



## Social physique anxiety and physical activity: A self-determination theory perspective

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### ARTICLE INFO

#### Article history:

Received 17 July 2008

Received in revised form

6 November 2008

Accepted 6 November 2008

Available online 17 November 2008

#### Keywords:

Competence

Autonomy

Relatedness

Motivation

Self-presentation

Health

### ABSTRACT

**Objective:** Using self-determination theory [Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum Press; Ryan, R. M., & Deci, E. L. (2002). An overview of self-determination theory: an organismic-dialectical perspective. In E. L. Deci, & R. M. Ryan, (Eds.), *Handbook of self-determination research* (pp. 3–33). Rochester, NY: University of Rochester Press.] as a framework, this study examined the relationships between social physique anxiety (SPA) and physical activity-related psychological needs, motivation, and reported behavior.

**Method:** Three hundred and eighty one males and females ( $M_{age} = 18.69$ ,  $SD = 1.15$ ) completed a self-administered questionnaire package.

**Results:** Results revealed a good measurement model for the total sample ( $\chi^2 = 592.52$ ;  $df = 238$ ;  $RMSEA = .063$ ;  $CFI = .94$ ;  $SRMR = .05$ ) and multi-group invariance indicated that the male and female measurement models were comparable. The structural model was adequate for the total sample ( $\chi^2 = 638.69$ ;  $df = 243$ ;  $RMSEA = .065$ ;  $CFI = .94$ ;  $SRMR = .06$ ) and accounted for 36% of the variance in reported physical activity behavior. In addition, the structural model was partially gender invariant.

**Conclusions:** Findings supported the proposed motivational sequence in which SPA directly influenced need satisfaction, and indirectly influenced physical activity motivation and behavior. From a practical perspective, interventions aimed at decreasing SPA may be helpful in promoting physical activity motivation and behavior.

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Physical activity leads to a multitude of physical, psychological, and social benefits (Fox, 1999; Warburton, Nicol, & Bredin, 2006). Despite these benefits, the majority of North Americans fail to participate in sufficient physical activity (Gilmour, 2007). Given the high prevalence of inactivity, research focusing on the factors that will increase people's motivation towards adopting and maintaining an active lifestyle is essential. Self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2002) may be a useful framework for understanding correlates of physical activity motivation and behavior.

SDT is a contemporary meta-theory that provides researchers with a greater understanding of peoples' motivation towards volitional behaviors (Ryan & Deci, 2002). The empirical basis of SDT comes in part from the organismic integration theory (OIT), a sub-theory of SDT. According to OIT, motivation is a multidimensional construct that lies on a continuum that includes intrinsic, extrinsic,

and amotivated motives (Ryan & Deci, 2002). Researchers often conceptualize motivation as a relative autonomy index, whereby distinct motives are weighted to create a measure of self-determined motivation (Gagné, Ryan, & Bargmann, 2003; Ingledew, Markland, & Sheppard, 2004; Ryan & Connell, 1989). Higher levels of self-determined motivation emanate when a person's perceived locus of causality is internal and engagement in behavior is a result of a sense of volition and choice. In contrast, lower levels of self-determined motivation are seen when a person's perceived locus of causality is external and the behavior is undertaken because they feel pressured or compelled to do so, either by others or by themselves (Ryan & Deci, 2002). Consequently, higher levels of self-determination generate more positive behavioral outcomes, such as physical activity, compared to lower levels of self-determined forms of motivation (Ryan & Deci, 2000).

Another SDT sub-theory that has received growing support is basic needs theory (BNT; Ryan & Deci, 2002). Central to BNT is the assumption that individuals have three basic psychological needs, namely competence (need to interact effectively with one's environment and feel effective in producing desired outcomes), autonomy (need to experience volition and feel that one has ability to make their own decisions without feeling controlled), and

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relatedness (need to feel connected to others), that are innate, universal, and fundamental for their well-being (Deci & Ryan, 1985; Ryan & Deci, 2002). Researchers have specified that BNT and OIT are closely linked since the degree to which an individual is able to satisfy these basic psychological needs will influence the type and extent to which they are motivated to enact a particular behavior (Hagger & Chatzisarantis, 2008; Ryan & Deci, 2000).

There is a growing body of research in sport and exercise psychology that has provided strong evidence supporting SDT's sub-theories (i.e., BNT, OIT) and has highlighted the value of SDT as a comprehensive motivational framework for understanding physical activity behavior. Specifically, the basic psychological needs have been linked to physical activity self-determined motivation (Edmunds, Ntoumanis, & Duda, 2006; Standage, Gillison, & Treasure, 2007; Wilson & Rodgers, 2004), and self-determined motivation has been linked to higher levels of physical activity participation (Edmunds et al., 2006; Mullen & Markland, 1997; Wilson, Rodgers, Fraser, & Murray, 2004). While these studies support the main tenets of SDT, there is a need to identify the underlying factors that influence the satisfaction of the basic psychological needs and self-determined motivation for physical activity.

