

## Exploring a model linking social physique anxiety, drive for muscularity, drive for thinness and self-esteem among adolescent boys and girls

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### ARTICLE INFO

#### Article history:

Received 19 May 2009

Received in revised form 25 November 2009

Accepted 30 November 2009

#### Keywords:

Adolescents

Self-esteem

Social physique anxiety

Drive for muscularity

Drive for thinness

Gender

### ABSTRACT

This study examined gender differences on body image measures, and tested a model where self-esteem influences social physique anxiety (SPA), which in turn influences drive for muscularity and drive for thinness in a sample of adolescents ( $N = 329$ ; 58% boys). Multi-group invariance analyses indicated that the measurement and structural models were partially invariant for boys and girls, allowing for gender comparisons. Results indicated that boys reported significantly lower drive for thinness and SPA, and higher drive for muscularity and self-esteem compared to girls. The measurement and structural models were an adequate fit for the total sample. Findings supported the proposed sequence in which self-esteem significantly influenced SPA, and SPA significantly influenced the drives for muscularity and thinness. Interventions aimed at decreasing SPA, by promoting self-esteem, may be helpful in decreasing adolescent boys' and girls' drive for muscularity and thinness.

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### Introduction

Adolescents are faced with a multitude of stressors that impact their mental and physical health (Harter, 1999). One of the main sources of distress during this developmental period is body image, in part due to physical developments associated with puberty, increased social comparisons, and the increased importance of social conformity (Harter, 1999; Levine & Smolak, 2002). Although a great deal of research has been conducted on body image during this developmental period, the focus has primarily been on intrapersonal evaluation. Therefore, less is known regarding the effects of interpersonal appearance evaluation (Cash, 2002). Given that youth are generally concerned with how their body appears to others, it is important to understand the emotional experiences that arise when adolescents are concerned with how others view their physique. The concept of social physique anxiety (SPA) appears well suited to address this need because of its focus on interpersonal evaluation (Hart, Leary, & Rejeski, 1989). Specifically, SPA arises when an individual anticipates that others are or could negatively evaluate his/her physical appearance (Hart et al., 1989). As such, SPA reflects an affective dimension of body image (Bane & McAuley, 1998), and has been consistently related to manifesta-

tions of eating disorders within adolescent populations (Crocker, Sabiston, Forrester, Kowalski, Kowalski, & McDonough, 2003; Diehl, Johnson, Rogers, & Petrie, 1998; Hausenblas & Mack, 1999). Since the onset of eating disorder symptoms during adolescence is linked to an increased risk for physical and mental health problems during adulthood (Johnson, Cohen, Kasen, & Brook, 2002), studying SPA among adolescents is particularly important to promote future psychological and physical well-being.

Two outcomes that may be important in the experience of SPA for adolescents include the *drive for muscularity* (McCreary & Sasse, 2000) and the *drive for thinness* (Garner, Olmsted, & Polivy, 1983). These drives reflect the pursuit of cultural and gender explicit body shape ideals whereby males in Western cultures tend to desire a more muscular physique, whereas females desire a thinner physique (Martin, Klüber, Hodges Kulinna, & Fahlman, 2006; McCreary & Sasse, 2000; Smolak & Murnen, 2008). Accordingly, when boys and girls become distressed that others will evaluate them negatively, because their body falls short of the idealized physique, their attitudes and behaviours associated with a desire to become more muscular or thin may increase in order to reach this standard.

A number of cross-sectional studies have provided evidence that the drives for thinness and muscularity have similar relationships with SPA. For example, McCreary and colleagues (Duggan & McCreary, 2004; McCreary & Saucier, 2009) and Martin et al. (2006) found a significant positive relationship between SPA

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and drive for muscularity for boys and girls. Thompson and Chad (2002) and Diehl et al. (1998) found that girls with higher SPA reported higher levels of drive for thinness. While these findings suggest the relationships between SPA and both drives may be similar for adolescent boys and girls, the drive for muscularity and the drive for thinness have rarely been studied concurrently in adolescent boys and girls. Thus, the main purpose of the current study focused on addressing this gap in the literature by examining whether SPA influences adolescents' drive for muscularity and drive for thinness in both genders.

In addition to investigating potential outcomes of SPA, it is important to consider factors that may influence body-related affective experiences. Researchers have demonstrated that individuals who report lower levels of self-esteem are generally more concerned with being evaluated negatively than individuals reporting higher levels of self-esteem (Davison & McCabe, 2006; Diehl et al., 1998). These findings suggest that lower self-esteem may lead to increased experiences of SPA. From this perspective, the hypothesized sequence proposed in the current study was that self-esteem would influence SPA, which in turn would influence adolescents' drive for thinness and/or drive for muscularity. To examine this hypothesis, a model linking self-esteem, SPA, and the drives in a sample of adolescent boys and girls was tested using structural equation modeling (see Fig. 1).

