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The role of motivation in explaining objectively assessed physical activity in preadolescents

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Background

The guideline of 60 minutes moderate to vigorous physical activity is only reached by a minority of the (Flemish) school-aged youth (Roberts et al., 2004). Past research has tried to identify the different determinants of PA, such as the physical environment, social environment and intrapersonal environment (Sallis et al., 2000). Concerning the intrapersonal environment, a lot of attention is given to the importance of autonomous motivation to explain young people's PA. Ntoumanis et al. (2001) concluded that autonomous motivation is positively related to positive consequences such as effort during physical education (PE). This was also found by Standage et al. (2005) where autonomous motivation is linked with adaptive PE-related outcomes. Moreover, recent research concluded that autonomous motivation, enjoyment and PA in PE seem to, directly or indirectly, predict PA during leisure time (LT) (Cox et al., 2008). This study supports the premise that motivational orientations can be transferred from a PE-context into a LT-context. However, previous studies predominantly used behavioural intentions or self-reported data. This pilot study would like to counteract this limitation by using objective measures of PA.

Research Questions

The main aim of this pilot study is to analyze the relation between motivation in PE and objectively assessed PA levels in preadolescents. Based on the aforementioned literature, we tested the hypothesis that self-determined motivation during PE is a significant predictor for the level of PA in children.

Methods

This pilot study was performed on 188 grade 6 pupils (89 boys and 99 girls) from 4 schools. The level of PA was objectively measured using pedometers (Yamax digiwalker SW-200) for 7 consecutive days. During these 7 days the pupils were also asked to keep a PA diary. Next to the PA behaviour, pupils' weight status is assessed by means of the Body-Mass-Index (BMI), based on their measured body height and weight. Next to the objective measurements, participants completed a questionnaire including items about need support , basic needs and their motivation to cooperate during PE and their motivation for being active during LT . Analyses were performed by using hierarchical regression analysis and structural equation modeling (SEM).

Frame

The behavioural science theory used in this pilot study is based on the self determination theory (SDT) (Decy & Ryan, 1985). The SDT goes from the assumption that everybody pursuit personal growth, but the three psychological basic needs should be satisfied: need for autonomy, need for competence, and need for relatedness. The fulfilment of these three basic needs facilitates intrinsic motivation. Only this kind of behaviour will lead to a lasting behavioural change.

Research findings

Hierarchical regression analyses were used. The first block entered gender, age and BMI z-scores. Secondly, autonomous and controlled motivation during PE were entered. Finally autonomous and controlled motivation during LT were added to the regression model. This procedure allows us to examine the unique contribution of motivation in PE and during LT on PA. Age, gender and weight status accounted for only 0.5% of the variance in PA. Motivation during PE added 6.5% and

motivation during LT accounted for an added 9.5% of the variance in the number of steps per day. In model 2 autonomous motivation during PE seemed to be significant associated with the number of steps per day (β=0.215; p=0.036), but its significance diminished (β=1.27, p=0.213) when autonomous motivation during LT was added to the regression model (β=0.310, p=0.003). ANOVA of the final model with all predictors entered was significant (F(6, 91)=3.017, p=0.010).

SEM-analyses revealed that pupils perceiving a need-supporting environment during PE experienced higher levels of need satisfaction (β=0.53). Need satisfaction predicted intrinsic motivation (β=0.89), which, in turn, linked to the number of steps per day (β=0.25). Although need satisfaction also predicted identified regulation, introjected regulation and amotivation, these, in turn, show no significant relationship with the number of steps per day. However, the full model didn't resulted in an optimal fit (χ^2= 378.87, df=204, p<0.01, GFI=0.86, AGFI=0.82, RMSEA=0.07).

Compared to previous literature, our results showed a rather limited association between motivation during PE and objectively measured PA in preadolescents. However, previous studies predominantly used PA self-reports or behavioural intentions. Self-reporting time spent in PA is subject to recall bias and may cause under- or overestimation of the true PA level due to socially desirable response bias. Moreover, Tudor-Locke et al. (2002) found limited agreement between pedometers and self-reported PA. Therefore, further research is needed to study the transition effect of motivation during the PE-class to PA behaviour during LT. A better understanding of this transition effect could give PE-teachers a better knowledge about how to promote LT PA.