

The Drive for Muscularity and Masculinity: Testing the Associations Among Gender-Role Traits, Behaviors, Attitudes, and Conflict

Donald R. McCreary
Brock University

Deborah M. Saucier
University of Saskatchewan

Will H. Courtenay
McLean Hospital, Harvard Medical School and Men's Health Consulting

Prior qualitative research has suggested that people assume muscular men are more masculine. This assumption was tested quantitatively in 2 studies. In Study 1, men and women completed measures of gender-role traits and behaviors, whereas in Study 2, men completed measures of gender-role conflict and traditional attitudes about men. Study 1 revealed a correlation between self-rated male-typed traits and behaviors, with a need to be more muscular for both men and women. In Study 2, men with more traditional attitudes about men also wanted to be more muscular; men who wanted to be more muscular were experiencing conflict with regard to society's expectations that they be successful, powerful, and competitive, and they reported that finding a balance between work and leisure is difficult.

Until recently, research exploring gender differences in body image concerns and their outcomes has been based solely on perceptions of adiposity (i.e., body fat). This research has led to the belief that because men are less concerned or dissatisfied than women with their degree of adiposity, are less likely than women to be dieting to lose weight, and rarely experience clinical disorders associated with body image (e.g., anorexia and bulimia nervosa), they are relatively happy with their bodies (e.g., Feingold & Mazzella, 1998; Garner, Olmstead, & Polivy, 1983; Muth & Cash, 1997). This belief, however, does not take into consideration the fact that adiposity is not equally important for men and women. That is, whereas the social standard of bodily attractiveness for

women reflects being small and thin, the social standard for men reflects being big and muscular, what Mishkind, Rodin, Silberstein, and Striegel-Moore (1986) referred to as the "muscular mesomorphic" shape.

There is a growing amount of research demonstrating the importance of being muscular in both adolescent males (e.g., Jones, 2001; McCreary & Sasse, 2000, 2002; O'Dea & Rawstorne, 2001) and adult men (e.g., Fisher, Dunn, & Thompson, 2002; Jacobi & Cash, 1994; Lavine, Sweeney, & Wagner, 1999; Phillips & Diaz, 1997). For example, research has shown that many adolescent boys are engaged in resistance training activities to gain muscle mass (Ricciardelli & McCabe, 2003). Among adolescent boys, a higher drive for muscularity is associated with poorer self-esteem and more symptoms of depression (McCreary & Sasse, 2000). Pope et al. (2000) have shown that, when comparing men's actual degree of muscularity to their perceived degree of muscularity, men significantly underestimated their percentage of muscle mass. Pope et al. (2000) also showed that men's ideal body size represents an average increase of 28 pounds (12.7 kg) of muscle and that men feel women are most attracted to a body shape that is, on average, 30 pounds (13.6

Donald R. McCreary, Department of Psychology, Brock University, St. Catharines, Ontario, Canada; Deborah M. Saucier, Department of Psychology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; Will H. Courtenay, McLean Hospital, Harvard Medical School and Men's Health Consulting, Berkeley, California.

Correspondence concerning this article should be addressed to Donald R. McCreary, who is now at the Stress and Coping Group, Defence R&D Canada—Toronto, 1133 Sheppard Avenue West, P.O. Box 2000, Toronto, Ontario M3M 3B9, Canada. E-mail: Don.McCreary@drdc-rddc.gc.ca

kg) heavier in muscle than their actual size. When asked where they would like to be more muscular, men and boys typically want larger pectorals, biceps, and shoulders (Drewnowski & Yee, 1987; Huenemann, Shapiro, Hampton, & Mitchell, 1966; Moore, 1990).

Some researchers (e.g., Grogan & Richards, 2002; Klein, 1993; Weinke, 1998) have suggested that one of the main reasons muscularity is so important to men and boys is that it is linked to perceptions of their masculinity; in other words, the more muscular a man or boy is, the more masculine he is. One might also suggest that boys and men who are not muscular (e.g., those who are endomorphic or those who are ectomorphic) may see themselves as more feminine. For example, Grogan and Richards (2002) have suggested that boys and men who diet run the risk of being perceived as feminine, in part because dieting is perceived to be a feminine-typed behavior.

One way to test these hypotheses is to explore the associations among masculinity, femininity, and the drive for muscularity. On the basis of findings from the qualitative research, we predicted that masculinity would be positively associated with the drive for muscularity, whereas femininity would be negatively associated with the drive for muscularity. However, there is an important limitation inherent in this prediction: Masculinity and femininity are global, higher order constructs and cannot be measured directly (Spence, 1984). Psychology has overcome this problem by developing indices of specific dimensions of masculinity and femininity. Personality trait measures, such as the Personal Attributes Questionnaire (PAQ; Spence & Helmreich, 1978), the Extended PAQ (EPAQ; Spence, Helmreich, & Holahan, 1979), and the Bem Sex Role Inventory (Bem, 1974), are used to assess the degree to which men and women have internalized the gender stereotypic personality traits of agency-instrumentality (i.e., male stereotypic traits) and communion-expressivity (i.e., female stereotypic traits). Engaging in gender-typed behaviors is assessed using the Sex Role Behavior Scale (SRBS; Orlofsky, 1981) and its short form companion (Orlofsky & O'Heron, 1987). The degree to which people have adopted traditional versus contemporary or liberal views about men, women, and the relationships between men and women is assessed using measures such as the Attitudes

Toward Women Scale (Spence & Helmreich, 1978) and the Male Role Norms Scale (Thompson & Pleck, 1986; Thompson, Pleck, & Ferrera, 1992). Other frequently used measures of gender-role socialization include the Gender Role Conflict Scale (GRCS; O'Neil, Helms, Gable, David, & Wrightsman, 1986), the Masculine Gender Role Stress Scale (Eisler & Skidmore, 1987), and the Feminine Gender Role Stress Scale (Gillespie & Eisler, 1992; see Beere, 1990, for more examples of how gender-role socialization can be measured). Thus, researchers examining the relationships between the drive for muscularity and perceptions of masculinity and femininity need to be very specific about the gender-role dimensions they are measuring.

