

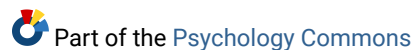
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Exploration of height dissatisfaction, muscle dissatisfaction, body ideals, and eating disorder symptoms in men

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Abstract

Height is a significant, yet under-studied dimension of body dissatisfaction in men. The present study examined the relationship between height dissatisfaction, height, muscle and fat dissatisfaction, body ideals, and eating disorder symptoms in men. Participants were a sample of male undergraduate Australian students ($N = 224$) who were administered self-report measures of height, muscle, and fat dissatisfaction, eating disorder symptoms, and muscle and body fat body-ideals, and reported their height. Results showed that height, muscle dissatisfaction, and desired muscularity were important for explaining height dissatisfaction. Additionally, although eating disorder symptoms did not uniquely predict height dissatisfaction, there were small positive correlations between height dissatisfaction and eating disorder symptoms. This study highlights the importance of height in male body dissatisfaction and its association with muscular dissatisfaction and desired muscularity, as well as the potential significance of height in male eating disorders.

Key words: Height dissatisfaction; male; body image; eating disorders, body dissatisfaction

Introduction

Body dissatisfaction is defined as a negative subjective evaluation of one's own body. This can refer to one's body as a whole, or it can relate to specific aspects of one's body; such as body shape, body size, and muscular tone¹. For men, concerns relating to body fat and musculature, and how these factors influence body shape, are often presented as the most significant contributors to body dissatisfaction². However, a third factor – height – is arguably just as important.

Height is a crucial component of the male ideal body and has been seen to play a significant role in defining the masculine norm³. Masculinity is commonly characterized by strength, power, bravery, and assertiveness⁴. Height appears to have a close association with these features in men. When asking participants to describe the “masculine male”, Helgeson⁵ found that height was one of the most essential features amongst both men and women; notably more essential than attractiveness, self-confidence, intelligence, and whether men date women. Masculinity has also been shown to moderate the relationship between stature and height dissatisfaction. O’Gorman, Sheffield and Griffiths⁶ found that the relationship of short stature with height dissatisfaction was stronger for men who were more masculine. Similarly, height is significantly associated with male gender roles⁷, and taller men tend to be perceived as more assertive and dominant⁸. Height is also an essential factor for both sexes in determining attractiveness and suitability for relationships^{3,7}. Salska and colleagues⁴ examined height preferences in a sample of North American heterosexual men and women. They found that both sexes had a preference for a heterosexual relationship to be composed of a taller man and a shorter woman. Further, only 23% of men (compared to only 4% of women) would accept a

dating relationship where the woman was taller. Tellingly, taller stature has also been linked to greater reproductive success^{4,9}.

Height differs from body fat and muscularity as it cannot easily be altered. The avenues for losing body fat and increasing muscle mass are clear and, for many, obtainable: with an engagement to aerobic and anaerobic exercise and alterations to diet, men can rid themselves of undesired body fat and sculpt specific areas of musculature. Conversely, no known exercise program will increase height. Instead, men must turn to expensive, invasive, and potentially dangerous surgery such as cosmetic stature lengthening if they wish to increase their height^{10,11}. The fact that altering height is largely unachievable is potentially problematic for men who are shorter in stature.

Based on the above, it is no surprise that height is a central component of male body image and plays a significant role in masculine identity. So, what does this mean for the psychological health of men who are smaller in stature? Initial evidence suggests that height dissatisfaction is associated with several negative psychological outcomes. For instance, O’Gorman and colleagues⁶ found a significant association between height dissatisfaction and muscle dissatisfaction ($r = .20$). However, the authors note that the generalizability of this relationship may be limited as their sample was recruited from an internet forum for individuals of small stature, meaning that shorter individuals were overrepresented. Other studies have shown strong links between height dissatisfaction and psychological quality of life^{12,13}. Of concern, quality of life has also been shown to relate to body dissatisfaction^{12,14}, eating disorders¹⁵, and body dysmorphic disorder¹⁶. Notably, all of these conditions involve excessive attention to, and overvaluation of body shape and weight¹. Therefore, it is conceivable that for men, this also includes height.

