the frequency of a particular view of the body was rated, from never to almost always. For instance, individual items inquire as to the frequency with which men feel that their body contains, "too little muscle," or that their, "stomach [is] too flabby." Higher scores are indicative of a greater degree of body image dissatisfaction (Cronbach's $\alpha = 0.91$).

Intrinsic life goals. Intrinsic life goals from the Aspiration Index (AI; Kasser & Ryan, 1996) were used to measure participants' goals. On a scale of 1 (not at all important) to 5 (very important), participants rated the importance of three intrinsic goals: self-acceptance (e.g., "knowing and accepting who you really are"), affiliation (e.g., "having good friends you can count on"), and community contribution (e.g., "helping people in need"). There are three items per life goal, resulting in a nine-item scale. Higher scores indicate a higher orientation towards the goals (Cronbach's $\alpha = 0.73$).

Magazine consumption. Participants indicated on a six-point Likert scale, from 1 (rarely) to 6 (more than once a day), the frequency with which they read magazines, via hard copy or

online platforms, pertaining to sports, fitness/exercise, lifestyle, and gaming (Cronbach's $\alpha = 0.67$).

Results

Table 1 reports the descriptive statistics of the main variables. Pearson's correlations suggested that the three variables were not correlated with each other, with all the r s $< |0.03|$ and p s > 0.18 , nor were they related to any of the demographic variables (see the [Supplementary Materials](#) for the zero-order correlations). However, moderation analysis (Hayes PROCESS macro on SPSS, Model 1 in Hayes, 2013) showed that there was a positive and significant effect of magazine consumption on MBAS, $b = 0.57$, $t = 2.10$, $p = 0.04$, 95% confidence interval [CI, 0.04, 1.10], even though intrinsic life goals did not have such an effect, $b = 0.21$, $t = 1.30$, $p = 0.19$, 95% CI [-0.11, 0.54]. More importantly, there was a significant interaction of magazine consumption and intrinsic life goals, $b = -0.13$, $t = -2.02$, $p = 0.04$, 95% CI [-0.26, -0.004]. An examination of the conditional effects (Fig. 1) showed a significant effect of magazine consumption on MBAS only in individuals low on intrinsic goals, $b = 0.09$, $t = 2.01$, $p = 0.05$, 95% CI [0.001, 0.18]. For those who reported a medium or high level of intrinsic life goals, there was no effect of magazine consumption on MBAS, $b = 0.01$, $t = 0.48$, $p = 0.63$, 95% CI [-0.04, 0.07]; $b = -0.03$, $t = -0.74$, $p = 0.46$, 95% CI [-0.11, 0.05].

Brief discussion

The findings give initial support to our contention that intrinsic life goals may offer some protective buffer against body dissatisfaction in men. While the results are encouraging, the nature of a self-reported survey makes it impossible to ascertain causality. Furthermore, Labre's (2005) qualitative study with readers and non-readers of fitness magazines suggests that some readers do not read the content of the magazines, and hence may be less exposed to the mesomorphic body ideal. While it could be argued that the effect of media images does not require careful attention on an individual's part – indeed, contemporary studies in subliminal priming show that even subliminal stimuli can be perceived, and at minimum, affect individuals' low-level cognitions (e.g., Legal, Chappe, Coiffard & Villard-Forest, 2012) – it is nevertheless important to assure that participants are perceiving and processing stimuli. Hence, in subsequent studies, we built in questions about the visual stimuli to ensure participants were indeed looking at the photos.

Another issue with a correlation study on life goals is that different goals residing in individuals could compete and cancel each other out when it comes to body image dissatisfaction. Research in SDT life goals circumplex (Grouzet *et al.*, 2005) suggest that intrinsic life goals are in conflict with goals that focus on gaining external approval, such as appealing physical appearance and power over peers. Hence, a direct examination of the relationship between intrinsic life goals and body dissatisfaction is not possible unless one manipulates the accessibility of these goals. When the accessibility of intrinsic goals is heightened, it should reduce the importance of physical appearance, and therefore, body dissatisfaction. Hence, we tested

Table 1. Descriptive statistics for the three studies

Study 1		N	M (SD)	95% CI
MBAS		826	3.47 (0.91)	3.41, 3.47
Intrinsic goals		826	4.12 (0.47)	4.09, 4.15
Magazine consumption		826	2.37 (1.06)	2.30, 2.44
Pilot study	Conditions	N	EMMEANS (SE)	95% CI
MBAS	No goals + muscular models	20	3.40 (0.22)	2.97, 3.83
	Intrinsic goals + muscular models	18	2.46 (0.23)	2.00, 2.91
	No goals + non-muscular models	30	3.24 (0.18)	2.88, 3.59
	Intrinsic goals + non-muscular models	22	2.81 (0.21)	2.39, 3.22
Study 2		N	EMMEANS (SE)	95% CI
Body satisfaction	No goals + muscular models	37	31.44 (3.96)	23.60, 39.27
	Intrinsic goals + muscular models	38	50.11 (3.86)	42.49, 57.74
	No goals + non-muscular models	37	49.93 (3.96)	42.09, 57.76
	Intrinsic goals + non-muscular models	38	56.35 (3.86)	48.72, 63.98
Confidence with appearance	No goals + muscular models	37	38.44 (4.52)	29.51, 47.38
	Intrinsic goals + muscular models	38	63.00 (4.40)	54.31, 71.70
	No goals + non-muscular models	37	56.78 (4.52)	47.85, 65.71
	Intrinsic goals + non-muscular models	38	55.71 (4.40)	47.02, 64.41

Note: MBAS = Male body attitudes scale, higher scores indicate higher levels of body image dissatisfaction.

the relationship between intrinsic life goals and body dissatisfaction in a pilot study before the full experiment (i.e., Study 2).

PILOT STUDY: THE CAUSAL EFFECT OF INTRINSIC LIFE GOALS

The pilot study was conducted in a sixth-form college (where students typically aged 16–19 study for advanced school-level qualifications) in the Midlands of England. A group of adolescent boys between the ages of 16 and 18 (N = 90; M = 16.49, SD = 0.64) participated in the study. We chose to test the effects of intrinsic life goals on body dissatisfaction among this age group because it is an important developmental stage when values and life goals, especially those that foster a sense of personal meaning and authenticity, start to crystallize (Scharf & Mayselless, 2010). Furthermore, developmental psychologists have shown that while physical appearance is predictive of self-

worth for some adolescents, for others, self-worth predicts self-concept as it pertains to physical appearance (Harter, 1999). Thus, this research as a whole suggests that late adolescence is a critical life-stage in which to measure the influence of individual differences such as life goals.