In addition to studying the associations among the drive for muscularity and both male- and female-typed aspects of gender-role socialization, researchers also need to consider whether those associations vary as a function of gender. McCreary and his colleagues (McCreary, Newcomb, & Sadava, 1999; McCreary & Sasse, 2000) refer to this notion as "differential salience" and have argued that the associations between gender-typed dimensions and various outcome variables (e.g., self-esteem, alcohol dependence) should be moderated by gender. They believe that, even though men and women internalize many gender-typed dimensions in the same way (i.e., factor analyses have shown that there are few, if any, gender differences in the factor structures of many gender-role measures; e.g., McCreary et al., 1998), differential social pressures to conform to gender-role expectations are stronger for men than for women (i.e., failure to conform to gender-role norms or expectations tends to be punished more in men than in women; McCreary, 1994). They have demonstrated this differential salience in two studies: McCreary, Newcomb, and Sadava (1999) showed that the associations between various dimensions of the male gender role and both alcohol use and alcohol problems were different for men and women, and McCreary and Sasse (2000) revealed that the drive for muscularity was associated with lower self-esteem and more depressive symptoms in boys but not in girls (McCreary & Sasse, 2000). In the present context, the notion of differential salience would predict that the association between gender-role constructs and the drive for

muscularity should be stronger for men than for women.

The purpose of the two studies presented herein is to test the associations between several dimensions of masculinity, femininity, and the drive for muscularity. In Study 1, a sample of college-aged men and women completed measures of both gender-typed traits and gender-typed behaviors; in Study 2, a group of young men completed a measure of male-oriented gender-role conflict, as well as a measure of traditional attitudes about men. In both instances, the degree to which those gender-typed dimensions predicted the drive for muscularity was examined; in Study 1, the extent to which those relationships varied as a function of the participants' gender also was assessed.

Study 1

Method

Participants and Procedure

A total of 157 men and 343 women between the ages of 17 and 78 years ($M = 20$ years, with 95% of the sample between 17 and 24 years) participated in the current study. All were recruited during a mass testing session for an introductory psychology subject pool at a large midwestern Canadian university. Seventy-four percent of the men and 79% of the women were in their first year of college. Ten percent of the men and 28% of the women reported being on a diet to lose weight, and 17% of the men and 1% of the women reported being on a diet to gain weight. No other demographic or health-related information was collected.

Measures

All participants completed the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000) and two commonly used measures of gender-role socialization: the EPAQ (Spence et al., 1979) and the Short-Form SRBS (Orlofsky & O'Heron, 1987). Each of these measures is described below.

The DMS. The DMS is a 15-item measure of the extent to which people desire to have a more muscular body. Items on the DMS represent a combination of attitudes and behaviors and are scored on a 6-point scale ranging from 1

(*very much like me*) to 6 (*not at all like me*). All items are reverse coded so that higher scores reflect a greater drive for muscularity. Sample items include, "I wish I were more muscular" and "I feel guilty if I miss a weight training session." McCreary and Sasse (2000, 2002) have shown that the DMS has good construct validity (in the form of face validity), convergent validity, and discriminant validity. Recent factor analytic work has shown that the DMS has a two-factor, lower order structure for men, representing the attitudinal and behavioral items. For both men and women, however, a single higher order DMS factor emerged (McCreary, Sasse, Saucier, & Dorsch, 2004). Thus, when comparing men and women, researchers should average over the DMS items to create a single DMS score. Cronbach's alphas were .91 (men) and .83 (women) in the current sample.

The EPAQ. The EPAQ is a 40-item measure of gender-typed personality traits and represents an extension of the PAQ (Spence & Helmreich, 1978). Although the EPAQ is composed of six subscales, problems with internal consistency (Spence et al., 1979) have led to only three being used on a regular basis: Agency (mastery-oriented traits that are socially desirable for both men and women to possess but are more stereotypically associated with men; 8 items), Communion (interpersonally oriented traits that are desirable for both men and women to possess but are more stereotypically associated with women; 8 items), and Unmitigated Agency (being focused on the self to the exclusion of others; socially undesirable for both men and women to possess but more stereotypically associated with men; 8 items). The other three subscales (i.e., Masculinity-Femininity, Unmitigated Communion, and Verbal Aggressiveness) were not used in this study. Items on the EPAQ are scored on a 5-point Likert-type scale, with higher scores representing greater degrees of internalization of each trait. The alphas for the present study were .74, .80, and .71, respectively (men), and .73, .70, and .62, respectively (women). The low level of internal consistency of the Unmitigated Agency scale in women is problematic in that it reduces the power of that scale to detect significant associations with smaller effect sizes.

