Psychology of Sport and Exercise 15 (2014) 247–254

Contents lists available at ScienceDirect

Psychology of Sport and Exercise

journal homepage: www.elsevier.com/locate/psychsport

Intrinsic goals for leisure-time physical activity predict children's daily step counts through autonomous motivation

Jan Seghers*, Nathalie Vissers, Cindy Rutten, Steven Decroos, Filip Boen

KU Leuven, Department of Kinesiology, Tervuursevest 101, 3001 Leuven, Belgium

ARTICLE INFO

Article history:
Received 31 May 2013
Received in revised form
14 January 2014
Accepted 14 January 2014
Available online 8 February 2014

Keywords:
Goal Content Theory
Self-Determination Theory
Physical activity behaviour
Motivation
Pedometer
Structural equation modelling

ABSTRACT

Objectives: The present study tested a motivational sequence in which children's goals for leisure-time sport and physical activity (PA) from Goal Content Theory predicted pedometer-determined PA through behavioural regulation constructs from Self-Determination Theory.
Design: Quantitative cross-sectional study.
Methods: A sample of 1272 Flemish (Dutch speaking part of Belgium) sixth graders (*M* age = 11.42 years) filled in a questionnaire on PA goal content, behavioural regulations and pubertal status. Children's height and weight were measured to assess Body Mass Index (BMI). To measure daily PA behaviour, participants wore a pedometer for seven consecutive days. Structural equation modelling was performed to test the proposed motivational sequence and to examine the mediation effect of behavioural regulations towards leisure-time sport and PA on the relation between PA goal content and daily step counts.
Results: A structural equation model supported the hypothesized sequence in which intrinsic goals for leisure-time sport and PA predicted children's daily step counts through autonomous motivation towards leisure-time sport and PA. Multi-sample invariance testing revealed that the proposed model was largely invariant across BMI groups, pubertal status and gender.
Conclusions: The findings highlight the importance of emphasizing intrinsic goals for participation in leisure-time sport and PA in children aged 10–12 years. By stimulating children to participate in PA and sports by referring to intrinsic goals, children are more likely to enjoy PA, which in turn might increase the likelihood of a regular and long-term PA engagement.

Introduction

Research has shown that regular physical activity (PA) can help to reduce people's risk for several diseases and health conditions (Reiner, Niermann, Jekauc, & Woll, 2013). There is evidence that a high level of PA between the age of 9 and 18 years predicts a high level of PA during adulthood, especially when it persists for several years (Telama et al., 2005). Unfortunately, previous research has consistently revealed that PA declines sharply during adolescence (10–19 years) (Sallis, Prochaska, & Taylor, 2000). Previous studies among European youth have suggested that the greatest decline in PA can be observed between the age of 12 and 16 years (Telama & Yang, 2000; Van Mechelen, Twisk, Post, Snel, & Kemper, 2000). Therefore, knowledge of the factors that are associated with PA persistence during early adolescence (10 through 14 years of age) is needed to effectively promote and encourage lifelong participation in PA.

With respect to PA persistence, the quality of motivation to engage in PA seems to play a critical role, a role that can be best understood within an overarching theoretical framework, such as the Self-Determination Theory (SDT) (Deci & Ryan, 2000). The general purpose of this study is therefore to assess the quality of motivation toward PA in terms of goal content and behavioural regulation from SDT in a sample of 10–12 year old children and to investigate its relation with objectively assessed PA. Goal content refers to the 'what' of motivation, or a person's specific aspiration, whereas behavioural regulation refers to the 'why' of motivation, or a person's reasoning behind their goal (Deci & Ryan, 2000).

According to SDT, the reasons why individuals persist with or refrain from sport and PA can be conceptualized along a continuum

Abbreviations: PA, physical activity; SDT, Self-Determination Theory; GCT, Goal Content Theory; BMI, Body Mass Index; PDS, pubertal developmental scale; CI, confidence interval; REI, Reasons for Exercise Inventory.

* Corresponding author. Tel.: +32 16 329048; fax: +32 16 329196.
E-mail addresses: jan.seghers@faber.kuleuven.be (J. Seghers), nathalie.vissers@student.kuleuven.be (N. Vissers), cindy.rutten@faber.kuleuven.be (C. Rutten), steven.decroos@faber.kuleuven.be (S. Decroos), filip.boen@faber.kuleuven.be (F. Boen).

http://dx.doi.org/10.1016/j.psychsport.2014.01.003
1469-0292/

of self-determined motives that differ qualitatively in the perceived origin or causality of action (Chatzisarantis, Hagger, Biddle, Smith, & Wang, 2003). A distinction is made between autonomous and controlled types of motivation (Deci & Ryan, 2000). Autonomous forms of motivation refer to engaging in behaviour for reasons such as the inherent pleasure of the activity or the value they attach to it. Controlled or non-volitional forms of behavioural regulation refer to engaging in a behaviour because of pressures, either internal (e.g., guilt, shame) or external (e.g., coercion by others) (Deci & Ryan, 2000). Previous studies in PA settings have demonstrated the positive association between autonomous forms of motivation and adaptive outcomes such as increased behavioural persistence and objectively assessed estimates of PA behaviour (see Ntoumanis, 2012; Standage & Ryan, 2012; for reviews).

Although SDT assumes that the positive behavioural effects of autonomous motivation are important throughout the lifespan, it is possible that certain forms of motivation may be more salient than others at different life stages. For example, young children's daily activities are still heavily under the jurisdiction of their parents and their PA behaviour may be more externally guided, for example by trying to satisfy the demands of a parent. Theoretically, it has been suggested that controlled forms of motivation can elicit desired behaviour, at least in the short term, and that its negative behavioural repercussions would only emerge in the long run (Deci & Ryan, 2000). Nonetheless, previous research in children and adolescents consistently showed null correlations between controlled motivation and objectively assessed PA participation during PE class (Aelterman et al., 2012) and total PA (Sebire, Jago, Fox, Edwards, & Thompson, 2013).