While the main focus of the study was the link between intrinsic goals and body dissatisfaction, manipulation of muscular body image exposure was included to allow for an exploration of moderation effects. The study therefore took a 2 (intrinsic goals manipulation vs. no goals control) × 2 (advertisements with muscular male models vs. advertisements with non-muscular male models) between-subject design. Table 1 reports the number of participants in each condition as well as group means on MBAS, and the Supplementary Materials include full information regarding the study, including details about the participants, the procedure, and the materials used. In the following, we summarize the main findings, and provide important observations from the pilot study, which informed the design of Study 2.

Results from a 2 × 2 factorial analysis of variance (ANOVA) on MBAS indicated a main effect of the intrinsic goals manipulation, but not that of body image stimuli manipulation, nor of the interaction between life goals and body image stimuli manipulation. See the Supplementary Materials for more details on the indicative direction of the results via simple effect analysis. The main finding of the pilot study supported the hypothesized effect of intrinsic life goals on body dissatisfaction. The non-significant main effect of muscular images on our teenage participants' body dissatisfaction has been found previously (Hargreaves & Tiggemann, 2002; Humphreys & Paxton, 2004). Humphreys and Paxton (2004) suggested that the findings could be attributed to the fact that adolescents, unlike young adults, are still in a developmental phase, and may believe that they will eventually attain a muscular and athletic body type, like those

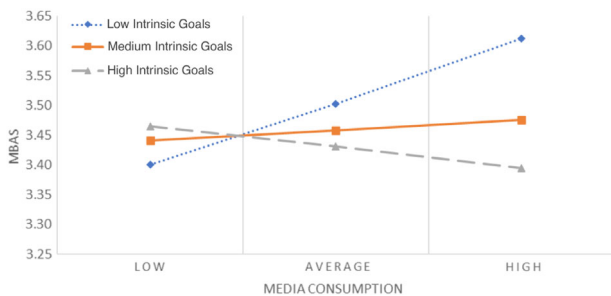


Fig. 1. The moderation effect of intrinsic life goals on the relationship between magazine consumption and men's body image dissatisfaction (Study 1). MBAS, male body attitudes scale, higher scores indicate higher levels of body image dissatisfaction.

depicted in the media. In this line of reasoning, it follows that they might be less likely to view themselves negatively when viewing such images. While this explanation sounds plausible, it is beyond the scope of the current research to explore developmental complexity. Hence in Study 2 we decided to focus on young adulthood and limited the age range to 18–25 years.

Another methodological concern that the pilot study raised was the measurement of body dissatisfaction, and how this might have an impact on the internal validity of the study. In the interest of consistency, we used MBAS (Tylka *et al.*, 2005) as in Study 1. However, the last five items in the scale inquire about past behaviors and feelings (e.g., “has eating sweets, cakes, or other high calorie foods made you feel fat or weak?”) and are therefore not suitable for our purposes. We removed these items in the experiment and only used the remaining 19 items. While scale reliability suggests adequate fit (Cronbach’s $\alpha = 0.93$), the ad hoc nature of the adjustment is not recommended. Furthermore, given the nature of the study, it has been suggested that deception is necessary to target demand characteristics and to maintain internal validity (Levine & Murnen, 2009). Even though the pilot study used passive deception, in that the true purpose of the study was withheld from the participants until debriefing, there were concerns that the wording of MBAS, or indeed, any body dissatisfaction scales, could reveal the true nature of the study purposes.

STUDY 2: THE CAUSAL AND MODERATING EFFECTS OF INTRINSIC LIFE GOALS

The main purpose of the study was to test for the moderating effect of intrinsic life goals on the link between exposure to muscular body images and men’s body dissatisfaction. After considering the methodological issues we observed from the pilot study, we made a few important amendments to the method utilized. First, we developed a bespoke web program that randomly assigned participants to one of the four conditions without involvement of the researchers. Participants worked on each section of the experiment individually on their own computer screen. We also employed a cover story in which the study was presented as an investigation into advertising. Participants were told that they were to evaluate the effectiveness of advertising materials, which was to include an evaluation of the physical attractiveness of male models.

Regarding the measurement of body dissatisfaction, we used visual analogue scales (VAS). This approach removes the possibility that the wording in the questionnaire items might reveal the true purpose of the study. The construct validity of VAS in rating perceptions of weight and appearance in women has been demonstrated by Heinberg and Thompson (1995). Similar VAS have been widely employed in the body (dis)satisfaction literature in both men and women (e.g., Birkeland, Thompson, Herbozo, Roehrig, Cafri & Van den Berg, 2005; Lowery, Kurpius, Befort *et al.*, 2005). Specifically, the stimuli we presented focused on the abdomen and upper body because research shows that men’s visual attention to these body parts moderates the relationship between exposure to muscular body images and body dissatisfaction (Nikkelen, Anschutz, Ha & Engels, 2012).

In addition to participants’ ratings of their satisfaction of their bodies, we also measured confidence with appearance, because lower self-esteem and confidence is often associated with body dissatisfaction, which in turn contributes to disordered eating, in both men and women (Lowery *et al.*, 2005; Olivardia *et al.*, 2004). It is likely that viewing images of muscular models would depress individuals’ confidence about their appearance, but more specifically, we were interested to see if activation of intrinsic life goals would moderate these effects. Based on our general hypothesis, and the findings from the previous two studies, we hypothesized that participants who received intrinsic life goals priming before viewing photographs of muscular models would report higher body satisfaction (Hypothesis 1a), and higher confidence (Hypothesis 1b), relative to participants who only viewed photographs of muscular models but did not receive life goals manipulation.

Method

Participants. A total of 150 male participants from 18 to 25 years of age ($M = 21.21$, $SD = 2.17$; 12 individuals did not report their age) completed the study via Prolific and were paid £2 (US\$ 2.75). The majority of participants self-identified as White ($n = 115$, 77%), while the remaining participants were Black (8%), Asian (8%), and mixed (2%). Three participants did not identify their ethnicity. Sixty-four (43%) participants reported enrollment in either full or part time educational instruction, while the remainder reported either full-time (31%) or part-time (17%) employment. Nine percent did not report their employment status.