Short-Form SRBS. The SRBS is the only available measure of the extent to which people act in gender-typed ways. The 96 items from the

short-form version of the SRBS are grouped into three higher order factors of 32 items each: Male-Typed Behaviors (equally desirable for men and women but more stereotypic of men), Female-Typed Behaviors (equally desirable for men and women but more stereotypic of women), and Sex-Specific Behaviors (more desirable and stereotypic of men or women). All items are rated on a 5-point Likert-type scale. The items within each of the Male- and Female-Typed Behaviors subscales are averaged into their respective scores, with higher values being indicative of engaging in greater degrees of behavior in those domains. Scoring of the Sex-Specific Behaviors dimension is somewhat different, however. This subscale is composed of items that are either male (16 items) or female specific (16 items). The latter items are reverse coded, and the two sets of items are averaged together to create the overall subscale score, which is then interpreted in the male-typed direction. In the present study, the SRBS demonstrated lower than expected levels of reliability, with men's Cronbach alpha coefficients being .71, .76, and .56 for the three scales, respectively, and women's Cronbach alpha coefficients being .63, .68, and .56, respectively. As we noted earlier, these lower than expected alpha coefficients decrease the power of the analyses to detect significant associations with smaller effect sizes.

Results

To explore the associations between the drive for muscularity and self-reported gender-typed traits and behaviors, as well as whether those associations varied as a function of the participant's gender, we performed a series of moderating variable hierarchical regression analyses. The results of these analyses are presented below, following an overview of the various scale descriptive statistics.

Descriptive Statistics

Table 1 reports the means and standard deviations for the DMS and all gender-role measures, separately for men and women. Independent sample *t* tests were used to explore gender differences among the variables. To control for the increased probability of making a Type I error, we applied a Bonferroni correction to all *p* values (.05/7 tests = .007). As Table 1 shows, all mean differences were statistically significant. Men reported significantly higher levels of the drive for muscularity and both agentic and unmitigatedly agentic personality traits; they also acted in significantly more male-typed and sex-specific ways. Women, in contrast, reported significantly higher levels of communal traits and acted in more female-typed ways.

Table 1
Means and Standard Deviations for the Drive for Muscularity Scale (DMS) and Six Indices of Gender-Role Socialization

| Scale | Men (<i>n</i> = 159) | | Women (<i>n</i> = 349) | | <i>t</i> (506) |
|------------------------|--------------------------|-----------|----------------------------|-----------|----------------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | |
| DMS | 2.69 | 0.95 | 1.99 | 0.61 | 10.01* |
| EPAQ | | | | | |
| Agency | 3.64 | 0.60 | 3.40 | 0.58 | 4.25* |
| Communion | 3.68 | 0.59 | 4.10 | 0.46 | -8.58* |
| Unmitigated Agency | 2.71 | 0.58 | 2.47 | 0.51 | 4.75* |
| SRBS | | | | | |
| Male-Typed Behaviors | 3.25 | 0.43 | 2.83 | 0.35 | 11.74* |
| Female-Typed Behaviors | 2.62 | 0.37 | 3.17 | 0.36 | -15.86* |
| Sex-Specific Behaviors | 3.51 | 0.26 | 2.66 | 0.28 | 32.46* |

Note. EPAQ = Extended Personal Attributes Questionnaire; SRBS = Sex Role Behavior Scale.

* *p* < .001.

Regression Analyses

Because gender-role traits and behaviors are conceptually different from one another, we performed two separate moderating variable hierarchical regressions: one with the three trait variables as the main predictors and one with the three behavioral variables as the predictors. In both analyses, the main effects for the gender-role dimensions and participant's gender (men = 1, women = 2) were entered into the equation in Step 1. In Step 2, the centered Gender \times Gender Role interactions were entered (see Cohen, Cohen, West, & Aiken, 2002, for a discussion of moderating variable regression analysis and the use of centering). If the addition of the centered interaction terms in Step 2 accounts for a significant increase in the amount of variance explained in the criterion, then there is a significant Gender \times Gender Role moderating effect. Univariate *t* tests explore which main effect and interaction beta values are significant. The dependent variable for each analysis was the respondent's score on the DMS.¹

Gender-role trait analysis. When the four main effects (Agency, Communion, Unmitigated Agency, participant's gender) were entered in Step 1, they predicted a significant amount of variance in DMS scores, $\Delta F(4, 508) = 28.48, p < .01$ (adjusted $R^2 = 17.8\%$). Univariate *t* tests revealed that two beta values were significantly different from zero. Participant's gender was negatively related to DMS scores ($\beta = -.38, t(3) = -8.59, p < .01$, meaning that men scored significantly higher than women, after partialing out the effects of the three gender-role dimensions. Unmitigated Agency (i.e., being more concerned with the self than with others) scores were associated with DMS scores ($\beta = .15, t(3) = 3.19, p < .01$, after controlling for participant's gender and the other two gender-role dimensions. The direction of the effect means that those who were higher in unmitigated agency had higher levels of the drive for muscularity. The addition of the centered interaction terms in Step 2 did not add a significant amount of variance to the prediction of the criterion, $\Delta F(3, 500) = 2.34, p > .05$ ($\Delta R^2 = 1.1\%$), suggesting that the relationships between these three gender-typed personality traits and DMS scores do not vary as a function of participant's gender.

