



Using motivation regulations in a person-centered approach to examine the link between social physique anxiety in physical education and physical activity-related outcomes in adolescents

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ARTICLE INFO

Article history:

Received 9 September 2012

Received in revised form

17 January 2013

Accepted 17 January 2013

Available online 8 February 2013

Keywords:

Self-determination theory

Body-conscious emotions

Physical education

Adolescents

ABSTRACT

Objectives: This study explored how social physique anxiety (SPA) combined with different patterns of motivation regulations might facilitate versus deter effort and enjoyment in physical education (PE) and leisure-time physical activity.

Design: Cross-sectional survey.

Methods: High school students ($N = 298$; $M_{\text{age}} = 15.72$, $SD_{\text{age}} = 1.24$ years) completed an in-class survey including SPA in PE, motivation regulations for PE, enjoyment and effort in PE and leisure-time physical activity.

Results: Four profiles of students were identified in cluster analysis based on autonomous motivation, introjected regulation, external regulation and SPA. Profile one (“high diverse motivation”; $n = 84$) reflected relatively high motivation across all regulations and average SPA. Profile two (“moderate autonomous motivation”; $n = 92$) included those with average scores on autonomous motivation and relatively low scores on introjected and external regulation and SPA. Profile three (“moderate diverse motivation and anxious”; $n = 59$) had relatively high SPA combined with average motivation regulations. Profile four (“externally controlled and anxious”; $n = 63$) also had relatively high SPA but relatively low autonomous motivation and introjected regulation and relatively high external regulation. MANOVA results showed that “externally controlled and anxious” students reported the lowest physical activity behavior and enjoyment in PE. Conversely, the “moderate diverse motivation and anxious” students have physical activity experiences that do not differ from the two profiles that exhibited lower SPA.

Conclusions: Higher feelings of SPA in PE appear linked with lower levels of enjoyment and effort in PE and leisure-time physical activity outside of school only when coupled with higher external regulation. This finding helps explain inconsistent associations between SPA and physical activity outcomes.

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Participating in high school physical education (PE) can be a stressful experience for some adolescents (Carlson, 1995). Aside from concerns regarding lack of skill and competence to participate and/or compete in the various sport and physical activities offered during PE classes (Carlson, 1995), there is a confluence of social and developmental factors that can increase students’ apprehension about performing and/or displaying their bodies in front of others (Harter, 1999; Levine & Smolak, 2002; Smith, 2003). Some of these factors include a heightened sense of social self-consciousness, variability in maturation rates, the strong need for peer acceptance, and the

importance of feeling physically attractive for one’s self-esteem. The intersection of these factors within the social context of PE may predispose students to experience greater social physique anxiety (SPA), which is distress stemming from the perception that others are evaluating their bodies in a negative manner (Hart, Leary, & Rejeski, 1989). SPA is more likely to occur in settings like PE where displays of competence or incompetence are made publicly and reflected in physical performance and appearance (Carlson, 1995; Carron & Prapavessis, 1997; Crombie, Brunet, & Sabiston, 2011; Hart et al., 1989).

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Reports of SPA during PE classes are of concern since these negative affective experiences are associated with avoidance of

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class participation (Cox, Ullrich-French, Madonia, & Witty, 2011; Kowalski, Mack, Crocker, Niefer, & Fleming, 2006; Sabiston, Sedgwick, Crocker, Kowalski, & Mack, 2007). Through interviews, Sabiston et al. found that PE class fostered SPA experiences in adolescent girls, and participants reported getting notes from parents to get out of class. Similarly, Cox et al. discovered a significant positive relationship between SPA in PE and using a note to avoid participating in PE in a multivariate path analysis. Hart et al. (1989) proposed that behavioral avoidance is a likely SPA coping strategy, and PE seems to provide an opportune context to perpetuate SPA experiences and foster physical activity avoidance. This is unfortunate given the multitude of positive physical, affective, cognitive, and social benefits that have been associated with PE participation (though these outcomes are dependent on social factors; Bailey et al., 2009). Furthermore, coping strategies associated with SPA experiences include negative affect, deflection, and cognitive avoidance, in addition to behavioral avoidance (Brewer, Diehl, Cornelius, Joshua, & Van Raalte, 2004; Kowalski et al., 2006; Sabiston et al., 2007). As such, adolescents may experience less enjoyment in PE and exert less effort in class activities when experiencing SPA. Alternatively, some individuals channel the experience of SPA toward adaptive outcomes, and increase their effort during activities that perpetuate SPA as well as report acceptance of the situation and reappraisal (Kowalski et al., 2006; Sabiston et al., 2007). These strategies may be in line with Hart et al.'s (1989) second proposition that both maladaptive and adaptive strategies may be used to manage SPA. It is not clear, however, what factors may determine whether SPA will lead to the promotion of maladaptive or adaptive outcomes.