Design and procedure. The experiment adopted a 2 (intrinsic goals vs. no goals control) \times 2 (advertisements with muscular male models vs. advertisements with non-muscular male models) between-subject design. Based on Halliwell *et al.*’s (2007) experiment assessing the influence of muscular and non-muscular media images on young men’s body image satisfaction, a power calculation suggested that in order to detect a strong effect (i.e., Cohen’s $d = 0.80$) with a significance of $p < 0.05$ (McCrum-Gardner, 2010), 26 participants would be needed for each condition. G*Power (Faul, Erdfelder & Buchner, 2007) further suggested a total sample size of 150 for a MANOVA of special effects and interactions with two predictors and two outcome variables with effect size $f^2(V)$ set at 0.06 and significance at 0.05.

The study was portrayed on Prolific as an advertising study requiring participants to evaluate the effectiveness of 20 sets of images for publicity campaigns. A Python-based web application was developed for the experiment. After enrolling in the study, participants were taken to the application host website, Pythonanywhere (<https://www.pythonanywhere.com/>). Participants were informed: (1) of their rights to confidentiality, anonymity, and withdrawal, and then; (2) the study procedures were described, in which they were to view two trials of 10 images, and evaluate the effectiveness of each as advertising material; and finally (3) that they were to then answer questions regarding their satisfaction with different life aspects, including physical appearance, attractiveness and health. Participants were explicitly told that due to the potentially sensitive nature of questions about physical attractiveness, individuals with a current diagnosis of

body dysmorphic disorder or in recovery from any eating disorder were not eligible for participation. When participants indicated an understanding of what was required, and agreed to participate (by ticking the statement “I agree to participate in the study”), they were randomly assigned to one of four possible combinations and image displays were initiated.

The first block of images consisted of a priming of life goals. A total of 76 participants viewed and evaluated 10 images selected to portray intrinsic goals of community spirit, helping others and affiliation (i.e., intrinsic goals manipulation), while 74 participants viewed and evaluated 10 images of animals (i.e., no goals control). The second block of trials consisted of body image manipulation. A total of 75 participants viewed images of muscular male models with their chest and abdomen exposed (i.e., muscular body image), while another 75 participants viewed fully clothed male models (i.e., non-muscular body image; see Table 1 for the number of participants in each condition). To strengthen the cover story of the study as an evaluation of the effectiveness of advertising materials, the colors of the photographs were altered to create three different versions – a red-tinted version, a blue-tinted version, and a black-and-white version. Each color-altered image was displayed consecutively on screen for 3 s, and then all three images were displayed together. All photo images used in the experiment are deposited on OpenScience (<https://osf.io/nb7wt/>) and are downloadable from here (https://osf.io/emqck/?view_only=8562db3a922e426d800ea4b5cc8ed8f7).

As a way to ensure that participants were indeed looking at the photos, they were required to choose which version they preferred, and to indicate the attractiveness and effectiveness of the models. These measurements were built in to ensure attention, but they were not meant as attention checks (as often used in online surveys) as there was no correct answer to each question. The model attractiveness question was to ensure the differences across conditions in terms of body satisfaction, if any, were not due to the effect of the models. No participant data was removed as a result of these questions.

Immediately after viewing the stimuli, participants reported their satisfaction with their weight, chest muscles, and abdominal muscles on VAS, as well as their confidence with their physical appearance. These VAS were embedded in a larger array of satisfaction-rating VAS irrelevant to current study aims (i.e., jobs, friends, family, significant others, colleagues/classmates, physical health, energy level, diet, height, calf muscle, biceps, face, and hairstyle) to disguise the true purpose of the assessments. Lastly, participants reported their age, ethnicity, work status, height, and weight. To disguise the purpose of collecting data on height and weight, participants were also asked to rate other health-related factors such as smoking, drinking and exercising habits.

Following completion of the study, all participants underwent a thorough debriefing regarding the true purpose of the study and the deception utilized. Information about eating disorders and contact information for available counselling services in the UK were provided. Participant rights regarding study withdrawal, confidentiality, and anonymity were further explained, and participants were reassured that withdrawal of study participation would in no way affect payment for enrollment. No request for withdrawal was received.

Materials Intrinsic life goals stimuli. We collected 25 images conveying the SDT intrinsic goals of helping others, self-acceptance, and affiliation. These were reviewed by four independent academics unaffiliated with the present project. A total of 18 images were selected, and further reviewed by 16 undergraduate psychology majors blind to the purpose of the study. The 10 images receiving the most votes as successful in conveying the intrinsic goals as put forth by SDT were chosen for inclusion.

Male body image stimuli. A total of 20 images of muscular male models with an exposed chest and abdomen, and another 20 images of fully clothed male models were collected from popular media and men’s magazines and rated for their attractiveness by 16 undergraduate psychology majors blind to the purpose of the study. The 10 images receiving the highest scores among the muscular images, and another 10 among the fully clothed model images were used in the study as male body image stimuli.

VAS assessing body satisfaction and confidence. For weight, chest muscles, and abdominal muscles, participants placed a small vertical mark across a 10 cm horizontal line anchored with the labels, “no satisfaction” (“0”) on the far left and, “complete satisfaction” (“100”) on the far right to represent their satisfaction with various aspects of their body. Individual responses were measured to the nearest millimetre, producing a numerical representation of the marking on a 100-point scale. The three VAS ratings on weight, chest and abdominal muscles were averaged to form a single body satisfaction rating as these individual ratings were moderately to strongly correlated (r s ranged from 0.57 to 0.71, p s < 0.001; Cronbach’s α = 0.84). Higher scores indicated higher levels of body satisfaction. Confidence with physical appearance was measured in the same way, with “no confidence” (“0”) on the far left and “complete confidence” (“100”) on the far right.

Results and brief discussion

In general, participants rated the male models in the body image stimuli as reasonably attractive, and there were no significant differences in the levels of model attractiveness across the muscular and non-muscular conditions, $t(148) = 0.48$, $p = 0.12$. Participants’ Body Mass Index (BMI) ranged from 16.14 to 39.08 ($M = 23.41$, $SD = 4.24$, 95% CI [22.65, 24.20]) and did not differ across the four conditions, $F(3, 116) = 1.33$, $p = 0.27$. Therefore, model attractiveness and participants’ BMI were not included in the subsequent analyses.