Gender-role behavior analysis. The addition of the four main effects (Male- and Female-Typed Behaviors, Sex-Specific Behaviors, participant's gender) in Step 1 explained a significant amount of variance in DMS scores, $\Delta F(4, 503) = 42.46, p < .01$ (adjusted $R^2 = 25.2\%$). Univariate *t* tests revealed that three beta values were significantly different from zero. As with the first regression analysis, participant's gender was a significant predictor ($\beta = -.19, t(3) = -2.75, p < .01$). The direction of the standardized coefficient means that men scored higher than women on the DMS, after partialing out the effects of the three gender-typed behavior domains. Both the SRBS Male-Typed and Sex-Specific Behavior scales were significantly and positively associated with DMS scores, ($\beta = .27, t(3) = 4.99, p < .01$, and ($\beta = .16, t(3) = 1.99, p < .05$, respectively, after partialing out the effects of the other variables. Thus, those who acted in more male-valued and male sex-specific ways tended to have higher DMS scores. The centered interaction terms did not add a significant amount of variance to the prediction of the criterion, $\Delta F(3, 500) = 0.89, p > .05$ ($\Delta R^2 = 0.4\%$), suggesting that the relationships between these gender-typed behaviors and DMS scores did not vary as a function of participant's gender.

Discussion

To determine the extent to which the drive for muscularity was predicted by gender-typed traits and behaviors, two separate hierarchical moderating variable regression analyses were performed. In the first analysis, gender, gender-typed traits, and their interaction terms were the predictors, whereas in the second analysis, gender, gender-typed behaviors, and their interaction terms were the independent variables. In both analyses, the participants' drive for muscularity served as the criterion.

¹ McCreary et al. (2004) noted that Item 10 in the DMS ("I think about taking anabolic steroids") did not load on any factor for either men or women and should not be included in the DMS calculation. We included the item in these analyses because the manuscript in which the recommendation was made had not yet been published. However, we also ran the analyses with Item 10 removed from the DMS score, and the results were almost identical.

The results from these two analyses revealed four important findings. First, in both analyses, men scored higher than women on the DMS, after controlling for gender-typed traits or behaviors. This is important because it shows that the gender differences in DMS scores observed here (see Table 1) and in other research (e.g., McCreary & Sasse, 2000; McCreary et al., 2004) are fairly robust and are not mediated by these two aspects of gender-role socialization. Second, the findings revealed that three of the four male-typed gender-role dimensions (Unmitigated Agency, Male-Typed Behaviors, Male Sex-Specific Behaviors) all were positively associated with the drive for muscularity. Third, the lack of association between DMS scores and feminine-typed traits and behaviors indicates that low levels of the drive for muscularity are not associated with greater degrees of femininity (at least as measured by these two dimensions of feminine gender-role socialization). These two points have theoretical significance because they show that it is higher levels of the male gender role, and not lower levels of the female gender role, that are most closely associated with the desire to be more muscular. The fourth important finding was that the associations between the drive for muscularity and gender-typed traits and behaviors were similar for men and women. In other words, there was no differential salience in these relationships. The reasons for this are unclear at this point, especially after finding a Gender \times Gender Role interaction in other studies (i.e., McCreary et al., 1999; McCreary & Sasse, 2000).

Thus, it appears as though the association between self-perceptions of masculinity and muscularity that emerged from the earlier qualitative research (i.e., Grogan & Richards, 2002; Klein, 1993; Weinke, 1998) can be quantified. However, gender-typed traits and behaviors are not the only aspects of masculinity that can be measured. In Study 2, we explore the relationships between the drive for muscularity and two other masculine gender-role constructs: gender-role conflict (O'Neil et al., 1986) and traditional attitudes about men. Gender-role conflict is a construct that explores the cognitive, emotional, unconscious, and behavioral problems men experience as they attempt to conform to society's expectations of how men should be (O'Neil, Good, & Holmes, 1995). O'Neil et al. (1986)

have identified four dimensions in which this gender-based conflict occurs: (a) success, power, and competition; (b) restrictive sexual and affectionate behavior between men; (c) restrictive emotionality; and (d) conflict between work and family relations. Research has shown that men who experience conflict in one or more of these dimensions tend to have lower self-esteem, lower levels of intimacy, and higher levels of anxiety and depression (O'Neil et al., 1995). Men with high gender-role conflict also are less likely to seek help for problems with psychological well-being (O'Neil et al., 1995), are more likely to engage in multiple health-risk behaviors (McCreary & Courtenay, 2003), and tend to conform more to male gender-role norms (Mahalik et al., 2003).

The degree to which people have adopted traditional attitudes about men (also referred to as *male role norms* or *masculinity ideology*) also is a significant aspect of gender-role socialization. Traditional male role norms emphasize men's power, success, and toughness, as well as the avoidance of anything deemed feminine. Adult and adolescent males who have adopted traditional attitudes about men have been shown to engage in a wide range of risky health behaviors for which incidence rates are higher for men; these include increased use of alcohol (McCreary et al., 1999), sedatives, and tranquilizers (Snell, Belk, & Hawkins, 1987); a greater likelihood of being sexually active; a greater likelihood of having tricked or forced someone to have sex with them; a greater likelihood of engaging in unprotected sex and having had more sexual partners; and a greater likelihood of having been arrested (Pleck, Sonenstein, & Ku, 1993, 1994). Traditional beliefs about men also have been found to predict greater involvement in multiple high-risk behaviors over time (Courtenay, 1998).

Thus, Study 2 extends the findings from Study 1 to these two dimensions of male gender-role socialization. It was predicted that DMS scores would be positively associated with gender-role conflict and traditional attitudes about men. However, because the gender-role conflict paradigm is appropriate only for men, gender-role salience was not examined in Study 2, as it was in Study 1.

