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The importance of motivational orientation towards the muscular ideal versus the stigmatised burdensome body in male body dissatisfaction

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Abstract

Internalisation of the muscular ideal is a vulnerability factor for body dissatisfaction in males. It is unclear, however, whether body dissatisfaction results from approach towards the muscular ideal versus fear of the stigmatised burdensome body. The current study sought to address this gap by assessing both approach and avoidance motivation regarding muscular and non-muscular bodies, respectively, and evaluating the unique associations between approach-avoidance tendencies and body dissatisfaction. Eighty-three male undergraduate students completed an implicit measure of approach-avoidance tendencies, the Stimulus Response Compatibility task, and a self-report measure of trait body dissatisfaction. Results revealed that participants were quicker to approach than to avoid muscular bodies; however, there were no differences in approach vs. avoidance tendencies regarding non-muscular bodies. Furthermore, in a multiple regression model comprising motivational bias scores regarding muscular and non-muscular bodies, only an approach bias towards muscular bodies predicted unique variance in body dissatisfaction. These findings are novel in showing an implicit approach motivation towards the muscular ideal in male undergraduates. Furthermore, in this population, motivational orientation towards the muscular ideal, versus the stigmatised burdensome body, seems to be more tightly associated with body dissatisfaction.

Keywords: approach; avoidance; stimulus response compatibility; muscularity; body dissatisfaction.

1. Introduction

Body dissatisfaction in men is becoming recognised as a serious public health concern in Australia (Griffiths et al., 2016; Mond et al., 2013; Paxton, 2000). Moreover, in a study of 1,997 Australian adults (966 males), Griffiths and colleagues (2016) found that body dissatisfaction was associated with higher levels of psychological distress and poorer mental health-related quality of life in men compared to women. In addition to this, body dissatisfaction is associated with the emergence of eating disorders in males (Dakanalis et al., 2016). Taken together, this evidence highlights the need to better understand the factors involved in the development and maintenance of male body dissatisfaction.

The pursuit of the muscular ideal, that is "the masculine ideal of lean muscularity" (Leon, Fulkerson, Perry, Keel, & Klump, 1999, p.194), has emerged as an important factor implicated in male body image (Blond, 2008; McCreary & Sasse, 2000; McLean, Wertheim, & Paxton, 2018; Labre, 2002; Ricciardelli & McCabe, 2004). Consistent with the applications of sociocultural theory to men, and in particular the tripartite influence model for men, internalisation of the muscular ideal serves as the central mediator in the relationships between social pressures, including media and family, and dissatisfaction with both body muscularity and body fat (Girard, Rodgers, & Chabrol, 2018; Tylka, 2011; Tylka & Andorka, 2012). Numerous studies have provided support for the association between internalisation of the societal body ideal and body dissatisfaction in samples of undergraduate males (Edwards, Tod, Molnar, & Markland, 2016; Karazsia & Crowther, 2009) and adolescent boys (Knauss, Paxton, & Alsaker, 2007; Lawler & Nixon, 2011). Moreover, the internalisation of muscular appearance ideals has been associated with clinically-relevant body image disturbance, namely muscle dysmorphia, whereby individuals become pathologically preoccupied with muscularity (Klimek, Murray, Brown, Gonzales, &

Blashill, 2018; Pope, Gruber, Choi, Olivardia, & Phillips, 1997). Thus, the internalisation of the muscular ideal is considered a vulnerability factor for male body dissatisfaction.

The internalisation of the muscular ideal may lead to two distinct motivational orientations: approach towards the muscular ideal and avoidance (also conceptualised as representing fear) of the stigmatised burdensome body. It is important to note that in the context of male body image, the stigmatised burdensome body could refer to both an excessively skinny and non-muscular body shape and a large and non-muscular body shape. In support of this notion, research suggests that male body image is linked to the fear of becoming either excessively skinny or overweight (Grogan & Richards, 2002; Ridgeway & Tylka, 2005). Given the particularly prevalent stigma of being overweight (Hussin, Frazier, & Thompson, 2011; Lozano-Sufrategui, Carless, Pringle, Sparkes, & McKenna, 2016), the large and non-muscular body served to conceptualise the stigmatised burdensome body in the current study.