We used MANOVA to test the effects of intrinsic goals manipulation and viewing photos of muscular male models on participants’ body satisfaction and confidence about physical appearance. Pillai’s trace indicated a main effect of intrinsic goals, $V = 0.08$, $F(2, 143) = 6.44$, $p = 0.002$, $\eta_p^2 = 0.08$, a main effect of muscular photograph images, $V = 0.07$, $F(2, 143) = 4.97$, $p = 0.008$, $\eta_p^2 = 0.07$, and an interaction effect of goals and muscularity, $V = 0.06$, $F(3, 143) = 4.29$, $p = 0.016$, $\eta_p^2 = 0.06$. Univariate ANOVAs showed that the main effects of intrinsic goals were significant on body satisfaction, $F(1, 144) = 10.30$, $p = 0.002$, $\eta_p^2 = 0.07$, and on confidence, $F(1, 144) = 6.94$, $p = 0.009$, $\eta_p^2 = 0.05$. The main effect of muscular body images was only significant on body satisfaction, $F(1, 144) = 9.99$, $p = 0.002$, $\eta_p^2 = 0.07$, but not on confidence, $F(1, 144) = 1.53$, $p = 0.218$, $\eta_p^2 = 0.01$. The interaction effect of goals and muscular images was significant on participants’ confidence about their appearance, $F(1, 144) = 8.25$, $p = 0.005$, $\eta_p^2 = 0.05$, but not on body satisfaction, $F(1, 144) = 2.45$, $p = 0.119$, $\eta_p^2 = 0.02$.

Despite the differences in the p -values of the interaction effects on confidence about appearance and on body satisfaction, the two effects were in the same direction, suggesting a comparable interpretation of the two effects is warranted (Gelman & Stern, 2006). Indeed, simple effect analyses suggested that the effect of intrinsic life goals on body satisfaction and confidence about appearance was significant among participants who viewed muscular images, but not among those who viewed non-muscular images. Compared to those who viewed muscular body images but did not receive goals manipulation, participants who viewed muscular body images *and* received intrinsic goals reported higher body satisfaction, $F(1, 145) = 11.23$, $p = 0.001$, $\eta_p^2 = 0.07$, mean difference = 18.36, $p = 0.001$, 95% CI [7.53, 29.19], and higher confidence in their appearance, $F(1, 144) = 15.16$, $p < 0.001$, $\eta_p^2 = 0.10$, mean difference = 24.56, 95% CI [12.09, 37.02]. There was no difference between the two groups who viewed non-muscular images in terms of body satisfaction, $F(1, 145) = 1.36$, $p = 0.246$, $\eta_p^2 = 0.01$, mean difference = 6.43, 95% CI [-4.48, 17.33], or confidence about one's appearance, $F(1, 144) = 0.03$, $p = 0.866$, $\eta_p^2 = 0.00$, mean difference = -1.07, 95% CI [-13.53, 11.40]. Figure 2 shows the means of body satisfaction and confidence with appearance across the four groups.

We operationalized body satisfaction as satisfaction with one's weight, chest and abdominal muscles in the present study because these are the parts that are most intensively scrutinized (Nikkelen *et al.*, 2012). They were also the parts that our body image manipulation photos showed most predominantly. However, in the interest of transparency (Steege, Tuerlinckx, Gelman & Vanpaemel, 2016), we calculated another body satisfaction score by including VAS on bicep and calf muscles. Analyses reported above were repeated using this new construct, and the results were highly comparable to the ones we originally obtained, suggesting that the effects were not due to how we operationalized body satisfaction. The [Supplementary Materials](#) report the details of the multiverse analyses.

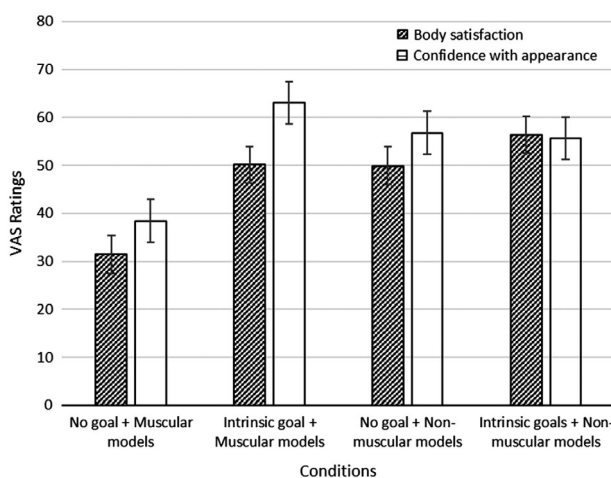


Fig. 2. Estimated marginal means with standard error on body satisfaction and confidence about appearance (Study 2). VAS, visual analogue scale, higher scores indicate higher levels of satisfaction/confidence.

GENERAL DISCUSSION

The present research aimed to expand on the extant male body dissatisfaction literature by examining the moderating effect of intrinsic life goals on the relationship between media portrayal of muscular body ideals and men's body dissatisfaction. Through first a correlational and then an experimental study, we demonstrated a robust effect of intrinsic goals on body dissatisfaction. The frequency of consumption of male-targeted magazines, one of the main mediums of muscular male ideal perpetuation, was related to body image dissatisfaction in a sample of British men (Study 1). Moderation analysis showed that this relationship was only significant among men with a lower orientation towards intrinsic goals. An experiment with young men between 18 and 25 years of age further demonstrated a causal effect of intrinsic goals on body image satisfaction, such that when intrinsic goals were momentarily strengthened, body image satisfaction significantly differed from those not receiving goals manipulation. Most importantly, for participants who viewed images of muscular male models, body satisfaction and confidence in one's appearance was significantly higher among those who received intrinsic life goals manipulation relative to those who did not.

The present research provides the first systematic evidence for the role of intrinsic life goals as moderators in weakening the link between the muscular body ideal and men's body dissatisfaction. The protective effect of intrinsic goals implicates motivational forces and value systems that an individual adopts as direct mechanisms in the elevation of well-being even in the context of a ubiquitous mesomorphic body ideal. This is consistent with parallel research in women, which finds that greater degrees of intrinsic orientation and self-determination are associated with a lower likelihood that sociocultural pressures about body image, food consumption, thinness and diet quality will be reported (Guertin, Barbeau, Pelletier & Martinelli, 2017; Mask & Blanchard, 2011; Pelletier, Dion & Levesque, 2004). Baker and Blanchard (2017) tested the effects of women's thin ideal media images on men, and found support for the notion that SDT's intrinsic goals are beneficial for men's body image satisfaction. It is important to note that men are not pressured by the thin beauty ideal and a desire to achieve slimness. Nevertheless, both our present findings and Baker and Blanchard's point to the importance of life goals in understanding body image satisfaction in men.

