Brief research report

Predicting muscularity-related behavior, emotions, and cognitions in men: The role of psychological need thwarting, drive for muscularity, and mesomorphic internalization

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ABSTRACT

We examine the relationships that internalization, need thwarting (NT), and drive for muscularity (DFM), along with their interactions, had with weightlifting, muscle dissatisfaction (MD), and muscle-related-worry (MRW). A sample of 552 men ($M_{Age} = 20.5$ years, $SD = 3.1$) completed the Psychological Need Thwarting Scale, the Internalization subscale of the male version of the Sociocultural Attitudes Towards Appearance Questionnaire, the Drive for Muscularity Scale-Attitudes subscale, the Male Body Attitudes Scale-Muscularity subscale, the Body Change Inventory-Worry subscale, and an inventory assessing weightlifting behavior. DFM significantly predicted weightlifting, MRW, and MD. Internalization significantly predicted weightlifting and MRW. NT significantly predicted weightlifting and MD, and its relationship with MRW approached significance. The interaction terms did not predict weightlifting or MRW. The NT/DFM and NT/Internalization interaction terms predicted MD. These results highlight the role of NT in predicting appearance variables in men.

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Introduction

The muscular ideal physique represents a standard many men internalize as being associated with social, physical, and psychological benefits (Pope, Phillips, & Olivardia, 2000). Internalization involves the integrating of the muscular ideal into one's identity (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), and is related with the drive for muscularity, or the desire to build a muscular physique (DFM, Karazsia & Crowther, 2010). Both internalization and DFM predict appearance-related behaviors, cognitions, and emotions, including muscle dissatisfaction, excessive weightlifting, and restrictive dieting (Edwards, Tod, & Molnar, 2014; Karazsia & Crowther, 2010). Research has shown, however, that these relationships are moderate in strength (Tod & Edwards, 2015; Tylka, 2011). Self-Determination Theory variables may help improve the prediction of appearance-related behaviors, cognitions, and emotions in men (SDT; Deci & Ryan, 2000).

Basic psychological needs theory (BPNT; Deci & Ryan, 2000), as one possibility, suggests the satisfaction of psychological needs (autonomy, competency, and relatedness) leads to well-being. Autonomy, which refers to volition, is described as regulation by the self. Competency is the degree individuals feel effective in interacting with their environment. Relatedness is the extent individuals feel connected to their social environment (Deci & Ryan, 2000). When social environments are pressuring, controlling, or unsupportive, need satisfaction is thwarted, increasing the likelihood people will experience compensatory behaviors, thoughts, and emotions. In SDT, compensatory behaviors refer to actions individuals take as defensive adaptations for their thwarted needs (e.g., when one's need for competence is thwarted it may be that they are overly controlling of aspects of their life, Deci & Ryan, 2000). Some cross-sectional research reveals that need thwarting (NT) predicts appearance-related variables (e.g., body dissatisfaction and unhealthy weight-control behaviors) in young women (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011; Thøgersen-Ntoumani, Ntoumanis, & Nikitaras, 2010). The relationships NT has with appearance-related variables in men remains to be examined. In men, where a lean muscular physique is the hegemonic ideal (Galli, Petrie, Reel, Chatterton, & Baghurst, 2014; Hildebrandt, Schlundt, Langenbucher, & Chung, 2006), NT may predict weightlifting, muscle dissatisfaction (MD),

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and muscularity-related worry (MRW). We hypothesized that needs thwarting (NT), internalization, and DFM predicts weightlifting, MD, and MRW.

In addition, these predictors may interact to predict weightlifting, MD, and MRW. Two advantages exist for examining predictor interactions. First, such research helps build theories that better describe the complexity of people's experiences. For example, all men in Western societies are exposed to the muscular ideal, but not all internalize it to the same degree or engage in muscularity-related behaviors, emotions, and cognitions. Perhaps men who experience NT may internalize the muscular ideal, viewing it as a way to attain competence, autonomy, and relatedness (Frederick & Haselton, 2007). Significant interactions may increase the variance accounted for in physique change behaviors (e.g., weightlifting), negative thoughts (e.g., MD), and negative emotions (e.g., MRW). Second, greater understanding of the interactions among predictor variables may inform the identification of, and help given to, people experiencing issues detrimental to their wellbeing (i.e., MD and MRW). We hypothesized that NT, internalization, and DFM interaction terms would predict weightlifting, MD, and MRW.