A second objective of this study was to examine mean level gender differences in self-esteem, SPA, drive for thinness and drive for muscularity, as well as gender differences in the relationships between these constructs. This was deemed important since previous research has found that girls and boys may face different levels of specific body image affect and outcomes. In particular, researchers have documented that females experience greater levels of SPA (Brunet & Sabiston, 2009; Hart et al., 1989; Kowalski, Mack, Crocker, Niefer, & Fleming, 2006), higher drive for thinness (Anderson & Bulik, 2004; McCreary, Sasse, Saucier, & Dorsch, 2004), and lower drive for muscularity (McCreary & Sasse, 2000; Smolak & Murnen, 2008) compared to males. However, in order to interpret these mean and relationship-level similarities and differences for boys and girls, it is essential to establish measurement and structural invariance across groups (Byrne, Shavelson, & Muthen, 1989). Measurement invariance indicates that the scales used assess the same underlying constructs across groups, whereas structural invariance indicates that the patterns of associations among the variables are similar across groups. When such tests are not performed, conclusions regarding mean and/or relationship-level differences may be confounded by error in measurement rather than true score differences (Hoyle & Smith, 1994). Thus, in light of the need to demonstrate invariance, measurement and structural invariance were assessed in the current study prior to testing for gender differences. If invariance was established, additional analyses were conducted to examine mean level and relationship differences across gender. It was

hypothesized that the measures and relationships would show evidence of gender invariance, and that mean level gender differences would be observed.

## Method

### Participants and procedures

After obtaining permission from the University's Research Ethics Board, the school board, the principals, and the teachers, participants were recruited into a convenience sample from four high schools in Regina, Saskatchewan, Canada. These schools were located in small semi-rural towns and a suburb of a major metropolitan. Participants were recruited by random selection of classes. During regular classes, an initial information session was held where the purposes and procedures of the study were explained. Parental (for those under 18 years old) and participant consent forms were distributed at this time. One week later, participants returned the consent forms and completed the questionnaires. A total of 329 ( $n_{\text{male}} = 190$ ;  $n_{\text{female}} = 139$ ) high school students (99% response rate) were included in the analyses. The average age of the participants was 15.4 years ( $SD = 1.11$ ), and they ranged between 13 and 19 years.

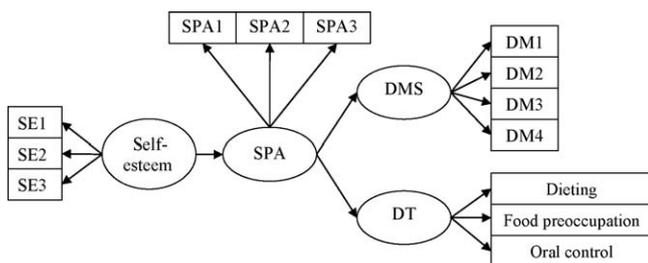
### Measures

The survey included self-report measures to assess self-esteem, SPA, drive for thinness, and drive for muscularity.

**Self-Esteem.** The Rosenberg Self-Esteem Scale (SE; Rosenberg, 1965) was used to assess self-esteem. It is a measure of global self-esteem that consists of 10 statements that participants rate on a 5-point scale ranging from *never true for me* to *always true for me*. The items comprising the SE were purported to assess a single dimension of global self-esteem and have been used as such (e.g., Pullmann & Allik, 2000; Vispoel, Boo, & Bleiler, 2001). An example item from this scale is "I feel I have a number of good qualities." Responses were coded so that higher scores reflect greater self-esteem. The Cronbach's alpha reliability coefficients for the total sample and gender sub-samples ( $\alpha_{\text{total}} = .86$ ;  $\alpha_{\text{males}} = .81$ ;  $\alpha_{\text{females}} = .88$ ) were similar to previous work with adolescents (Diehl et al., 1998).

**Social Physique Anxiety.** The 9-item truncated Social Physique Anxiety Scale (SPAS; Martin, Rejeski, Leary, McAuley, & Bane, 1997) was used to measure SPA. The SPAS measures the anxiety an individual experiences as a result of interpersonal judgments and evaluations focused on their physiques. Adolescents were asked to rate the extent to which each item applies to them using a 5-point scale ranging from *not at all* to *extremely characteristic of me*. An example item from this scale is "In the presence of others, I feel apprehensive about my physique/figure." Higher scores on the SPAS represent a greater degree of SPA. Although the original SPAS (Hart et al., 1989) was developed with young adults, the 9-item version has been shown to possess good reliability and validity for the unidimensional measure with adolescent populations (Smith, 2004). Consistent with previous studies (Brunet & Sabiston, 2009; Motl & Conroy, 2000; Smith, 2004), the internal consistency coefficients for the total sample and gender sub-samples for the SPAS were acceptable ( $\alpha_{\text{total}} = .87$ ;  $\alpha_{\text{males}} = .83$ ;  $\alpha_{\text{females}} = .89$ ).

**Drive for Muscularity.** To assess adolescents' attitudes and behaviours associated with a desire to become more muscular, the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000) was used. The DMS is a 15-item questionnaire that asks respondents to rate the extent to which each item applies to them using a 6-point scale from *always* to *never*. An example item from this scale is "I think that I would look better if I gained 10 pounds in bulk." Items on the DMS are reverse-coded so that higher scores represent a



**Fig. 1.** Hypothesized model depicting self-esteem as a correlate of social physique anxiety, and social physique anxiety as a correlate of drive for muscularity and thinness. SPA = social physique anxiety; DMS = drive for muscularity; DT = drive for thinness.

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