The importance of intrinsic life goals points to the possibility of a new avenue for body image intervention. To date, several challenges in creating effective interventions to improve body image have been reported (Cash, 2004). After meta-analytically reviewing 62 tests of interventions using different techniques, Alleva, Sheeran, Webb, Martijn and Miles (2015) concluded that intervention effects are generally small in magnitude. Specifically, techniques that challenge an individual's cognitions about body image yielded some success, while interventions that rely on self-esteem or media literacy training did not. The researchers proposed that this might be due to the fact that while media literacy training may improve media skepticism, this skepticism is only occurring at a rational level (e.g., understanding that the ideal is unachievable), but does not get to the "heart level" where

emotional beliefs reside (Jarry & Cash, 2011). This “head vs. heart” effect was also observed in Buote *et al.*'s (2011) study – when being asked to consider how achievable the female thin ideal was for other women, female participants rated it as highly unrealistic and unachievable. But when asked to rate the achievability for themselves, they nevertheless believed they could achieve the ideal.

In addition, in the last decade, research on body image in women has sought to validate the effectiveness of average-sized models, in order to provide a rationale for advocating for the inclusion of more realistic female body portrayal in the media (Dockterman, 2016). While there is promise in this area (Diedrichs & Lee, 2011), the overall picture is complex and suggests that the mere presentation of diverse body types might not be sufficient in allowing an individual to reject the more prevalent body ideal. Take the case of Barbie dolls – after 57 years of manufacturing the Barbie dolls which contribute to internalization of the thin-ideal in young girls (Dittmar *et al.*, 2006), the toymaker Mattel released a curvy Barbie, a tall Barbie and a petite Barbie in 2016. While welcomed as a step in the right direction (e.g., Haskins, 2019), empirical studies showed a mixed reaction. While young adolescent girls rated curvy Barbie dolls as the most likeable, they were also regarded as the least desirable and attractive, relative to the original, as well as to the tall and the petite Barbies (Nesbitt, Sabiston, deJonge, Solomon-Krakus & Welsh, 2019). Harriger, Schaefer, Thompson and Cao (2019) further found that girls between the ages of 3 and 10 were least likely to play with the curvy Barbie, and more frequently assigned it negative attributes (e.g., “has no friends”; “not pretty”) compared to the original Barbie.

All these suggest more fundamental changes are needed in order to combat the internalization of body ideals, be it thin for women or muscular for men. Intrinsic life goals may be useful by providing a foundation for forming body image cognitions that are alternatives to the ones promoted by the mass media. It is important to note that the priming of intrinsic life goals, as utilized in the present research, is not the same as the promotion or development of such goals. Studies using priming suggest that the effect is typically short (e.g., Higgins, Bargh & Lombardi, 1985; Pedersen, Vasquez, Bartholow, Grosvenor & Truong, 2014), and it does not change the overall orientation of the primed target. Some experiments on attitudes and social cognition showed that when a likeable exemplar of a social group was made accessible to participants, the participants reported more favorable responses to that social group (e.g., Blair, Ma & Lenton, 2001). But it was suggested that attitudes in fact remained unchanged, and priming was merely altering which representations came to mind when participants were thinking about the social group as a whole (see Devine, 2001, for a more detailed discussion). Hence, in order to develop an intervention pathway, intrinsic goals and values need to be promoted and encouraged. Intervention programs such as reflection and diary writing on intrinsic life goals (e.g., Lokes, Hope, Gouveia, Koestner & Philippe, 2012) have shown encouraging initial results with university students, but larger scale research is needed to further evaluate and develop effective ways of encouraging intrinsic goals, particularly in younger participants.

While the mesomorphic ideal often correlates negatively with well-being, findings to the contrary have been reported

(Hargreaves & Tiggemann, 2002; Humphreys & Paxton, 2004). In SDT conceptualization, life goals vary on a continuum, from intrinsic to extrinsic. Intrinsic life goals are those pursued autonomously and willfully, without regard to material rewards or external constraints, and like-minded goals are concerned with self-acceptance and affiliation. In contrast, extrinsic goals emphasize variables such as wealth and beauty, and goals tend to pertain to rewards and praise (Kasser & Ryan, 1996). Thus, in individuals in whom extrinsic goals tend to be more salient, body image may be viewed as a means to an end, for example, praise and admiration. Importantly, extrinsic goals have been found to be associated with the desire for “body perfect” (Dittmar, 2008), suggesting a theoretical basis for the body image dissatisfaction associated with the body ideal as portrayed in the mass media. Future research may offer a more comprehensive understanding of the roles of life goals on body satisfaction by examining both mediating and moderating roles of intrinsic and extrinsic life goals. This line of research can also add further insight into how body image concerns may reflect not only a narcissistic tendency of vanity, but also a desire for social acceptance, as the pursuit of slimness for women, is often perceived as a sign of self-control and considered as required by others (Lipowska & Lipowski, 2015). It remains to be tested whether a similar psychological mechanism operates in men's quest for a muscular body.

The methodological challenges that the present research project encountered, particularly in relation to the issue of an exact measurement of media exposure, are difficulties that research on the media's influence on body image need to overcome. With the rise of social media in the past two decades, it has been proposed that the large amount of body image and physical appearance related posts on social media such as Facebook and Instagram have replaced traditional media such as television and magazines. Indeed, the relationship between social media usage and body image concerns has been documented in many cross-sectional and correlational studies (see Fardouly & Vartanian, 2016, for a review). But longitudinal and experimental studies yielded more varied results, with some showing no or little effect of social media usage (e.g., Fardouly, Diedrichs, Vartanian & Halliwell, 2015; Mabe, Forney & Keel, 2014). Some researchers have suggested that these findings might be in part due to the relatively short duration of exposure typically used in such studies (Fardouly & Vartanian, 2016). Hence, combining longitudinal with experimental designs might be the way forward in the quest for a more ecologically valid but also sensitive approach.

The lack of systematic exploration of ethnicity in Study 1, the lack of manipulation checks and the narrow age demographic utilized in Study 2, are all limitations of the current research project. There is some evidence to suggest that different ethnic groups may adopt different body ideals and therefore are not equally susceptible to the influence of the mesomorphic ideals (Nicolau *et al.*, 2008). In contrast, other studies suggest that members of ethnic and cultural groups within a society may be exposed to the standards and norms of the dominant culture and hence may be equally susceptible (Cheng, McDermott, Wong & La, 2016). Future work may provide additional confirmatory evidence by recruiting and comparing different age and ethnic groups. The employment of manipulation checks will also help to

rule out alternative explanations for findings, such as the lack of main effect of muscular body image stimuli in the pilot study.