In order to extend the research of O’Gorman and colleagues⁶, the present study aimed to (1) examine the relationship of height dissatisfaction to actual height as well as body (muscle and fat) dissatisfaction in a sample with a more natural representation of height range. Additionally, due to the link between height dissatisfaction and quality of life^{12,13}, and the link between the quality of life and eating disorder symptoms in men¹⁵, this study aimed to (2) examine the relationship between height dissatisfaction, body ideals, and eating disorder symptoms. If height dissatisfaction stems from a desire to adhere to a body shape that resembles masculine ideals⁶ then body (muscle and fat) dissatisfaction and ideal measures of body shape should uniquely predict height dissatisfaction, with stronger dissatisfaction and more extreme perceived ideal body shapes (i.e. low fat, high muscularity) uniquely predicting height dissatisfaction. Further, if height dissatisfaction is a product of eating disorder symptomatology (i.e., disordered eating-related thoughts behaviors), then greater height dissatisfaction should uniquely predict height dissatisfaction.

Methods

Participants were 224 male undergraduate psychology students at an Australian university, who were compensated via course credit for their participation. The average participant was 22.22 years of age ($SD = 5.17$; $Range = 17-41$), and 176.45 centimeters in height ($SD = 8.01$; $Range = 155-196$ cm). All measures were administered online via a web link and could be completed using a computer or smart device. Participants were first informed of the nature of the study, then completed a series of self-report measures and were debriefed upon completion. Ethics approval for the study was granted by an appropriate institutionalized Human Ethics Research Board.

Measures

Demographics. Participants self-reported their age and height (in centimeters). Of note, prior studies have demonstrated that individuals can self-report height with moderate accuracy^{17,18,19}. To screen for women, participants also reported their sex. Individuals that reported their sex as female were ejected from the study.

Male Body Attitudes Scale (MBAS). The MBAS was used to measure male muscle, fat, and height dissatisfaction. The MBAS is a self-report questionnaire that includes 24 items and assesses three dimensions of body attitude (muscularity, low body fat, and height) and presents with good internal reliability, test–retest reliability, and validity²⁰. Items include “*I think I have too little muscle on my body*” (muscularity subscale), “*I think my body should be leaner*” (low body fat subscale), and “*I wish I were taller*” (height subscale)²⁰. In the present study, Cronbach’s α were .89, .91, .89 for the muscularity, body fat, and height subscales, respectively.

New Somatomorphic Matrix-Male (NSM-M). The NSM-M²¹ was used to obtain ratings of *ideal* body fat and muscularity. The NSM-M consisted of 34 images of computer-rendered male bodies. On the x-axis, bodies increased in even increments of body fat percentage, and on the y-axis, bodies increased in even increments of muscularity. Body fat percentage was scored from 1 to 10 (1 = an underweight body; 10 = an obese body). Analogously, muscularity was scored from 1 to 10 (1 = a body with very little muscularity; 10 = a hyper-muscular body). The NSM-M has been found to be an appropriate tool for measuring male body image²². Once presented with the NSM-M, participants were asked the following: *please click/touch the location on the grid that best corresponds to your ideal body (i.e., the body you would most like to have as your own)*.

Eating Disorder Examination Questionnaire (EDE-Q). The EDE-Q²³ is a measure of eating disorder symptomology. The EDE-Q consists of 28 items, including four subscales:

Restraint, Eating Concern, Shape Concern, and Weight Concern. Participants are required to rate the frequency or severity of eating disorder symptoms, and related psychopathological behaviors and beliefs over the past 28 days. Each item consists of a seven-point Likert scale, with questions such as “*How dissatisfied have you been with your weight?*”, and “*Over the past 28 days, how many times have you made yourself sick as a means of controlling your shape or weight?*”. The EDE-Q presents good psychometric properties in males^{24,25}. In the present study, Cronbach’s α were .76, .75, .86, and .79, for Restraint, Eating Concern, Shape Concern, Weight Concern subscales, respectively.