Causality orientations theory (COT; Deci & Ryan, 1985), a third SDT sub-theory, is a framework that may help identify facilitating or impeding factors associated with psychological need satisfaction and motivation. According to COT, individuals interpret social cues differently and this interpretation affects the initiation and regulation of behavior. A controlled orientation is central to the COT such that social contexts that are appraised as controlling or pressuring hinder the satisfaction of the basic psychological needs, and in turn, are associated with lower self-determined motivation (Deci & Ryan, 2002). The pressures placed on young men and women to portray an ideal physique are predominant social forces in today's society (Smolak, 2004). A failure to live up to these standards, whether real or imagined, may induce thoughts and feelings that others are negatively evaluating one's physique. In this case, social physique anxiety may be experienced (SPA; Hart, Leary, & Rejeski, 1989). Subsequently, individuals who are concerned that others are or may be judging their physiques negatively (i.e., SPA) may feel pressured by society's ideals to engage in physical activity to enhance their physique and decrease the chances of negative evaluations. In support of this contention, Ryan and Connell (1989) suggested that engaging in a behavior to avoid negative feelings about oneself or because one is concerned about others' approval is a common form of internal control. From this perspective, SPA may be an internal source of controlling influence that likely undermines physical activity motivation via its impact on the basic psychological needs.

Though a tenable hypothesis, past research on the relationship between SPA and physical activity motivation and behavior has been limited in scope. Research has failed to address the underlying psychological processes that may explain the equivocal relationships observed between SPA and physical activity motivation and behavior (see Hausenblas, Brewer, & Van Raalte, 2004). Nonetheless, there has been preliminary work grounded in SDT by Thøgersen-Ntoumani and Ntoumanis (2006, 2007) that has demonstrated negative links between SPA and perceptions of competence, autonomy, relatedness, and self-determined motivation. While these studies examined SPA as an outcome, the cross-sectional design and statistical analyses employed do not exclude the possibility that SPA may influence motivation. In fact, the authors suggested that SPA may be a correlate of non-self-determined forms of motivation. In line with this proposition, Gillison, Standage, and Skevington (2006) reported that SPA was a positive correlate of extrinsic goals, which in turn negatively predicted self-determined motivation. However, Gillison et al. (2006) did not test

whether the psychological needs mediate the relationship between SPA and motivation. Research exploring the indirect influence of SPA on motivation through the basic psychological needs would therefore expand on the current literature and extend Deci and Ryan's (2000) proposition that controlling factors indirectly influence motivation.

Thus, the main purpose of this study was to examine the motivational sequence proposed by SDT by exploring the relationships between SPA, the basic psychological needs, motivation, and behavior within the physical activity domain. Since the current study included males and females, a secondary aim was to test the measurement and structural invariance of this model across gender. This was deemed important given Ryan and Deci's (2002) universality hypothesis which suggests that the constructs embedded in SDT should hold the same meaning and the processes should not differ across gender. Between-group gender differences in latent means were also examined given the known mean-level gender differences on several of the variables under study (e.g., Hart et al., 1989; Ntoumanis, 2005).

Based on theoretical assumptions (Deci & Ryan, 2000; Ryan & Deci, 2002) and empirical findings (e.g., Ntoumanis, 2005; Thøgersen-Ntoumani & Ntoumanis, 2007; Wilson & Rodgers, 2004) various hypotheses were put forward. First, it was hypothesized that a negative relationship would emerge between SPA and the basic psychological needs. Second, it was anticipated that perceptions of competence, autonomy, and relatedness would be positively linked to self-determined motivation. Third, it was hypothesized that a positive relationship would be observed between self-determined motivation and physical activity. Lastly, it was predicted that the measurement and structural models would be invariant, but that there would be mean-level differences for males and females. Specifically, that males would report lower levels of SPA and relatedness, and higher levels of competence, autonomy, self-determined motivation and physical activity behavior than females.

## Method

### *Participants and procedures*

Following appropriate behavioral ethics approvals, school directors and teachers from schools in Montreal, Canada were approached for their support. Male and female students were briefed during class on the study and provided with a letter of information for their parents and appropriate consent forms. Approximately one week later, the main researcher returned to the classrooms to hand out the survey to all interested participants who provided consent. The survey was completed once during regular class time.

The final sample consisted of 381 individuals ( $n = 220$  females,  $n = 161$  males) ranging in age from 17 to 23 years ( $M_{\text{age}} = 18.69$ ,  $SD = 1.15$ ). Participants described themselves as Caucasian (70.1%,  $n = 267$ ), Chinese (9.4%,  $n = 36$ ), Black (8.4%,  $n = 32$ ), West Asian (5.2%,  $n = 20$ ), South Asian (3.7%,  $n = 14$ ), South East Asian (2.9%,  $n = 11$ ), Japanese (0.8%,  $n = 3$ ), Aboriginal (0.5%,  $n = 2$ ), Filipino (0.5%,  $n = 2$ ), and other (9.7%,  $n = 37$ ). Mean body mass index (BMI) suggested the sample was healthy ( $BMI_{\text{males}} = 23.58 \text{ kg/m}^2$ ,  $SD = 3.71$ ;  $BMI_{\text{females}} = 21.84 \text{ kg/m}^2$ ,  $SD = 3.60$ ; World Health Organization, 1997).

### *Measures*

The questionnaire package contained measures assessing demographic information (i.e., gender, age, weight, height, ethnicity) and relevant valid and reliable instruments.

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