Social physique anxiety and physical activity

Heightened SPA in PE also may have implications for relevant outcomes that extend beyond the PE setting such as physical activity levels. For example, there is research evidence that emotions (Cox, Smith, & Williams, 2008; Gordon-Larsen, McMurray, & Popkin, 2000; Van der Horst, Paw, Twisk, & Van Mechelen, 2007) and behaviors (Cox et al., 2008) in the context of PE may generalize to leisure-time physical activity. Most of the research evidence linking SPA and physical activity has demonstrated ambiguous results, with some evidence of negative associations and others with little to no significant association (Crocker, Sabiston, Kowalski, McDonough, & Kowalski, 2006; Hausenblas, Brewer, & Van Raalte, 2004; Kowalski, Crocker, & Kowalski, 2001; Kowalski et al., 2006; Lantz, Hardy, & Ainsworth, 1997; Melbye, Tenenbaum, & Eklund, 2008). These inconclusive results mirror the proposition that SPA can perpetuate both adaptive and maladaptive outcomes (Hart et al., 1989). Given these ambiguous findings, it is important to identify mechanisms that may explain the association between SPA and physical activity. In this study, we propose that motivation regulations may be integral to explaining the relationship between SPA experiences in PE and both PE outcomes and leisure time physical activity.

Self-determination theory, social physique anxiety, and physical education and physical activity outcomes

Self-Determination Theory (SDT; Ryan & Deci, 2007) defines motivation regulations as the reasons why individuals engage in a specific behavior. Organismic integration theory (OIT), a sub-theory of SDT, details how these distinct regulations range from being completely autonomous or emanating from within the individual to being completely controlling or originating from a source outside of the individual (Ryan & Deci, 2007). The autonomous regulations include intrinsic motivation (e.g., participating

in PE because it is fun), integrated regulation (e.g., participating in PE because it is consistent with students' life goals) and identified regulation (e.g., participating in PE because it is valued or important to the student). The controlling regulations include introjected regulation (e.g., participating in PE in order to avoid shame or gain pride/social approval) and external regulation (e.g., participating in PE in order to satisfy an external contingency like avoiding punishment or earning a good grade). More autonomous forms of PE motivation are consistently linked with greater enjoyment in PE and physical activity levels both within and outside of the PE setting (e.g., Cox et al., 2008; Lonsdale, Sabiston, Raedeke, Ha, & Sum, 2009; Ullrich-French & Cox, 2009). These findings are in line with OIT perspectives, such that motivation regulations that are more autonomous in nature are expected to relate to more positive affective and behavioral outcomes compared to regulations that are more controlling.

Researchers have linked SPA experiences to more controlling types of motivation regulations (Brunet & Sabiston, 2009; Crawford & Eklund, 1994; Sabiston, Crocker, & Munroe-Chandler, 2005; Thogersen-Ntoumani & Ntoumanis, 2006). Furthermore, a few studies have used an SDT framework to test the role of motivation in the relationship between SPA and physical activity behavior in different settings including PE (Brunet & Sabiston, 2009; Cox et al., 2011; Gillison, Standage, & Skevington, 2006). Brunet and Sabiston found that autonomous motivation, represented by a relative autonomy index, mediated the association between SPA and physical activity among older adolescents. Specifically, higher SPA predicted less autonomous motivation which, in turn, predicted lower physical activity levels. In an extension of this research, Cox et al. (2011) tested the mediating roles of individual motivation regulations in the relationship between SPA and participation behaviors in a high school PE setting. Though SPA negatively predicted autonomous motivation and positively predicted external regulation and amotivation, the mediating role of motivation regulations was not supported and SPA did not predict students' self-reported effort in PE. Therefore, these studies provide mixed support for the mediating role of motivation regulations in the relationship between SPA and physical activity behavior, and suggest that the relationships among SPA, motivation regulations and physical activity outcomes may be more complex.

A viable explanation for the mixed findings regarding the relationship between SPA, motivation regulations, and both PE outcomes and physical activity behavior is that it may depend on the unique combinations of motivation types that individuals possess. A person-centered approach would allow for an examination of how different combinations of SPA and motivation regulations relate to PE and physical activity outcomes. Though they did not examine motivation from an SDT perspective, Niven, Fawcner, Knowles, Henretty, and Stephenson (2009), used a person-centered approach to identify subgroups of early adolescent females based on motives for physical activity. They then examined the relationship between SPA and physical activity for each subgroup and found that only females with strong appearance- and fitness-related motives experienced lower levels of physical activity when they had higher SPA. These findings suggest that students experiencing higher SPA in PE may reduce their effort in PE only when driven by certain types of motives. Therefore, the association between SPA in PE and relevant physical activity outcomes may depend on the motivational characteristics of the individual. This proposition has yet to be examined with motivation regulations in the context of PE, where the body is often on display and exposed for judgment and appraisals by others.

The purpose of this study was to use a person-centered approach (i.e., cluster analysis) to identify different profiles of students based on levels of PE motivation regulations and SPA in PE in

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