It is well established, both theoretically and empirically, that in approach motivation, behaviour is energised (i.e., instigated) or directed by a positive stimulus, whereas in avoidance motivation, behaviour is energised or directed by a negative stimulus (Chen & Bargh, 1999; Eder & Rothermund, 2008; Elliot, 2006; Krieglmeyer, Deutsch, De Houwer, & De Raedt, 2010). In addition to external influences (e.g., exposure to positive stimuli), approach and avoidance motivation may also be directed or energised by a predominant approach/avoidance temperament. In other words, a general neurobiological sensitivity and reactivity to positive stimuli (approach temperament) or negative stimuli (avoidance temperament) (Dalley, 2016; Elliot & Thrash, 2010). In light of this, it is plausible that men would show approach motivation towards muscular bodies, given their positive valence, and avoidance motivation away from non-muscular bodies, given their negative valence. However, in the context of body image, it is equally conceivable that other emotional states

might be involved in approach motivation towards muscular bodies (e.g., dominance or jealousy) and avoidance motivation away from non-muscular bodies (e.g., disgust or sadness). Increasing our understanding of the respective roles of these two motivational orientations (i.e., approach vs. avoidance) with regards to body image is critical as this in turn informs to what extent prevention and/or treatment interventions should be targeting approach vs. avoidance mechanisms (Levitt, 2003).

In the field of body image, researchers have typically examined approach and avoidance motivation in the context of female body image. That is, an approach bias towards thin-ideal female bodies and an avoidance bias away from non-thin female bodies have been conceptualised as representing drive for thinness and fear of fat, respectively (Dalley, 2016; Dondzilo, Rieger, Jayawardena, & Bell, 2018; Levitt, 2003; Rodgers, DuBois, Frumkin, & Robinaugh, 2018; Woud, Anschutz, Van Strien, & Becker, 2011). It has been proposed that drive for thinness and fear of fat represent two distinct motivational constructs (Levitt, 2003), with evidence indicating that fear of gaining weight and desire for thinness exhibit differential associations with eating disorder-related symptoms (Rodgers et al., 2018). In this last study, the two items used for assessing these motivational constructs were both taken from the Drive for Thinness subscale of the Eating Disorder Inventory (Garner, 2004), highlighting the fact that well-established measures do not distinguish between drive for thinness and fear of fat. The lack of separate measures of these constructs further underscores the importance of developing alternative assessment techniques with the capacity to both adequately differentiate between these motivational constructs and to capture their underlying orientation (i.e., approach vs. avoidance).

Namely, researchers have argued the benefits of implicit measures in the assessment of motivational orientation in body image (Dondzilo et al., 2018; Woud et al., 2011). Relative to explicit measures, implicit measures are potentially more sensitive to

approach/avoidance motivation, and thus more suited for capturing small variations. Specifically, implicit measures are relatively resistant to socially desirable responding, which is particularly relevant when assessing attitudes regarding fatness. For example, studies have provided evidence of strong implicit anti-fat biases, in the absence of explicit anti-fat attitudes, in the general population, and even amongst health-care professionals (Teachman & Brownell, 2001; Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003). Thus, in the few studies utilising implicit measures in the context of female body image, empirical evidence implicates drive for thinness as the salient motivational factor in body image concerns[1] (Dondzilo et al., 2018) but in the case of more severe restrictive disorders, namely anorexia nervosa (AN), fear of fat has been found to predominate (Cserjési et al., 2010; Spring & Bulik, 2014).

To date, only one study has sought to assess drive for thinness and fear of fat, using an implicit measure and ecologically valid stimuli, in a community sample of women. More specifically, Dondzilo et al. (2018) employed the stimulus response compatibility (SRC) task (Mogg, Bradley, Field, & De Houwer, 2003), which required participants to make symbolic approach and avoidance movements towards thin-ideal bodies and non-thin bodies, by moving a manikin figure towards or away from the given body image. Participants demonstrated an approach bias towards thin bodies (i.e., they were quicker to make approach relative to avoidance movements) and an avoidance bias away from non-thin bodies (i.e., they were quicker to make avoidance relative to approach movements). Furthermore, only approach biases towards thin-ideal bodies were found to be positively associated with body dissatisfaction, whilst controlling for body mass index (BMI). These findings suggest that

[1]Although the only other implicit study, to date, found that fear of fat predominated for women in the community (Woud et al., 2011), this study was limited by the choice of stimuli in terms of ecological validity.

approach motivation predominates in the emergence of body image disturbance in women and thus, it is plausible to assume that this may also be the case in men.