Statistical Analysis

R Studio (Version 1.1.383) was used to produce all analyses. A multiple linear regression analysis was used to predict participants’ height dissatisfaction from their reported height, muscle dissatisfaction, body fat dissatisfaction, eating disorder symptoms, ideal muscularity, and ideal body fat. Participants with missing data were removed before analysis. A visual inspection of the regression residuals revealed satisfactory normality, linearity and homoscedasticity. However, there were some potential issues with multicollinearity. To account for this, we used a dominance analysis to assess the importance of each predictor in explaining height dissatisfaction^{26,27}. The complete dominance of one predictor was established if its unique contribution to the explanation of height dissatisfaction was greater than the comparison predictor in all possible regression models; conditional dominance indicated that a predictor’s additional contribution to height dissatisfaction variance was greater on average for that predictor compared to the comparison predictor but not necessarily for all model builds; general dominance suggested that on average across all regression model builds the predictor was stronger than the comparison predictor.

Results

Descriptive statistics relating to the MBAS height dissatisfaction subscale revealed that 42.72% of participants often, usually, or always wished that they were taller. Additionally, 41.20% of participants were rarely or never satisfied with their height.

Basic descriptive statistics and regression coefficients are shown in Table 1. As seen in Figure 1A, correlations for the predictor variables had a significant ($p < .05$, one-tailed) zero-order correlation with height dissatisfaction, excluding ideal body fat. The regression showed that only muscle dissatisfaction, ideal muscularity, and height had significant ($p < .001$) uniquely predicted variation in height dissatisfaction in the full model. This model was able to account for 22% of the variance in height dissatisfaction, $F(9, 210) = 6.61, p < .001, R^2 = .22$. Figure 1B shows the conditional dominance of each predictor for the dominance analysis. Table 1 reports the average contribution (i.e. general dominance) for each predictor. Muscle dissatisfaction was the most important predictor in the model, as it showed complete dominance over body fat dissatisfaction, the EDE-Q subscales, and ideal body fat. Additionally, muscle dissatisfaction showed general dominance over ideal muscularity and height. Ideal muscularity was the second most important predictor in the model, as it showed complete dominance over body fat dissatisfaction, the EDE-Q subscales, and perceived ideal body fat levels. Moreover, ideal muscularity had conditional dominance over height. Finally, height completely dominated the four EDE-Q subscales and perceived ideal body fat levels, and had general dominance over body fat dissatisfaction.

[Insert Table 1]

[Insert Figure 1]

Discussion

The present study aimed to examine the relationship of height dissatisfaction, to muscle and fat dissatisfaction, body ideals, and eating disorder symptoms. Results of the multiple linear regression analysis showed that there was a negative association between height and height dissatisfaction, meaning that individuals who were shorter in stature tended to be more dissatisfied with their height. These results are analogous to those found in previous studies examining this relationship in men recruited from an internet forum for individuals of small stature⁶, and sexual minority men¹², and thus contribute more evidence for the relationship between stature and height dissatisfaction.

Results also showed that men's muscle dissatisfaction significantly predicted their height dissatisfaction. Thus, similar to Griffiths and colleagues'¹² findings, men who are more dissatisfied with their height are also more likely to be dissatisfied with their level of muscularity. Further, men's ideal muscularity was uniquely predictive of height dissatisfaction: men whose muscular ideal was greater tended to be more dissatisfied with their height. One potential explanation for the relationship between height dissatisfaction, and muscle dissatisfaction and ideals lies in the fact that height is largely unchangeable. If a man's masculinity is challenged in one largely unchangeable domain of body image (i.e., height), then perhaps this dissatisfaction is diverted into other changeable domains of body image, such as muscularity. The dominance analysis evidences this position, as ideal muscularity was more important than actual height in most model specifications and height dissatisfaction was also generally more important than actual height. These results appear to be in line with the findings of O'Gorman and colleagues⁶, who showed that adherence to masculine ideals moderated the relationship between men's height dissatisfaction and their actual height. In other words, both

studies highlight the importance of adherence to the masculine norm (e.g., power, strength, dominance, etc.)⁴ in determining men's height dissatisfaction.

Notably, despite significant zero-order correlations found between fat dissatisfaction and height dissatisfaction ($r = .22$), fat dissatisfaction did not uniquely account for significant variance in height dissatisfaction in the regression model. This result corresponds to O'Gorman and colleagues'⁶ study, who found a small non-significant relationship between height dissatisfaction and body fat dissatisfaction ($r = .10$). Therefore, our results suggest that desire for muscularity in those shorter of stature might be more about reaching their desired muscularity bulk, rather than a desire to improve one's physique through increased muscular size and definition (via a reduction in body fat).