Study 2

Method

Participants and Procedure

A total of 527 men (aged 17 to 54 years; *Mdn* = 20 years, with only 1.3% of the sample being older than 22 years) were recruited from an all-male college in the midwestern United States. The participants reported being of mostly European American ethnicity (92%), heterosexual (97%), and not married (84%), and most reported living on campus (90%). Thirty percent were in their first year of college, 29% were in their sophomore year, 20% were in their junior year, and 21% were in their senior year.

Participants were recruited via an e-mail sent to all students by staff at the university health clinic. The e-mail invited the students to participate in an anonymous online survey of their health and health behaviors. The voluntary nature of the survey was emphasized, as was the student's right to withdraw participation at any time. After completing the survey, participants were given the option of filling in a separate Web page with their name and contact information to win a prize for a store voucher. Participants were notified that the data from the survey and the identification information from the form they completed to register for the prize went to separate computer servers and would not be combined. Of the 1,850 students enrolled at the college at that time, a total of 527 (29%) completed usable surveys.

Measures

In addition to the DMS, participants completed the GRCS (O'Neil et al., 1986) and a series of items that assessed traditional attitudes about men and men's role in society. Other questions on the survey assessed health and health risk behaviors but are not reported here.

The DMS. The DMS (McCreary & Sasse, 2000) was described thoroughly in Study 1. However, it should be noted that the DMS's degree of internal consistency was .89 in this sample.

The GRCS. The GRCS is a commonly used questionnaire designed to assess the psychological conflict men experience when rigid, sexist, or restrictive gender roles result in personal

restrictions, devaluation, or negative consequences, both for one's self or for other men (O'Neil et al., 1986, 1995). The GRCS contains 37 items that are grouped into four subscales: (a) Success, Power, and Competition (13 items), which measures concern about personal achievement and gaining dominance and superiority over others; (b) Restrictive Emotionality (10 items), which assesses difficulty and fears about emotional self-disclosure and verbal expression of feelings; (c) Restrictive Affectionate Behavior Between Men (8 items), which examines discomfort associated with verbal and physical expressions of caring toward other men; and (d) Conflict Between Work and Family (6 items), which measures difficulty and dissatisfaction with the balancing of school or work and family relations. Each item is rated on a 6-point scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Scores for each of the subscales were created by averaging their respective items. Higher scores indicate a higher degree of conflict in each area. Previous psychometric analyses of the GRCS have shown it to be both reliable and valid (O'Neil et al., 1995). In the present study, the alpha reliability coefficients were .90, .90, .89, and .85, for each subscale, respectively.

Traditional attitudes about men. To assess traditional attitudes about men, the following five items were included in the survey: (a) Do you believe that taking risks that are sometimes dangerous is part of what it means to be a man and part of what distinguishes men from women? (b) As a man, how important is it for you to be self-sufficient and always to try to handle problems on your own? (c) As a man, how important is it for you to be physically strong and tough? (d) As a man, how important is it for you to control your emotions and never to reveal sadness or vulnerability? and (e) As a man, how important is it for you not to engage in activities that you think others might consider feminine? These items are similar to those used on preexisting, albeit larger, measures of masculinity ideology (e.g., Male Role Norms Scale; Thompson & Pleck, 1986). Survey size restrictions precluded our using one of these larger measures. Each item was scored on a 4-point scale, from 1 (*not at all true*) to 4 (*very true*; Item 1) and 1 (*not at all important*) to 4 (*very important*; Items 2–5). All items were averaged into a single index, and higher scores indicate a

more traditional view of how men should be. The alpha reliability estimate for the masculine ideology measure was .75.

Results

Descriptive Statistics

Table 2 contains the means and standard deviations for the DMS, the four GRCS subscales, as well as the measure of traditional male attitudes.

Regression Analysis

To determine the extent to which the four GRCS subscales and the measure of traditional attitudes about men are predictive of young men's desire to be more muscular than they are currently, we performed a standard multiple regression analysis. Because there were no hypotheses about order of entry, all five predictors were entered at the same time. The predictors explained a significant amount of variability in DMS scores, $F(5, 501) = 27.87, p < .01$ (adjusted $R^2 = 21.0\%$). An examination of the individual standardized coefficients revealed that three betas were significantly different from zero: the GRCS Success, Power, and Competition subscale ($\beta = .26$), $t(4) = 5.28, p < .01$; the GRCS Conflict Between Work and Family subscale ($\beta = .15$), $t(4) = 3.44, p < .01$; and the traditional attitudes about men scale ($\beta = .14$), $t(4) = 2.98, p < .01$. The direction of all three beta values was positive: As scores on the

two dimensions of the GRCS and the measure of traditional attitudes about men increased, so did DMS scores.

General Discussion

Two studies revealed significant associations between the drive for muscularity and perceptions of several aspects of masculine gender-role socialization: unmitigatedly agentic personality traits, male-typed and sex-specific behaviors, traditional attitudes about men, and gender-role conflict in the areas of success, power, and competition, as well as work and leisure conflict. In all cases, DMS scores were positively associated with the indices of masculinity. Thus, in Study 1, both men and women associated male-typed traits and behaviors with a need to be more muscular, whereas, in Study 2, men who endorsed more traditional gender-typed beliefs wanted to be more muscular. Finally, men in Study 2 who wanted to be more muscular experienced greater levels of gender-role conflict with respect to (a) society's expectations that they be successful, powerful, and competitive and (b) balancing work and leisure.