In summary, the current report found a significant protective effect of intrinsic life goals on men's body satisfaction. Across a sample of men of different ages, intrinsic life goals moderated the relationship between magazine consumption and body dissatisfaction. By experimentally manipulating intrinsic life goals, we empirically demonstrated, for the first time, the protective buffer that these goals provide against body dissatisfaction in young adult males. These results contain important implications for the development of intervention strategies, and point to an area of research in which further in-depth examination is warranted.

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DATA AVAILABILITY STATEMENT

The related data sets, and materials used in the experiment, are deposited on OpenScience (<https://osf.io/emqck/>)

REFERENCES

- Alleva, J.M., Sheeran, P., Webb, T.L., Martijn, C. & Miles, E. (2015). A meta-analytic review of stand-alone interventions to improve body image. *PLoS One*, *10*, e0139177. <https://doi.org/10.1371/journal.pone.0139177>
- Avery-Natale, E. (2013). An analysis of embodiment among six superheroes in DC comics. *Social Thoughts and Research*, *32*, 71–106.
- Baghurst, T., Hollander, D.B., Nardella, B. & Haff, G.G. (2006). Change in sociocultural ideal male physique: An examination of past and present action figures. *Body Image*, *3*, 87–91.
- Baker, A. & Blanchard, C. (2017). The effects of female "thin ideal" media on men's appearance schema, cognitive performance, and self-evaluations: A self-determination theory approach. *Body Image*, *22*, 103–113.
- Barlett, C.P., Vowels, C.L. & Saucier, D.A. (2008). Meta-analyses of the effects of media images on men's body-image concerns. *Journal of Social and Clinical Psychology*, *27*, 279–310.
- Birkeland, R., Thompson, J.K., Herbozo, S., Roehrig, M., Cafri, G. & Van den Berg, P. (2005). Media exposure, mood, and body image dissatisfaction: An experimental test of person versus product priming. *Body Image*, *2*, 53–61.
- Blair, I.V., Ma, J.E. & Lenton, A.P. (2001). Imagining stereotypes away: The moderation of implicit stereotypes through mental imagery. *Journal of Personality and Social Psychology*, *81*, 828–841.
- Bottamini, G. & Ste-Marie, D.M. (2006). Male voices on body image. *International Journal of Men's Health*, *5*, 109–132.
- Buote, V.M., Wilson, A.E., Strahan, E.J., Gazzola, S.B. & Papps, F. (2011). Setting the bar: Divergent sociocultural norms of women's and men's ideal appearance in real-world contexts. *Body Image*, *8*, 322–334.
- Cash, T.F. (2004). Body image: Past, present, and future. *Body Image*, *1*, 1–5.
- Cheng, H.L., McDermott, R.C., Wong, Y.J. & La, S. (2016). Drive for muscularity in Asian American men: Sociocultural and racial/ethnic factors as correlates. *Psychology of Men and Masculinity*, *17*, 215–227.
- Chilton, P., Crompton, T., Kasser, T., Maio, G. & Nolan, A. (2012). *Communicating bigger-than-self problems to extrinsically-oriented audiences*. Common Cause Research (pp. 1–52) Wales, UK: Common Cause Foundation. https://purehost.bath.ac.uk/ws/portalfiles/portal/174891151/Chilton_et_al_2012_Extrinsically_oriented_audiences_FINAL_REPORT.pdf
- Crespo, C., Kieplkowski, M., Jose, P.E. & Pryor, J. (2010). Relationships between family connectedness and body satisfaction: A longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence*, *39*, 1392–1401.
- Crocker, P.R.E., Brune, S.M., Kowalski, K.C., Mack, D.E., Wilson, P.M. & Sabiston, C.M. (2014). Body-related state shame and guilt in women: Do causal attributions mediate the influence of physical self-concept and shame and guilt proneness. *Body Image*, *11*, 19–26.
- Dallesasse, S.L. & Kluck, A.S. (2013). Reality television and the muscular male ideal. *Body Image*, *10*, 309–315.
- Daniel, S. & Bridges, S.K. (2010). The drive for muscularity in men: Media influences and objectification theory. *Body Image*, *7*, 32–38.
- Deci, E.L. & Ryan, R.M. (2002). Overview of self-determination theory: An organismic dialectical perspective. In Deci, E.L. & Ryan, R.M. (Eds.), *Handbook of self-determination research* (pp. 3–33). New York: University Rochester Press.
- Devine, P. (2001). Implicit prejudice and stereotyping: How automatic are they? Introduction to the special section. *Journal of Personality and Social Psychology*, *81*, 757–759.
- Diedrichs, P. & Lee, C. (2011). Waif goodbye! Average-size female models promote positive body image and appeal to consumers. *Psychology and Health*, *26*, 1273–2191.
- Dittmar, H. (2008). *Consumer culture, identity and well-being: The search for the 'good life' and the 'body perfect'*. Hove: Psychology Press.
- Dittmar, H., Halliwell, E. & Ive, S. (2006). Does Barbie make girls want to be thin? The effect of experimental exposure to images of dolls on the body image of 5- to 8-year-old girls. *Developmental Psychology*, *42*, 283–292.
- Dockterman, E. (2016). One size fits none. Time. September 2016. <https://www.scribd.com/article/326653346/One-Size-Fits-None>. Last accessed 23 March 2022.
- Drewnowski, A. (1987). Men and body image: Are males satisfied with their body weight? *Psychosomatic Medicine*, *49*, 626–634.
- Eisenberg, M.E., Meunark-Sztainer, D. & Paxton, S.J. (2006). Five-year change in body satisfaction among adolescents. *Journal of Psychosomatic Research*, *61*, 521–527.
- Fardouly, J., Diedrichs, P.C., Vartanian, L.R. & Halliwell, E. (2015). Social comparisons on social media: The impact of Facebook on young women's body image concerns and mood. *Body Image*, *13*, 38–45.
- Fardouly, J. & Vartanian, L.R. (2016). Social media and body image concerns: Current research and future directions. *Current Opinion in Psychology*, *9*, 1–5.
- Faul, F., Erdfelder, E., Lang, A.-G. & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117–140.
- Frederick, D.A., Buchanan, G.M., Sadehgi-Azar, L., Peplau, L.A., Haselton, M.G. & Berezovskaya, A. (2007). Desiring the muscular ideal: Men's body satisfaction in the United States, Ukraine, and Ghana. *Psychology of Men and Masculinity*, *8*, 103–117.
- Frederick, D.A. & Essayli, J.H. (2016). Male body image: The roles of sexual orientation and body mass index across five national US studies. *Psychology of Men and Masculinity*, *17*, 336–351.
- Frederick, D.A., Fessler, D.M.T. & Haselton, M.G. (2005). Do representations of male muscularity differ in men's and women's magazines? *Body Image*, *2*, 81–86.