Given the gap in any parallel body of research in men, the current study sought to assess approach towards the muscular ideal and fear of the stigmatised burdensome body as a matter of approach and avoidance tendencies regarding muscular and non-muscular body images, respectively, in undergraduate men. In line with Dondzilo et al. (2018), the current study employed the SRC task as a measure of approach and avoidance motivation. It was hypothesised that males would show an approach bias towards muscular bodies, as evidenced by quicker approach relative to avoidance tendencies regarding muscular bodies, and an avoidance bias away from non-muscular bodies, as evidenced by quicker avoidance relative to approach tendencies regarding non-muscular bodies. Furthermore, the current study aimed to determine the predominant motivational orientation in male body dissatisfaction. Given the results of Dondzilo et al. (2018), it was hypothesised that approach biases towards muscular bodies, but not avoidance biases away from non-muscular bodies, would be uniquely associated with male body dissatisfaction.

2. Method

2.1. Participants

Eighty-three male undergraduate students from the University of Western Australia participated in the study in exchange for course credit. Seven participants were excluded from the main statistical analyses due to either exceedingly high error rates or errors in data recording (see section 2.4). Participants were between the ages of 17 and 37 (M = 22.22, SD = 4.52) with an objective mean body mass index (BMI = kg/m^2) of 23.34 (SD = 3.43).[2] Ethics approval for this study was granted in accordance with the requirements of the *National*

[2] These demographic characteristics are consistent with the 76 participants included in the statistical analyses.

Statement on Ethical Conduct in Human Research and the policies and procedures of the University of Western Australia.

2.2. Materials

2.2.1. Stimuli. Images for the SRC task consisted of 40 photographs of real male bodies representing either muscular (20 images) or non-muscular (20 images) physiques. As a means of maximising ecological validity, images were sourced from the Internet so as to be representative of the types of images men are exposed to in the popular media. The chosen images for each set were comparable with regard to the degree of nudity, types of postures, and background against which the bodies were presented (typically neutral backgrounds). Images were cropped to focus on body regions or areas that are most reflective of body fat and muscle mass (i.e., abdomen, chest, biceps, and back). The muscular bodies depicted in these images were low in body fat and high in muscle mass, whereas the non-muscular bodies were high in body fat and low in muscle mass. The stimuli are available on the Open Science Framework: https://osf.io/nwe3k/.

Nineteen males (aged between 17 to 30 years), not involved in the current study, independently rated all images on perceptions of valence, arousal, muscularity, and leanness. Assessment of valence (from 1 = *unpleasant* to 9 = *pleasant*) and arousal (from 1 = *calm* to 9 = *excited*) utilised the Self-Assessment Manikin affective rating system (Lang, 1980). Muscularity (from 1 = *not muscular at all* to 100 = *extremely muscular*) and leanness (from 1 = *extremely thin* to 100 = *extremely fat*) were rated on 100 mm visual analogue scales. The means and standard deviations for these ratings are provided in Table 1. The muscular bodies were perceived as significantly more positive [$t(19) = 14.28$, $p < .001$, $d = 4.40$, 95% *CI* (2.04, 2.75)], arousing [$t(19) = 13.63$, $p < .001$, $d = 4.38$, 95% *CI* (1.27, 1.73)], muscular [$t(19) = 21.95$, $p < .001$, $d = 7.24$, 95% *CI* (50.47, 61.11)], and lean [$t(19) = -20.40$, $p < .001$, $d = 7.00$, 95% *CI* (-52.08, -42.39)], relative to the non-muscular bodies.

The stimuli were presented on a 1920 × 1080 Viewpixx LCD monitor running at 100Hz, using Matlab R2013b and the Psychophysics Toolbox (Brainard, 1997) to control stimuli presentation. The monitor was positioned at a distance of approximately 87cm from the participant.

Table 1

Means (SDs) for ratings of muscular and non-muscular bodies on valence, arousal, muscularity, and leanness

	Valence	Arousal	Muscularity	Leanness
Muscular	5.78 (0.40)	4.28 (0.35)	72.66 (8.70)	29.78 (5.53)
Non-muscular	3.38 (0.66)***	2.79 (0.33)***	16.87 (6.56)***	77.01 (7.78)***

Note. Within-subject comparisons on the four dimensions: ***$p < .001$.

2.2.2. Stimulus Response Compatibility (SRC) task. To assess approach and avoidance motivation regarding lean-and-muscular and large-and-non-muscular bodies, the SRC task (Mogg et al., 2003) was employed. The current study used trial specifications (i.e., frequency of the presentation of stimuli, number of practice trials, and number of critical trials) equivalent to Dondzilo et al. (2018).