These findings replicate and extend the limited qualitative research that explored men's perceptions that muscular men are more masculine and that men feel more masculine if they gain more muscularity. However, as noted earlier, the main limitation of this qualitative research is that although many people have an intuitive understanding of their degree of masculinity, this intuitive notion cannot be measured directly. Thus, the findings from these two studies extend the existing literature by determining which aspects of masculinity are uniquely associated with the drive for muscularity. Future research might explore the associations between masculinity and muscularity even further. For example, whereas we chose to use a short single measure of traditional attitudes about men, there are other larger measures of this construct that assess various subdimensions of masculinity attitudes (e.g., toughness, violence or aggression, antifemininity, rejection of homosexuals, attitudes toward sex). These more comprehensive scales include the Male Role Norms Scale (Thompson & Pleck, 1986), the Brannon Masculinity Scale (Brannon &

Table 2
Means and Standard Deviations for the Drive for Muscularity Scale, Gender Role Conflict Scale (GRCS) Subscales, and a Measure of Traditional Masculine Ideology in a Sample of Young Men (N = 527)

| Scale | <i>M</i> | <i>SD</i> |
|--|----------|-----------|
| Drive for Muscularity Scale | 2.42 | 0.79 |
| GRCS Success, Power, and Competition | 3.59 | 0.88 |
| GRCS Restrictive Emotionality | 2.97 | 0.97 |
| GRCS Restrictive Affectionate Behavior Between Men | 2.99 | 1.04 |
| GRCS Conflict Between Work and Family | 3.47 | 1.05 |
| Masculine ideology | 2.28 | 0.57 |

Juni, 1984), and the Male Role Norms Inventory (Levant & Fischer, 1998). Other dimensions of masculinity that can be explored include dominance (McCreary & Rhodes, 2001; Sidanius, Liu, Shaw, & Pratto, 1994), hypermasculinity (Burk, Burkhart, & Sikorski, 2004; Mosher & Sirkin, 1984), and conformity to masculine norms (Mahalik et al., 2003). This latter aspect of masculinity is new and especially promising because it assesses the extent to which men feel compelled to conform to several aspects of the male gender role (e.g., winning, emotional control, risk taking, power over women, being a playboy, self-reliance, primacy of work, pursuit of status, disdain for homosexuals), as opposed to the stress and strain they experience as a result of acting in either stereotypically male-appropriate or male-inappropriate ways. Initial research suggests that both the Conformity to Masculine Norms Inventory's (CMNI) Winning subscale and the overall CMNI score are positively correlated with DMS scores (Mahalik et al., 2003). However, the overall sample size for the DMS portion of the CMNI study was small and precluded the use of multivariate analyses.

There are limitations to the present studies. First, both studies were correlational in nature, and only the presence and direction of significant relationships can be determined. Future research might explore the direction of causality in the associations between the drive for muscularity and perceptions of masculinity. For example, does an increase in muscularity cause an increase in perceived masculinity, and, if so, which dimensions of masculinity are most strongly influenced by this potential causal relationship? Or, could increases in perceived masculinity (e.g., from changes in other aspects of a person's life) cause an increased desire to become more muscular? Or, could the association be cyclical? Experimental research is needed to address these questions.

A second limitation is the restricted nature of the samples, especially with regard to age and ethnicity. The samples used in these two studies were predominantly college aged (18–22 years) and from a European American ethnic background.² This leads to several possible questions that can be examined empirically in future research. First, are the associations between these dimensions of masculinity and the drive

for muscularity the same across all age groups, or could the associations be stronger or weaker at specific times in our lives (or among specific age cohorts)? For example, do people perceive a stronger association between muscularity and masculinity in their earlier years than in their later years? Could the strength of these associations be linked to developmental tasks, in the same way that other researchers have linked developmental tasks with life span gender-role development (e.g., Gutmann, 1975; McCreary, 1990; Sinnott, 1986)? Second, do the associations between masculinity and muscularity vary across ethnic groups? One problem with testing this question is that it assumes that the various dimensions of masculinity and the drive for muscularity mean the same thing to all ethnic groups, which may not be the case (Doss & Hopkins, 1998). If our measures of masculinity and the drive for muscularity are equally valid in other ethnic groups, then multigroup comparisons across cultures should be conducted.

A third limitation stems from the low reliability coefficients of some of the measures used in Study 1. The alpha reliability coefficients for the women's responses to the Unmitigated Agency scale and all three dimensions of the SRBS, as well as men's responses to the Sex-Specific Behaviors SRBS subscale, were below .70. The immediate impact of this reduction in internal consistency is to reduce the scales' power to detect significant associations. In other words, smaller effects that would have been found to be statistically significant if the scales' alphas were higher did not reach the threshold for statistical significance. This may have had implications for the predicted Gender \times Gender Role interactions in Study 1. These interactions were predicted based on the notion of differential salience but failed to emerge. Perhaps with more reliable measures, which would increase the power of the analyses, the interactions would have been observed. Developing new measures of these constructs may be required.

In summary, two studies demonstrated that the drive for muscularity is positively associated with several aspects of masculinity: unmit-

² Although ethnicity was not assessed in Study 1, the student population at that university is mostly from a European American background.

igated agency, male-typed and sex-specific behaviors, traditional attitudes about men, and two aspects of gender-role conflict (success, power, and competition and work and leisure conflict). These findings reinforce those from qualitative research in which men stated their belief that those with a greater degree of muscularity are more masculine and that gaining muscularity increases one's masculinity.