- Frederick, D.A., Sandhu, G., Morse, P.J. & Swami, V. (2016). Correlates of appearance and weight satisfaction in a US national sample: Personality, attachment style, television viewing, self-esteem, and life satisfaction. *Body Image, 17*, 191–203.
- Frost, J. & McKelvie, S. (2004). Self-esteem and body satisfaction in male and female elementary school, high school, and university students. *Sex Roles, 51*, 45–54.
- Gelman, A. & Stern, H. (2006). The difference between “significant” and “not significant” is not itself statistically significant. *The American Statistician, 60*, 328–331.
- 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.
- Grouzet, F. M. E., Kasser, T., Aaron, A., Dols, J. M. F., Kim, Y., Lau, S. et al. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology, 89*, 800–816.
- Guertin, C., Barbeau, K., Pelletier, L. & Martinelli, G. (2017). Why do women engage in fat talk? Examining fat talk using self-determination theory as an explanatory framework. *Body Image, 20*, 7–15.
- Halliwell, E., Dittmar, H. & Orsbom, A. (2007). The effects of exposure to muscular male models among men: Exploring the moderating role of gym use and exercise motivation. *Body Image, 4*, 278–287.
- Hargreaves, D. & Tiggemann, M. (2002). The effect of television commercials on mood and body dissatisfaction: The role of appearance-schema activation. *Journal of Social and Clinical Psychology, 21*, 287–308.
- Harriger, J.A., Schaefer, L.M., Thompson, J.K. & Cao, L. (2019). You can buy a child a curvy Barbie doll, but you can’t make her like it: Young girls’ beliefs about Barbie dolls with diverse shapes and sizes. *Body Image, 30*, 107–113.
- Harrison, K. & Bond, B.J. (2007). Gaming magazines and the drive for muscularity in preadolescent boys: A longitudinal examination. *Body Image, 4*, 269–277.
- Harter, S. (1999). *The construction of the self: A developmental perspective*. New York: Guilford Press.
- Haskins, J. (2019). ‘Normal Barbie’ gives girls a realistic body role model. *Healthline*. Updated 5 April 2019. Retrived 18 August 2021 from: <https://www.healthline.com/health-news/new-barbie-lamilly-gives-girls-body-role-model-030814>
- Hatton, E. & Trautner, M.N. (2011). Equal opportunity objectification? The sexualization of men and womn on the cover of rolling stone. *Sexuality & Culture, 15*, 256–278.
- Hausenblas, H.A., Campbell, A., Menzel, J.E., Doughty, J., Levine, M. & Thompson, J.K. (2013). Media effects of experimental presentations of the ideal physique on eating disorder symptoms: A meta-analysis of laboratory studies. *Clinical Psychology Review, 33*, 168–181.
- Hayes, A.F. (2013). *Introduction to mediation, moderation, and conditional Process analysis: A regression-based approach*. New York: The Guilford Press.
- Heinberg, L.J. & Thompson, J.K. (1995). Body image and televised images of thinness and attractiveness. *Journal of Social and Clinical Psychology, 14*, 325–338.
- Higgins, E.T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94*, 319–340.
- Higgins, E.T., Bargh, J.A. & Lombardi, W.J. (1985). Nature of priming effects on categorization. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 11*, 59–69.
- Humphreys, P. & Paxton, S.J. (2004). Impact of exposure to idealised male images on adolescent boys’ body image. *Body Image, 1*, 253–266.
- Jarry, J.L. & Cash, T.F. (2011). Cognitive-behavioral approaches to body image change. In T.F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice and prevention* (pp. 378–386). New York: Guilford Press.
- Jung, J. (2011). Advertising images of men: Body size and muscularity of men depicted in men’s health magazine. *Journal of Global Fashion Marketing, 2*, 181–187.
- Kanayama, G., Hudson, J.I. & Jr, P.H.G. (2012). Culture, psychosomatics and substance abuse: The example of body image drugs. *Psychotherapy and Psychosomatics, 81*, 73–78.
- Karaszia, B.T. & Crowther, J.H. (2010). Sociocultural and psychological links to men’s engagement in risky body change behaviors. *Sex Roles, 63*, 747–756.
- Kasser, T. & Ryan, R.M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin, 22*, 280–287.
- Koff, E., Rierdan, J. & Stubbs, M.L. (1990). Gender, body image, and self-concept in early adolescence. *The Journal of Early Adolescence, 10*, 56–68.
- Labre, M. (2005). The male body ideal: Perspectives of readers and non-readers of fitness magazines. *Journal of Men’s Health and Gender, 2*, 223–229.
- Law, C. & Labre, M.P. (2002). Cultural standards of attractiveness: A thirty-year look at changes in male images in magazines. *Journalism and Mass Communication Quarterly, 79*, 697–711.
- Legal, J.B., Chappe, J., Coiffard, V. & Villard-Forest, A. (2012). Don’t you know that you want to trust me? Subliminal goal priming and persuasion. *Journal of Experimental Social Psychology, 48*, 358–360.
- Leit, R.A., Pope, H.G., Jr. & Gray, J.J. (2001). Cultural expectations of muscularity in men: The evolution of Playgirl centerfolds. *International Journal of Eating Disorders, 29*, 90–93.
- Lekes, N., Hope, N.H., Gouveia, L., Koestner, R. & Philippe, F.L. (2012). Influencing value priorities and increasing well-being: The effects of reflecting on intrinsic values. *The Journal of Positive Psychology, 7*, 249–261.
- Levine, M.P. & Mumen, S.K. (2009). “Everybody knows that mass media are/are not [pick one] a cause of eating disorders”: A critical review of evidence for a causal link between media, negative body image and disordered eating in females. *Journal of Social and Clinical Psychology, 28*, 9–42.
- Lipowska, M. & Lipowski, M. (2015). Narcissism as a moderator of satisfaction with body image in young women with extreme underweight and obesity. *PLoS One, 10*(5), e0126724. <https://doi.org/10.1371/journal.pone.0126724>
- Lowery, S.E., Kurpius, S.E.R., Befort, C., Blanks, E.H., Sollenberger, S., Nicpon, M.F. et al. (2005). Body image, self-esteem, and health-related behaviors among male and female first year college students. *Journal of College Student Development, 46*, 612–623.
- Mabe, A.G., Forney, K.J. & Keel, P.K. (2014). Do you “like” my photo? Facebook use maintains eating disorder risk. *International Journal of Eating Disorders, 47*, 516–523.
- Magill, D. (2006). Spectacular male bodies and jazz age celebrity culture. In S. Holmes & S. Redmond (Eds.), *Framing celebrity: New directions in celebrity culture* (pp. 129–144). Abingdon: Routledge.
- Maio, G.R., Pakizeh, A., Cheung, W.Y. & Rees, K.J. (2009). Changing, priming, and acting on values: Effects via motivational relations in a circular model. *Journal of Personality and Social Psychology, 97*, 699–715.
- Mask, L. & Blanchard, C.M. (2011). The protective role of general self-determination against ‘thin ideal’ media exposure on women’s body image and eating-related concerns. *Journal of Health Psychology, 16*, 489–499.
- McCrum-Gardner, E. (2010). Sample size and power calculations made simple. *International Journal of Therapy and Rehabilitation, 17*, 10–14.
- Morais, D. (2013). Branding iron: Eugen Sandow’s “modern” marketing strategies, 1887-1925. *Journal of Sport History, 40*, 193–214.
- Morrison, T.G. & Halton, M. (2009). Buff, tough, and rough: Representations of muscularity in action motion pictures. *The Journal of Men’s Studies, 17*, 57–74.
- Mulgrew, K.E., Volcevski-Kostas, D. & Rendell, P.G. (2014). The effect of music video clips on adolescent boys’ body image, mood, and schema activation. *Journal of Youth and Adolescence, 43*, 92–103.
- Nesbitt, A., Sabiston, C.M., deJonge, M., Solomon-Krakus, S. & Welsh, T.N. (2019). Barbis’s new look: Exploring cognitive body representation among female children and adolescents. *PLoS One, 14* (6), e0218315. <https://doi.org/10.1371/journal.pone.0218315>
- Nicolaou, M., Doak, C., van Dam, R., Hosper, K., Seidell, J. & Stronks, K. (2008). Body size preference and body weight perception among