In addition to the importance of behavioural regulation (i.e., the underlying reason 'why' a person takes part), SDT also posits that the specific type of goals (i.e., the 'what' of motivation, e.g., to develop skills) is crucial to predict behavioural persistence (Deci & Ryan, 2000). According to the Goal Content Theory (GCT), a mini-theory within the larger SDT framework, the different goals that people pursue can be broadly divided into intrinsic or extrinsic goals (Deci & Ryan, 2000; Kasser & Ryan, 1996; Vansteenkiste, Niemiec, & Soenens, 2010). Following this distinction, people might engage in PA for goals such as developing skills, improving health or connecting with others (intrinsic goals), but also for a better appearance or recognition from others (extrinsic goals) (Sebire, Standage, & Vansteenkiste, 2008). There is empirical evidence to suggest that being physically active in the service of intrinsic and extrinsic goals yields differential behavioural outcomes, particularly in terms of persistence (see Vansteenkiste, Soenens, & Lens, 2007; for a review).

SDT assumes that goal content and behavioural regulations are related yet theoretically distinct components of motivation (Deci & Ryan, 2000; Vansteenkiste et al., 2010). This means that the content and regulations of goal pursuits can be empirically crossed (Vansteenkiste et al., 2010). Both intrinsic and extrinsic goals can be pursued for either autonomous or controlled reasons. To illustrate this distinction, one can consider a boy who pursues the goal of improving his sport skills (intrinsic goal) either because he does not want to disappoint his sports coach (controlled form of motivation), or because he personally values to perform well in sports (autonomous form of motivation). Alternatively, an overweight girl might attend a fitness class in pursuit of the thin-ideal (an extrinsic goal) either because the doctor said she should lose weight (controlled form of motivation), or because she personally value looking good (autonomous form of motivation). Despite the fact that individuals might combine different motivational dimensions, previous observational studies in adolescents (Gillison, Standage, & Skevington, 2006) and adults (Ingledew & Markland, 2008; Sebire, Standage, & Vansteenkiste, 2009, Sebire, Standage, & Vansteenkiste, 2011) demonstrated that goal content had a positive indirect effect on PA behaviour through autonomous motivation. The findings in adults even suggested that goal content may be predictive of behavioural outcomes to the degree that it is associated with autonomous vs. controlled behavioural regulation (Sebire et al. 2009, 2011).

Whereas past research in adolescents provided evidence for the positive pathway between autonomous motivation toward leisure-time exercise and daily PA volume (i.e., as indexed by pedometer step counts) (Standage, Gillison, Ntoumanis, & Treasure, 2012; Vierling, Standage, & Treasure, 2007), the present study builds upon and extends this work by adopting a combined approach of behavioural regulations and goal content in the prediction of objectively assessed daily PA levels. More specifically, the main purpose of the present study is to test a motivational sequence aligned with SDT and GCT, in which children's goals for leisure-time sport and PA predict pedometer-determined PA through behavioural regulation constructs. Based on the tenets of SDT and GCT and past work in adolescents (Gillison et al., 2006), we expected that pursuing intrinsic goals (such as social affiliation, health management, skill development) is positively related to autonomous motivation, which is in turn positively associated with daily PA behaviour. We further predicted that pursuing extrinsic PA goals (such as image and social recognition) is positively associated with controlled forms of motivation. Considering that past work in children and adolescents has shown inconsistent associations between controlled forms of motivation and behavioural outcomes, we expected that controlled motivation would be unrelated to daily PA behaviour in our sample of 10- to 12-year-olds. In contrast to the study of Gillison et al. (2006), the present study uses more valid measures of PA-based goal content (Sebire et al., 2008) as well as an objective measure of daily PA (i.e., pedometer).

The targeted age group in this study is at the beginning of puberty, which is a critical period marked by profound biological changes, resulting in changes in body composition (Siervogel et al., 2003). The storage of fat in specific body parts of girls (e.g., hips, buttocks) can result in a deviation from the current western female beauty ideal. A study among Italian girls indeed indicated that more mature 11-year old girls presented a less favourable perception of global physical self-concept, and appearance, and reported a lower enjoyment of PA (Labbrozzi, Robazza, Bertollo, Bucci, & Bortoli, 2013). Boys, in general, tend to approximate an athletic male ideal, and the social pressure to reach this male-specific ideal seems to be increasing too (Ricciardelli & McCabe, 2004). At the same time, peer relations and sociocultural pressures become increasingly important for attitudes and behaviours (McCabe, Ricciardelli, & Finemore, 2002). Accordingly, puberty and its associated physical, social and psychological changes seem to make children strive for their perceived gender-specific ideal body form by adopting a combination of eating strategies (Tremblay & Lariviere, 2009) and exercise strategies (McCabe et al., 2002). In a similar way, we expected that weight status was related to the content of children's PA goals. In Western cultures, where being thin is highly valued and excess weight is stigmatized, being overweight or obese would make these individuals more vulnerable for body image distress (Schwartz & Brownell, 2004). This latter is supported by a study of Thøgersen-Ntoumani, Ntoumanis, and Nikitaras (2010) who showed in a sample of adolescent girls aged 12–16 years that pursuing life goals aimed to attain societal standards of ideal physique was positively related with body image concerns.

Taking into account the abovementioned considerations, the present study also aimed to explore the differences in PA goal