References

- Beere, C. A. (1990). *Gender roles: A handbook of tests and measures*. New York: Greenwood Press.
- Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology, 42*, 152–162.
- Brannon, R., & Juni, S. (1984). A scale for measuring attitudes towards masculinity. *JSAS Catalogue of Selected Documents in Psychology, 14*, 6.
- Burk, L. R., Burkhart, B. R., & Sikorski, J. F. (2004). Construction and preliminary validation of the Auburn Differential Masculinity Inventory. *Psychology of Men and Masculinity, 5*, 4–17.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2002). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Erlbaum.
- Courtenay, W. H. (1998). Better to die than cry? A longitudinal and constructionist study of masculinity and the health risk behavior of young American men. (Doctoral dissertation, University of California at Berkeley, 1998). *Dissertation Abstracts International, 59*, 232.
- Doss, B. D., & Hopkins, J. R. (1998). The Multicultural Masculinity Ideology Scale: Validation from three cultural perspectives. *Sex Roles, 38*, 719–741.
- Drewnowski, A., & Yee, D. K. (1987). Men and body image: Are males satisfied with their body weight? *Psychosomatic Medicine, 49*, 626–634.
- Eisler, R. M., & Skidmore, J. R. (1987). Masculine gender role stress: Scale development and component factors in the appraisal of stressful situations. *Behavior Modification, 11*, 123–136.
- Feingold, A., & Mazzella, R. (1998). Gender differences in body image are increasing. *Psychological Science, 9*, 190–195.
- Fisher, E., Dunn, M., & Thompson, J. K. (2002). Social comparison and body image: An investigation of body comparison processes using multidimensional scaling. *Journal of Social and Clinical Psychology, 21*, 566–579.
- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2*, 15–34.
- Gillespie, B. L., & Eisler, R. M. (1992). Development of the Feminine Gender Role Stress Scale: A cognitive-behavioral measure of stress, appraisal, and coping for women. *Behavior Modification, 16*, 426–438.
- Grogan, S., & Richards, H. (2002). Body image: Focus groups with boys and men. *Men and Masculinities, 4*, 219–232.
- Gutmann, D. (1975). Parenthood: A key to the comparative study of the life cycle. In N. Datan & L. Ginsberg (Eds.), *Life-span developmental psychology: Normative life crises* (pp. 167–187). New York: Academic Press.
- Huenemann, R. L., Shapiro, L. R., Hampton, M. C., & Mitchell, B. (1966). A longitudinal study of gross body composition and body confirmation and their association with food and activity in a teen-age population. *American Journal of Clinical Nutrition, 18*, 325–338.
- Jacobi, L., & Cash, T. F. (1994). In pursuit of the perfect appearance: Discrepancies among self-ideal perceptions of multiple physical attributes. *Journal of Applied Social Psychology, 24*, 379–396.
- Jones, D. C. (2001). Social comparison and body image: Attractiveness comparisons to models and peers among adolescent boys and girls. *Sex Roles, 45*, 645–664.
- Klein, A. M. (1993). *Little big men: Body building subculture and gender construction*. Albany, NY: State University of New York Press.
- Lavine, H., Sweeney, D., & Wagner, S. H. (1999). Depicting women as sex objects in television advertising: Effects on body dissatisfaction. *Personality and Social Psychology Bulletin, 25*, 1049–1058.
- Levant, R. F., & Fischer, J. (1998). The Male Role Norms Inventory. In C. M. Davis, W. H. Yarber, R. Bauserman, G. Schreer, & S. L. Davis (Eds.), *Sexuality-related measures: A compendium* (2nd ed., pp. 469–472). Newbury Park, CA: Sage.
- Mahalik, J. R., Locke, B. D., Ludlow, L. H., Diemer, M. A., Scott, R. P. J., Gottfried, M., & Freitas, G. (2003). Development of the Conformity to Masculine Norms Inventory. *Psychology of Men and Masculinity, 4*, 3–25.
- McCreary, D. R. (1990). Self-perceptions of life-span gender role development. *International Journal of Aging and Human Development, 31*, 135–146.
- McCreary, D. R. (1994). The male role and avoiding femininity. *Sex Roles, 31*, 517–531.
- McCreary, D. R., & Courtenay, W. H. (2003, August). Gender role conflict predicts engaging in