Body image theorists argue greater knowledge will emerge when researchers measure various outcome variables (Thompson, 2004). Cognitive behavioral approaches and social learning models, such as those described by Cash (2011), Festinger (1954), and Thompson et al. (1999), suggest that there are behavioral, emotional, and cognitive consequences to body-related self-perceptions. To capture these recommendations, our criterion variables were MRW, MD, and self-reported weightlifting engagement.

The purpose of the current study was to examine the relationships that internalization, NT and DFM, along with their interactions, had with self-reported weightlifting, MD, and MRW. We hypothesized that NT, internalization, and DFM predict weightlifting, MD, and MRW. We also hypothesized that NT, internalization, and DFM interactions terms also predict weightlifting, MD, and MRW.

Method

Participants

An institutional human research ethics committee approved the study prior to data collection. Before participating, volunteers received a written explanation of the study's purpose, risks, safeguards, and benefits before signing informed consent documents. Participants were 552 undergraduate men (M_{Age} = 20.58 years, SD = 3.58) attending sports-related courses at universities in the United Kingdom. Ninety percent of participants identified as English, 3% as Welsh, 1% as Irish, 1% as Scottish, and 5% as other. The majority took nutritional supplements (61%) and engaged in sport, physical activity, weight training, or combinations of all three (99%).

Measures

Drive for muscularity. The Drive for Muscularity Scale-Attitudes subscale (DMS-A, McCreary & Sasse, 2000) measures men's desire to be muscular, consisting of seven items with a 6-point Likert-type scale from 1 (*always*) to 6 (*never*). Evidence demonstrates acceptable internal consistency, test-retest reliability, and validity (McCreary, 2007). In our sample, Cronbach's alpha was .90 (95% confidence interval [CI] .88–.91).

Internalization of the mesomorphic ideal. The Internalization subscale of the revised male version of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-IR, Thompson et al.,

1999) assesses the tendency to internalize societal mesomorphic ideals, containing 11 items rated on a 5-point Likert-type scale from 1 (*completely disagree*) to 5 (*completely agree*). Evidence has revealed acceptable internal consistency and validity (Tylka, 2011). In this sample, Cronbach's alpha was .86 (95% CI .84–.88).

Need thwarting. The 12-item Psychological Need Thwarting Scale (PNTS, Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011) measures autonomy, competence, and relatedness NT on a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The stem ("In my life") and items used in the current study focused on a person's life. Evidence has revealed acceptable reliability and validity for both men and women (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011). The current Cronbach's alpha was .84 (95% CI .80–.86).

Muscle dissatisfaction. The Male Body Attitudes Scale-Muscularity subscale (MBAS-M, Tylka, Bergeron, & Schwartz, 2005) assesses men's dissatisfaction with their current muscularity levels with eight items on a 6-point frequency scale from 1 (*never*) to 6 (*always*). The MBAS-M has demonstrated acceptable internal consistency, reliability, and validity (Tylka et al., 2005). The current Cronbach's alpha was .88 (95% CI .86–.89).

Muscle related worry. The 2-item Body Change Inventory-Worry subscale (BCI-W, Ricciardelli & McCabe, 2002) assesses men's tendency to worry about changing behaviors to increase muscle with a 6-point Likert-type scale from 1 (*never*) to 6 (*always*). The BCI scale has demonstrated acceptable reliability and validity (Ricciardelli & McCabe, 2002). The correlation between the two items was .72.

Demographic questionnaire. The demographic questionnaire asked participants to identify their age, national identity, number and duration of weightlifting sessions per week, supplement use, and physical activity engagement. The number of weightlifting sessions per week was multiplied by the duration to provide a weekly weightlifting total (McGuigan, 2012).

Procedure

Participants received a pack containing a study information sheet, the questionnaires presented in a counterbalanced order, and a written informed consent sheet. Participants completed the questionnaires anonymously and their participation took approximately 20 min.

Data Analysis

We calculated Pearson's correlation coefficients. We used hierarchical multiple regression, and assessed potential multicollinearity finding that tolerance statistics were acceptable. Predictor variables were centered prior to calculating the interaction terms. In the first step we included the centered predictor variables, before adding the interaction terms in the second step. Following Jaccard and Turrisi's (2003) guidelines, (a) the hierarchical F test indicated the presence of an interaction, (b) the difference in R^2 indicated interaction strength, and the interaction term's unstandardized coefficient assisted interpretation of the interaction. When interaction terms were significant, but there was a change in the significance of individual predictors, following Kluytmans, van de Schoot, Mulder, and Hoijtink's (2012) guidelines we calculated Bayes factor to assess which regression model was best supported by the data.