Each trial commenced with a fixation cross in the centre of the screen (1000 ms), replaced by one of the online-sourced body photographs, depicting either a muscular or non-muscular body, measuring 82 mm × 55 mm. A male manikin figure (i.e., male stick figure), measuring 22 mm × 45 mm, was positioned 15 mm either above or below the central image

depicting a body. Participants were instructed to either move the manikin towards or away from each body type as quickly and accurately as possible by pressing the appropriate key once (i.e., either the up or down arrow key on the computer keyboard). The required response (i.e., move towards or away) was explicitly defined by content of the image (i.e., muscular or non-muscular). If participants made a correct response, this caused the manikin to move in the direction of the arrow press. Specifically, the manikin itself remained static, and its vertical position was adjusted by 15 mm. Thus, an approach movement (i.e., move towards the relevant body image) meant that the manikin reached critical proximity to the central body image. In the case of an incorrect response, the manikin did not move, and the next trial commenced after a 1s intertrial interval (ITI). Reaction time (RT) until first response and accuracy of responses were recorded. A visual representation of an example stimulus sequence is presented in Figure 1.

The SRC task consisted of two blocks – a muscular approach/non-muscular avoid block and a muscular avoid/non-muscular approach block – which were counterbalanced in order of presentation across participants. Each stimulus was presented twice in each block, thus only four times throughout the entire experiment. Furthermore, within each block the manikin appeared above the image on half of the trials, and below it on the remaining half. For each participant, trials were presented in a unique random order. Each block consisted of six practice trials, followed by 80 test trials.

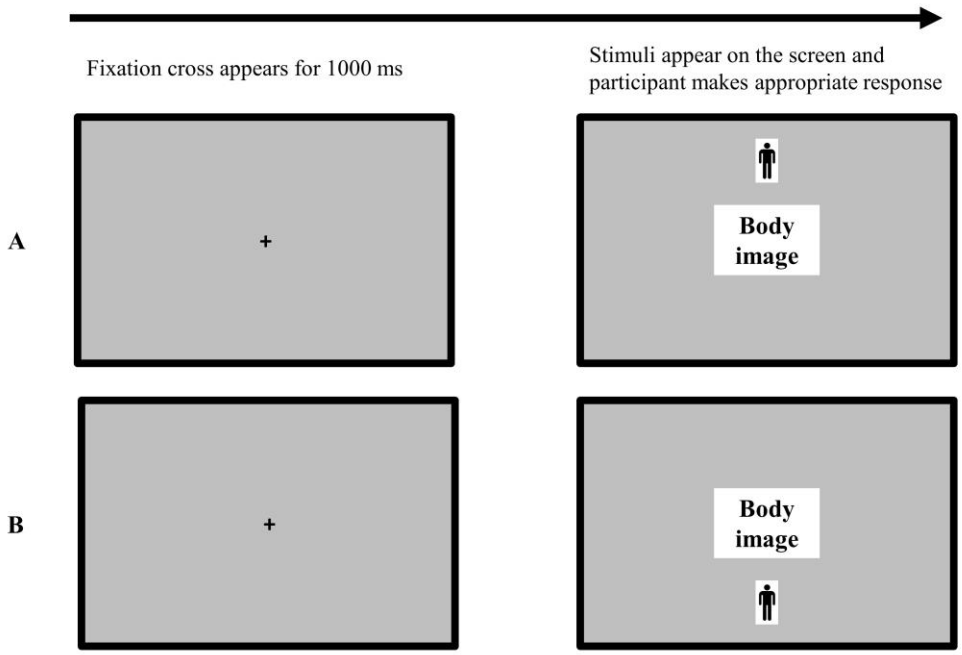

Figure 1. Example stimulus sequence on the SRC task where the manikin is positioned either above the body image (A) or below the body image (B).

2.2.3. Male body dissatisfaction. The 24-item Male Body Attitudes Scale (MBAS) is specifically designed to assess trait body dissatisfaction in males (Tylka, Bergeron, & Schwartz, 2005). Participants rated the extent to which each statement best described them on a six-point scale ranging from 1 (*never*) to 6 (*always*). Items were averaged, with a higher total score indicating greater body dissatisfaction. The MBAS also provides three subscales reflecting dissatisfaction with body fat, muscularity, and height. For the purposes of the current study, a global score of body dissatisfaction was employed. Evidence supports the reliability and validity of the MBAS in undergraduate men (Tylka et al., 2005). In the present study, Cronbach's alpha for the total score was .94.