- multiple health risk behaviors. In J. M. O'Neil & G. E. Good (Chairs), *Psychological and physical health correlates of gender role conflict: Five empirical studies*. Symposium presented at the 111th annual meeting of the American Psychological Association, Toronto, Ontario, Canada.
- McCreary, D. R., Newcomb, M. D., & Sadava, S. W. (1998). Dimensions of the male gender role: A confirmatory analysis in men and women. *Sex Roles, 39*, 81–95.
- McCreary, D. R., Newcomb, M. D., & Sadava, S. W. (1999). The male role, alcohol use, and alcohol problems: A structural modeling examination in adult women and men. *Journal of Counseling Psychology, 46*, 109–124.
- McCreary, D. R., & Rhodes, N. D. (2001). On the gender-typed nature of dominant and submissive acts. *Sex Roles, 44*, 339–350.
- McCreary, D. R., & Sasse, D. K. (2000). Exploring the drive for muscularity in adolescent boys and girls. *Journal of American College Health, 48*, 297–304.
- McCreary, D. R., & Sasse, D. K. (2002). Gender differences in high school students' dieting behavior and their correlates. *International Journal of Men's Health, 1*, 195–213.
- McCreary, D. R., Sasse, D. K., Saucier, D. M., & Dorsch, K. D. (2004). Measuring the drive for muscularity: Factorial validity of the Drive for Muscularity Scale in men and women. *Psychology of Men and Masculinity, 5*, 49–58.
- Mishkind, M. E., Rodin, J., Silberstein, L. R., & Striegel-Moore, R. H. (1986). The embodiment of masculinity: Cultural, psychological, and behavioral dimensions. *American Behavioral Scientist, 29*, 545–562.
- Moore, D. C. (1990). Body image and eating behavior in adolescent boys. *American Journal of Diseases in Children, 144*, 475–479.
- Mosher, D. L., & Sirkin, M. (1984). Measuring a macho personality constellation. *Journal of Research in Personality, 18*, 150–163.
- Muth, J. L., & Cash, T. F. (1997). Body-image attitudes: What difference does gender make? *Journal of Applied Social Psychology, 27*, 1438–1452.
- O'Dea, J. A., & Rawstorne, P. R. (2001). Male adolescents identify their weight gain practices, reasons for desired weight gain, and sources of weight gain information. *Journal of the American Dietetic Association, 101*, 105–107.
- O'Neil, J. M., Good, G. E., & Holmes, S. (1995). Fifteen years of theory and research on men's gender role conflict: New paradigms for empirical research. In R. F. Levant & W. S. Pollack (Eds.), *A new psychology of men* (pp. 164–206). New York: BasicBooks.
- O'Neil, J. M., Helms, B., Gable, R., David, L., & Wrightsman, L. (1986). Gender Role Conflict Scale: College men's fear of femininity. *Sex Roles, 14*, 335–350.
- Orlofsky, J. L. (1981). Relationship between sex role attitudes and personality traits and the Sex Role Behavior Scale-1: A new measure of masculine and feminine role behaviors and interests. *Journal of Personality and Social Psychology, 40*, 927–940.
- Orlofsky, J. L., & O'Heron, C. A. (1987). Development of a short-form Sex Role Behavior Scale. *Journal of Personality Assessment, 51*, 267–277.
- Phillips, K. A., & Diaz, S. F. (1997). Gender differences in body dysmorphic disorder. *Journal of Nervous and Mental Disease, 185*, 570–577.
- Pleck, J. H., Sonenstein, F. L., & Ku, L. C. (1993). Masculinity ideology and its correlates. In S. Oskamp & M. Costanzo (Eds.), *Gender issues in contemporary society* (pp. 85–110). Newbury Park, CA: Sage.
- Pleck, J. H., Sonenstein, F. L., & Ku, L. C. (1994). Attitudes toward male roles among adolescent males: A discriminant validity analysis. *Sex Roles, 30*, 481–501.
- Pope, H. G., Gruber, A. J., Mangweth, B., Bureau, B., deCol, C., Jouvent, R., & Hudson, J. I. (2000). Body image perception among men in three countries. *American Journal of Psychiatry, 157*, 1297–1301.
- Ricciardelli, L. A., & McCabe, M. P. (2003). A longitudinal analysis of the role of biopsychosocial factors in predicting body change strategies among adolescent boys. *Sex Roles, 48*, 349–359.
- Sidanius, J., Liu, J. H., Shaw, J. S., & Pratto, F. (1994). Social dominance orientation, hierarchy attenuators, and hierarchy enhancers: Social dominance theory and the criminal justice system. *Journal of Applied Social Psychology, 24*, 338–366.
- Sinnott, J. D. (1986). *Sex roles and aging: Theory and research from a systems perspective*. Basil: Karger.
- Snell, W. E., Belk, S. S., & Hawkins, R. C. (1987). Alcohol and drug use in stressful times: The influence of the masculine role and sex-related personality attributes. *Sex Roles, 16*, 359–373.
- Spence, J. T. (1984). Masculinity, femininity, and gender-related traits: A conceptual analysis and critique of current research. In B. A. Maher (Ed.), *Progress in experimental personality research* (Vol. 13, pp. 1–97). New York: Academic.
- Spence, J. T., & Helmreich, R. L. (1978). *Masculinity and femininity: Their psychological dimensions, correlates, and antecedents*. Austin: University of Texas Press.
- Spence, J. T., Helmreich, R. L., & Holahan, C. K. (1979). Negative and positive components of psy-

- chological masculinity and femininity and their relationships to self-reports of neurotic and acting out behaviors. *Journal of Personality and Social Psychology*, 37, 1673–1682.
- Thompson, E. H., & Pleck, J. H. (1986). The structure of male role norms. *American Behavioral Scientist*, 29, 531–543.
- Thompson, E. H., Pleck, J. H., & Ferrera, D. L. (1992). Men and masculinities: Scales for masculinity ideology and masculinity-related constructs. *Sex Roles*, 27, 573–607.
- Weinke, C. (1998). Negotiating the male body: Men, masculinity, and cultural ideals. *Journal of Men's Studies*, 6, 255–282.

Received April 7, 2003

Revision received April 15, 2004

Accepted April 30, 2004 ■

E-Mail Notification of Your Latest Issue Online!

Would you like to know when the next issue of your favorite APA journal will be available online? This service is now available to you. Sign up at <http://watson.apa.org/notify/> and you will be notified by e-mail when issues of interest to you become available!