We expected that height dissatisfaction would be partially accounted for by variance in eating disorder symptoms. We observed that all EDE-Q subscales (Restraint, Eating Concern, Shape Concern, and Weight Concern) returned small but significant positive zero-order correlations with height dissatisfaction. However, when entered into the regression model, these factors did not significantly predict height dissatisfaction. Thus, our data suggest that adherence to masculine desires regarding muscularity ideals (e.g. perceptions of ideal muscularity and dissatisfaction with one's adherence to those muscularity ideals) is more important than eating disorder symptomology in understanding individual differences in height dissatisfaction.

Our study also showed that there was no significant association between actual height and eating disorder symptoms. This result is contrary to that of Favaro and colleagues²⁸ who demonstrated that women with a shorter stature have an increased risk of a diagnosis of anorexia nervosa and bulimia. However, over half of their sample met or had previously met diagnostic criteria for an eating disorder, suggesting an inflated level of eating disorder symptoms²⁸. Given

that the current study utilized a non-clinical sample, the possibility that men with a shorter stature might also be at an increased risk of an eating disorder cannot be discounted. Future research should consider comparing the actual height of men with and without eating disorders.

Of note, men in our study reported higher average EDE-Q scores than those provided by norm studies conducted in the U.S.^{29,30}, indicating that our Australian sample reported a higher average level of eating disorder psychopathology than the average university-aged U.S. students. However, our sample's EDE-Q scores are well below male clinical norms²⁵, thus we believe our results are still relatively generalizable to the Western undergraduate student population.

Limitations and Conclusions

Limitations of the present study are noted. First, as this study utilized a W.E.I.R.D³¹, non-clinical sample, the generalizability of these results may be limited. Second, the MBAS height dissatisfaction subscale only contains two items. Although this is one more item than the measure of height dissatisfaction used by Griffiths and colleagues^{12,13}, a scale with a greater number of items may return a more comprehensive measure of height dissatisfaction. Third, the data utilized in this study was cross-sectional, impeding attributions of causality. Fourth, the sexual orientation of the participants was not taken into consideration. Prior research has reported a high prevalence of height dissatisfaction in sexual minority males¹², and evidenced higher rates of body dissatisfaction in these men compared to their heterosexual counterparts³². Fifth, we did not include a behavioral index of muscularity dissatisfaction in our study, but rather relied on self-report attitudes toward muscularity. Examination of the relationship between height dissatisfaction and muscularity-driven behaviors (such as compulsive anaerobic exercise) could be key in tapping into less-cognitive indicators of male body dissatisfaction and eating disorders.

The present study examined the relationship between male height dissatisfaction, and muscle and fat dissatisfaction, body ideals, and eating disorder symptoms. Results showed a significant negative association between height dissatisfaction and height in a height-representative sample of Australian undergraduate students. Additionally, muscle dissatisfaction and ideal muscularity were also predictive of height dissatisfaction. To the author's knowledge, the present study was the first to examine the relationship between height dissatisfaction and eating disorder symptoms in men, finding that eating disorder symptoms did not uniquely predict height dissatisfaction. However, given that zero-order correlations between height dissatisfaction and restraint, eating concern, shape concern, and weight concern were significant, height may be an important contributor in the presentation of male eating disorders. These results implicate height dissatisfaction and short-stature as potential factors in the onset and maintenance of male body image-related disorders such as eating disorders and muscle dysmorphia. Therefore, in clinical cases in which height dissatisfaction is apparent, height and height dissatisfaction could be a worthwhile inclusion in a psychological intervention such as (enhanced) cognitive-behavioral therapy^{33,34} and interpersonal psychotherapy³⁵ in order to examine cognitive distortions relating to consequences of shorter-stature and promote height acceptance. Additionally, our study suggests that interventions targeting dysfunctional body image in men should encourage men to re-evaluate the notion of a *tall* muscular body, not just a muscular body, as the ideal male body. Future studies should seek to examine the relationship between height dissatisfaction and eating disorder symptoms in male clinical populations and develop a more comprehensive measure of height dissatisfaction. Additionally, future studies should seek to examine the relationship between height dissatisfaction and behavioral indices of muscularity.

Data availability

Data that support the findings of this study are openly available in the OSF repository at

<http://doi.org/10.17605/OSF.IO/7SQWD>.

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