2.3. Procedure

After giving informed and written consent, participants completed the SRC task, which was then followed by the MBAS. Finally, participants' height and weight were measured for the calculation of BMI.

2.4. Statistical Analysis

Regarding the SRC task, RTs until first response were used in the statistical analyses. In line with the criteria used by Dondzilo et al. (2018), RTs were based on correct trials only and all RTs less than 300 ms and greater than 2.5 standard deviations above each individual's mean RT were excluded. Data from five participants were removed for performing at near-chance level (>40% error rate; Booth, Spronk, Grol, & Fox, 2018) and from a further two participants due to an error in data recording. The remaining 76 participants demonstrated high overall accuracy (92.62%). In accordance with previous SRC task studies (e.g., Dondzilo et al., 2018; Schoenmakers, Wiers, & Field, 2008; Woud et al., 2011), median RTs were computed per body type and response type (e.g., approach muscular, avoid muscular, etc.) to reduce the effect of outlier RTs.

First, to test the hypothesis that participants would show an approach bias towards muscular bodies and an avoidance bias away from non-muscular bodies, median RTs were submitted to a 2 (body type: muscular vs. non-muscular) × 2 (motivational orientation: approach, avoid) repeated measured ANOVA. Conditional on a significant F value, post-hoc paired samples *t*-tests were performed.

Next, motivational bias scores were computed separately for muscular bodies and non-muscular bodies (motivational bias score = RT for avoiding bodies – RT for approaching bodies). Thus, positive values indicate an approach bias towards body images and negative values indicate an avoidance bias away from body images. To determine whether these motivational bias scores differed in magnitude, a paired samples *t*-test was performed.

Furthermore, to examine the unique contributions of motivational bias scores in predicting body dissatisfaction, a multiple regression analysis was performed with motivational bias scores regarding muscular and non-muscular bodies as predictors and body dissatisfaction as the outcome variable. BMI was considered a potential covariate in this relationship given results of Dondzilo et al. (2018) indicating that BMI served as a suppressor variable in the relationships between motivational biases regarding female body images and eating disorder-related constructs (i.e., after controlling for BMI the magnitude of these relationships increased substantially). However, it is important to note that the use of BMI is arguably more complicated in men than women given its inability to distinguish body weight due to muscle mass and body weight due to body fat.

The effect size measures used were partial η^2 for ANOVA (small = .01, medium = .06, and large = .14), Cohen's *d* for *t*-tests (small = 0.20, medium = 0.50, and large = 0.80), and semi-partial *r* values for multiple regression (small = .10, medium = .20, and large = .30) (Cohen, 1992; Gignac & Szodorai, 2016).

3. Results

3.1. Approach and Avoidance Tendencies

Means of individual median RTs for each of the conditions (approach muscular, avoid muscular, approach non-muscular, avoid non-muscular) are presented in Figure 2. A 2 (motivational orientation: approach, avoid) × 2 (body type: muscular, non-muscular) repeated measures ANOVA revealed a significant interaction between motivational orientation and body type, $F(1,75) = 17.03$, $p < .001$, $\eta^2 = .19$. There were also significant main effects of motivational orientation, $F(1,75) = 54.07$, $p < .001$, $\eta^2 = .42$, and of body type, $F(1,75) = 18.07$, $p < .001$, $\eta^2 = .19$.

To specify the nature of the motivational orientation × body type interaction, simple main effect analyses were performed. Participants were faster to approach rather than avoid

muscular bodies, which is consistent with an approach bias towards muscular bodies, $t(75) = 6.99$, $p < .001$, $d = 0.78$, 95 % *CI* [61.57, 110.69]. However, there were no significant differences between approach versus avoidance tendencies regarding non-muscular bodies, $t(75) = -0.57$, $p = .57$, $d = 0.06$, 95% *CI* [-32.50, 18.11].

Moreover, to determine whether the motivational bias score was larger in magnitude for muscular bodies ($M = 86.13$, $SD = 107.48$), relative to non-muscular bodies ($M = -7.20$, $SD = 110.73$), a paired samples *t*-test was performed. Participants demonstrated a quicker tendency to approach muscular bodies than they were to avoid non-muscular bodies, $t(75) = 4.13$, $p < .001$, $d = 0.86$, 95% *CI* [48.28, 138.38].