- two migrant groups of non-western origin. *Public Health Nutrition*, *11*, 1332–1341.
- Nikkelen, S.W.C., Anschutz, D.J., Ha, T. & Engels, R.C.M.E. (2012). Influence of visual attention on male body dissatisfaction after idealized media exposure. *Psychology of Men & Masculinity*, *13*, 308–323.
- Olivardia, R., Pope, H.G., Jr., Borowiecki, J.J., III & Cohance, G.H. (2004). Biceps and body image: The relationship between muscularity and self-esteem, depression, and eating disorder symptoms. *Psychology of Men and Masculinity*, *5*, 112–120.
- Parent, M.C. & Moradi, B. (2011). His biceps become him: A test of objectification theory's application to drive for muscularity and propensity for steroid use in college men. *Journal of Counseling Psychology*, *58*, 246–256.
- Pedersen, W.C., Vasquez, E.A., Bartholow, B.D., Grosvenor, M. & Truong, A. (2014). Are you insulting me? Exposure to alcohol primes increases aggression following ambiguous provocation. *Personality and Social Psychology Bulletin*, *40*, 1037–1049.
- Pelletier, L.G., Dion, S. & Levesque, C. (2004). Can self-determination help protect women against sociocultural influences about body image and reduce their risk of experiencing bulimic symptoms? *Journal of Social and Clinical Psychology*, *23*, 61–88.
- Pope, Jr. H. G., Olivardia, R., Borowiecki III, J. J. & Cohane, G. H. (2001). The growing commercial value of the male body: A longitudinal survey of advertising in women's magazines. *Psychotherapy and Psychosomatics*, *70*, 189–192.
- Pope, Jr. H. G., Olivardia, R., Gruber, A. & Borowiecki, J. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorder*, *26*, 65–72.
- Rohlinger, D.A. (2002). Eroticizing men: Cultural influences on advertising and male objectification. *Sex Roles*, *46*, 61–74.
- Rosenblum, G.D. & Lewis, M. (1999). The relations among body image, physical attractiveness and body mass in adolescence. *Child Development*, *70*, 50–64.
- Sagiv, L., Sverdlik, N. & Schwarz, N. (2011). To compete or to cooperate? Values' impact on perception and action in social dilemma games. *European Journal of Social Psychology*, *41*, 64–77.
- Sarwer, D.B. (2019). Body image, cosmetic surgery, and minimally invasive treatments. *Body Image*, *31*, 302–308.
- Scharf, M. & Maysel, O. (2010). Finding the authentic self in a communal culture: Developmental goals in emerging adulthood. *New Directions for Child and Adolescent Development*, *130*, 83–95.
- Steege, S., Tuerlinckx, F., Gelman, A. & Vanpaemel, W. (2016). Increasing transparency through a multiverse analysis. *Perspectives on Psychological Science*, *11*, 702–712.
- Sylvia, Z., King, T.K. & Morse, B.J. (2014). Virtual ideals: The effect of video game play on male body image. *Computers in Human Behavior*, *37*, 183–188.
- Thompson, J.K., Heinberg, L.J., Altabe, M. & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. Washington, DC: American Psychological Association.
- Turel, T., Jameson, M., Gitimu, P., Rowlands, Z., Mincher, J. & Pohle-Krauz, P. (2018). Disordered eating: Influence of body image, sociocultural attitudes, appearance anxiety and depression – a focus on college males and a gender comparison. *Cogent Psychology*, *5*, 1483062. <https://doi.org/10.1080/23311908.2018.1483062>
- Tylka, T.L., Bergeron, D. & Schwartz, J.P. (2005). Development and psychometric evaluation of the male body attitudes scale (MBAS). *Body Image*, *2*, 161–175.
- Valls, M., Bonvin, P. & Chabrol, H. (2013). Association between muscularity dissatisfaction and body dissatisfaction among normal-weight French men. *Journal of Men's Health*, *10*, 139–145.
- Vartanian, L.R. (2009). When the body defines the self: Self-concept clarity, internalization, and body image. *Journal of Social and Clinical Psychology*, *28*, 94–126.
- Verplanken, B. & Holland, R.W. (2002). Motivated decision making: Effects of activation and self-centrality of values on choices and behavior. *Journal of Personality and Social Psychology*, *82*, 434–447.
- Young, A.F., Gabriel, S. & Hollar, J.L. (2013). Batman to the rescue! The protective effects of parasocial relationships with muscular superheroes on men's body image. *Journal of Experimental Social Psychology*, *49*, 173–177.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article:

Data S1. Supplementary Materials

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