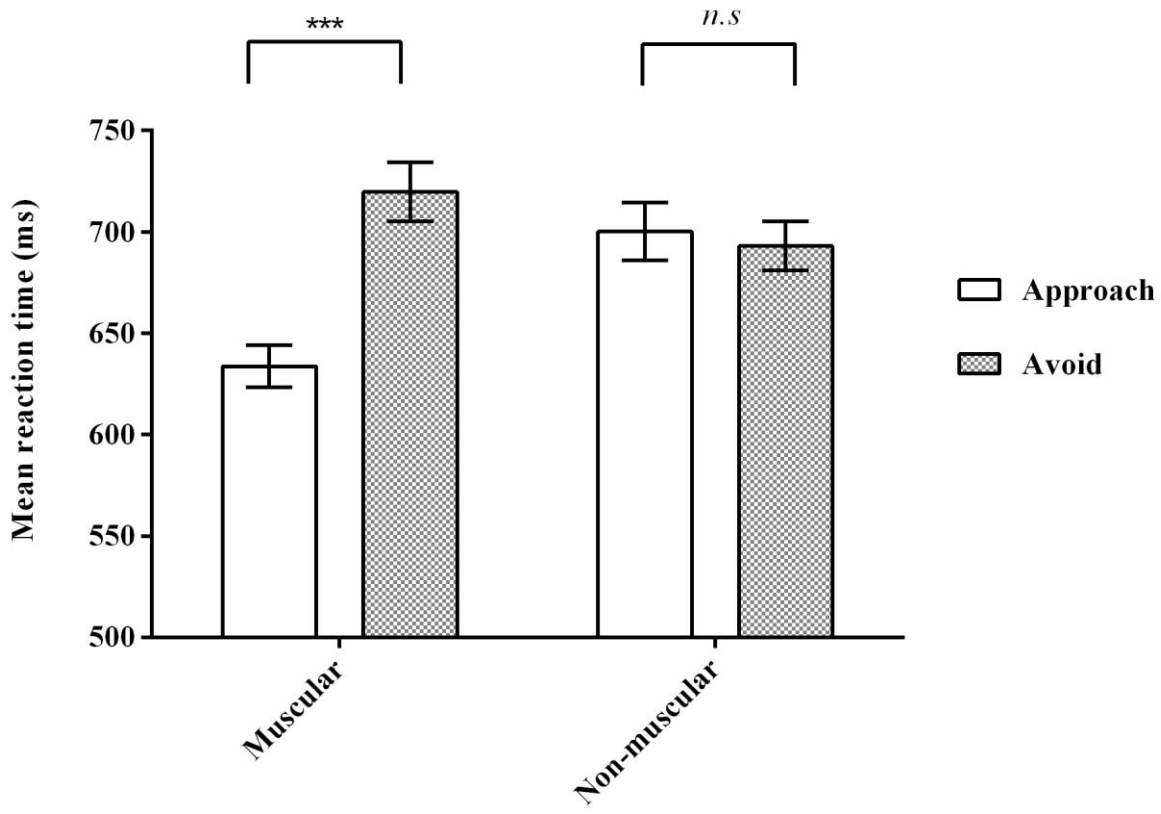

Figure 2. Mean SRC reaction times (ms) for muscular and non-muscular body images. Error bars represent + - 1 Standard error.
***$p < .001$.

3.2. Relationship Between Motivational Bias Scores and Body Dissatisfaction

A multiple regression analysis was performed to assess the unique contributions of motivational biases regarding muscular bodies and non-muscular bodies in predicting body dissatisfaction. Initial correlational analyses revealed that neither of the two motivational biases associated with body dissatisfaction ($p > .05$), yet they correlated significantly with each other ($r = -.63$, $p < .001$). Although the overall regression model fell short of significance, $F(2,73) = 2.24$, $p = .113$, the motivational bias scores regarding muscular bodies were uniquely and positively associated with body dissatisfaction $\beta = .31$, $t(73) = 2.12$, $p = .038$. This suggests that a greater approach bias towards muscular bodies was associated with greater reports of body dissatisfaction. The corresponding semi-partial correlation was $r = .24$, which is considered a small-medium effect size (Gignac & Szodorai, 2016). On the other hand, motivational bias scores regarding non-muscular bodies were not significantly associated with body dissatisfaction, $\beta = .20$, $t(73) = 1.36$, $p = .18$. Thus, bias scores regarding non-muscular bodies served to suppress criterion-irrelevant variance in bias scores regarding muscular bodies (i.e., common method variance). When BMI was included in the model, this pattern of results remained consistent and BMI did not serve to contribute unique variance.

4. Discussion

The current study sought to investigate approach and avoidance motivation regarding the muscular male body-ideal and the stigmatised burdensome body, by means of an implicit measure, in undergraduate males. As hypothesised, participants were quicker to approach, rather than avoid, images of muscular bodies. However, results did not support the hypothesis that participants would be quicker to avoid, rather than approach, images of non-muscular bodies. Instead, participants demonstrated a low level of approach and avoidance regarding

non-muscular bodies (i.e., they were neither faster in their approach nor avoidance responses).

These results suggest that, as captured by our implicit task, a motivational orientation of approach towards the muscular ideal was present to a much greater extent than fear of the stigmatised burdensome body in this sample. The approach bias towards muscular bodies is consistent with theory and empirical evidence suggesting compatibility between approach motivation and positively valenced stimuli (Chen & Bargh, 1999; Eder & Rothermund, 2008; Krieglmeyer et al., 2010), implying that fast reaction times to approaching muscular bodies might potentially be due to their appeal. Nonetheless, it is important to consider that approach motivation towards muscular bodies might also occur due to aggression, anger, dominance, or jealousy. This result is also consistent with experimental evidence of preferential visual attention allocation to muscular male images as compared to large, thin, and non-muscular silhouettes (Cho & Lee, 2013) and to the attractive body parts of muscular bodies as compared to normal and hyper-muscular bodies (Cordes, Vocks, Düsing, Bauer, & Waldorf, 2016). In addition, these findings support self-report research documenting young men's preference of drive towards lean-and-muscular silhouettes, and drive to attain such a body type (Girard et al., 2018; Shaefer et al., 2017). Thus, these findings provide converging evidence for the explicit and implicit preferences that young men display towards muscular stimuli, and thereby their investment in appearance ideals.

Contrary to expectations, our results failed to reveal an avoidance bias away from non-muscular bodies in the current sample. One potential reason for this is that the non-muscular bodies may not have evoked an avoidance response. Previous research has suggested that stimuli that are perceived as self-relevant are most successful in eliciting implicit attitudes in the context of body image research (Rodgers & Dubois, 2016). It may be that the stimuli used here were not self-relevant enough and therefore did not elicit the

desired response. Another possibility, however, is that the non-muscular bodies activate both motivational systems, which in turn lead to ambivalence. For example, an avoidance response may be triggered due to repulsion of attaining such a physique but equally an approach response is activated as this body shape may be perceived as more realistic and/or comparable to one's own body shape. Of course, these potential explanations for approach vs. avoidance responses do not preclude muscular bodies. To investigate these different explanations, future studies would benefit from examining responses to individually-tailored stimuli (of a large-and-non muscular self) as well as expanding the range of bodies depicted to include much larger ones.

A further aim of the current study was to examine the respective contributions of motivational biases regarding muscular stimuli and non-ideal, non-muscular stimuli to body dissatisfaction. In line with predictions, only an approach bias towards muscular bodies was found to predict unique variance in body dissatisfaction. Thus, motivational orientation towards the muscular ideal, versus the stigmatised burdensome body, seems to be most closely associated with body dissatisfaction, and may play a role in the development of body dissatisfaction consistent with sociocultural theories (Girard et al., 2018). This finding supports documented associations between other forms of processing biases towards muscular bodies and body dissatisfaction in men (Cho & Lee, 2013; Cordes et al., 2016; Rodgers & DuBois, 2016), as well as the association between self-reported drive towards the muscular ideal and body dissatisfaction in this group (e.g., Girard et al., 2018).

Nonetheless, the current study only examined body dissatisfaction as an outcome. A particularly fruitful direction of future investigation is whether this approach bias towards muscular bodies might also predict behaviours associated with a drive for muscularity, such as disordered eating and exercise behaviours, as well as the use of anabolic steroids. In support of the relationship between approach orientations and clinically relevant behavioural

outcomes, research in other areas has shown that approach bias towards appetitive cues (e.g., food, alcohol, nicotine) is predictive of consumption behaviour (Kakoschke, Kemps, & Tiggemann, 2017). Furthermore, given evidence for an attentional bias towards the attractive, relative to the unattractive, body parts of hyper-muscular bodies in men with clinically diagnosed muscle dysmorphia (Waldorf, Vocks, Düsing, Bauer, & Cordes, 2019), it would also be interesting to examine whether approach motivation towards hyper-muscular bodies is associated with muscle dysmorphia.

The current finding of a predominant approach motivation in body dissatisfaction is consistent with previous research documenting that among young women, an approach bias towards thin-ideal female bodies was a stronger correlate of body dissatisfaction as compared to an avoidance bias away from non-thin female bodies (Dondzilo et al., 2018). Taken together, these findings suggest that in young men and women, body dissatisfaction may be more strongly influenced by a desire to achieve the societal body ideal, and perceived rewards associated with achieving this ideal, rather than a fear of the penalties associated with the stigmatised burdensome body. In turn, this has implications for targeting approach motivation in strategies designed to foster positive body image. Such interventions may include motivational enhancement and cognitive dissonance exercises, which evaluate the costs of pursuing the societal body ideal (Miller & Rollnick, 2013; Stice, Shaw, Becker, & Rohde, 2008).

Importantly, however, the current findings cannot be generalised to men with elevated eating disorder symptomatology and/or clinically diagnosed eating disorders. Other research among women has documented how while drive for thinness might be a more important driver of subclinical symptomatology (Rodgers et al., 2018), fear of fat is implicated as being more relevant in women with clinical levels of AN (Cserjési et al., 2010; Spring & Bulik, 2014). Thus, it may be that, correspondingly, a shift in motivational orientation may also

occur in men with increasing levels of eating disorder symptomatology. In addition, in our sample, most of the participants displayed a BMI that placed them within the boundaries of the "healthy weight" classification. It would be interesting to explore the respective roles of these two motivational orientations among individuals with higher levels of preoccupation around weight, and larger bodies.

A broader implication of the current study is additional evidence for the use of implicit measures, such as the SRC task, in the assessment of approach and avoidance mechanisms in the context of body image. Although highly speculative, one advantage of these implicit tasks is that they offer the potential to modify approach and avoidance tendencies through repeated training, which could in turn lead to changes in body dissatisfaction. Moreover, an approach bias modification task could be delivered via a smartphone application, which has far-reaching implications for the development of an accessible and affordable universal prevention strategy which aims to reduce body dissatisfaction. Preliminary evidence in support of this view demonstrates the effectiveness of a smartphone-based approach bias modification task in improving healthy food choice in overweight and obese individuals (Kakoschke, Hawker, Castine, de Courten, & Verdejo-Garcia, 2018).

Despite the novelty of the current study, there are some limitations that deserve acknowledgement. Firstly, the instructions in the SRC task required participants to classify the body images as either "muscular" or "non-muscular." However, this categorisation fails to account for the fact that the muscular body ideal is also associated with leanness (i.e., low body fat) (Thompson & Cafri, 2007). Moreover, the unidimensional categorisation of male bodies in terms of muscularity alone may provide a further explanation as to why participants did not show an avoidance bias away from the non-muscular bodies. That is, perhaps the categorisation of non-idealised bodies as "large and non-muscular," as opposed to just "non-

muscular," is more likely to trigger an avoidance response. Thus, an intriguing avenue for future research would be to categorise male bodies on both body fat and muscularity dimensions in the assessment of motivational orientation. Given that both high body fat, and lack thereof, deviate from the social male body ideal, this categorisation additionally permits disentangling the motivational orientation regarding two different types of non-idealised bodies (i.e., large and non-muscular and excessively lean and non-muscular). Secondly, the current study did not include non-body images, which makes it difficult to distinguish whether the current effects are body-specific or whether they were driven by valence and/or arousal. Moreover, we were not able to distinguish between fat and lean mass and did not assess for current perceived body size and shape, which would have been interesting covariates to explore.

4.1. Conclusions

The current study represented a first attempt to assess approach towards the muscular ideal and fear of the stigmatised burdensome body by means of approach and avoidance biases regarding muscular bodies and non-muscular bodies, respectively, in undergraduate men. The current findings revealed an implicit approach motivation towards the muscular ideal in undergraduate men. Furthermore, motivational orientation towards the muscular ideal, as opposed to a non-ideal stigmatised body, was found to contribute unique variance in body dissatisfaction. These findings make an important contribution by highlighting how the pursuit of muscular appearance ideals is tightly associated with body dissatisfaction in young men with normative levels of body image concerns, and supports the targeting of these ideals in prevention efforts.

Conflict of interest statement

The authors declare no conflict of interest.

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