

Association of physical activity, self-concept and self-efficacy in high school students

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ABSTRACT

This study analyses the relationship between physical activity and the perception of self-concept and self-efficacy in high school students. The understanding of this relationship may lead to the development of pedagogical strategies, improving the perception of psychological constructs that might impact adolescents' academic success. Self-report instruments were employed to collect the following data from 330 high school students: self-concept and self-efficacy perception and weekly time spent on moderate-to-vigorous physical activity. Association was demonstrated through linear regression adjusted for age, sex and socioeconomic status. It was observed that physical activity partially explained the general perceived academic self-efficacy (Beta: 0.13; $p=0.02$), the mathematic academic self-efficacy (Beta: 0.24; $p < 0.01$), the general perceived self-efficacy, the academic self-concept (Beta: 0.14; $p < 0.01$), the social self-concept (Beta: 0.34; $p < 0.01$), the physical self-concept (Beta: 0.35; $p < 0.01$), and the general self-concept (Beta: 0.29; $p < 0.01$). It was found that moderate-to-vigorous physical activity contributed to the understanding of high school students' self-concept and self-efficacy perceptions. **Keywords:** Self-concept; Self-efficacy; Students; Physical activity; Adolescents.

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INTRODUCTION

The literature suggests that physical activity plays considerable role in the development of self-concept and self-efficacy, which in turn may be determinant of success in various life contexts of children and adolescents as well as in their school quotidian or sports activities (Babic et al., 2014). It is important to stress that many of the studies aiming at observing the relationship between self-concept and self-efficacy were carried out on children. The unravelling of a possible connection between those aspects among adolescents students is particularly important since adolescence is a crucial period to the settling of concepts and behaviours of individuals. Hence, this study sets out to verify the relationship between physical activity, self-concept and self-efficacy in a group of high school students.

MATERIALS AND METHODS

The study was conducted with 167 females and 163 males whose age averaged 16.4 ± 0.3 years. All subjects were students from the campuses belonging to the Instituto Federal de Educação, Ciência e Tecnologia do Paraná, Brazil.

Information on self-concept was collected in the Five-Factor Self-Concept Questionnaire AF5. The questionnaire scores from 01 to 99 and assesses the following five dimensions of the participants' self-concept: academic, social, emotional, family, and physical. (Coelho et al. 2015).

The General Perceived Self-Efficacy Scale, a Likert-like instrument with ten items that score from 1 to 5, was used to assess the perception of individuals regarding their competence in various life contexts (Sbicigo et al. 2012). The youth's perception of his/her academic competence was measured with the help of a 26-item Academic Self-Efficacy Scale. The answer options ranged from A to F (Neves e Faria, 2006).

The short version of the International Physical Activity Questionnaire was employed to evaluate the time (in minutes) spent a week on moderate-to-vigorous physical activity (MVPA) Guedes et al. (2005).

Concerning data analysis, the Pearson correlation coefficient was employed to measure the correlation between the variables adjusted for age, sex and socioeconomic status. Afterwards, the weekly time spent on MVPA was correlated with self-concept and self-efficacy via linear regression. The statistical significance was set at $p < 0.05$.

Protocol 2.327.626 of the ethics committee of the Federal University of Paraná/Brazil.

RESULTS

The results of the correlation and the association between the weekly time spent in AFMV with self-concept and self-efficacy, adjusted for age, gender and socioeconomic status are shown in Table 1.

Table 1. Correlation and the association between the weekly time spent in AFMV with self-concept and self-efficacy, adjusted for age, gender and socioeconomic level

| | Correlation Coef. | p | R² Adjusted | Beta | p |
|-------------------------|--------------------------|----------|-------------------------------|-------------|----------|
| General ASE | 0.11 | 0.06 | 0.09 | 0.13 | 0.02* |
| Portuguese language ASE | 0.33 | 0.55 | 0.06 | 0.08 | 0.13 |
| Mathematics ASE | 0.28 | <0.001* | 0.11 | 0.24 | <0.01* |
| General Self-efficacy | 0.33 | <0.001* | 0.12 | 0.25 | <0.01* |
| Academics SC | 0.12 | 0.03* | 0.07 | 0.14 | 0.01* |
| Social SC | 0.36 | <0.001* | 0.17 | 0.34 | <0.01* |
| Emotional SC | 0.14 | 0.01* | 0.12 | 0.05 | 0.28 |
| Family SC | 0.05 | 0.89 | 0.02 | 0.03 | 0.87 |
| Physical SC | 0.37 | <0.001* | 0.17 | 0.35 | <0.01* |
| General SC | 0.33 | <0.001* | 0.13 | 0.29 | <0.01* |

ASE: Academic self-efficacy; SC: self-concept; * $p < 0.05$.

DISCUSSION

Body-related activities have been regarded as important strategies to help academic improvement and enhance students' psychosocial competencies. In this perspective, studies indicate physical activity as a viable option to be employed in school contexts (Marques et al., 2016; Babic et al., 2014).

Herein, the linear regression adjusted for age, sex and socioeconomic status showed that the MVPA explained to a certain extent the variances of general academic and mathematics self-efficacy as well as the academic, social, physical and general self-concept. The variance of the general perceived self-efficacy was also explained by MVPA. These results support the idea that not only can regular physical activity improve well-known biological health indicators, it may also promote students' academic, human and psychosocial development (Marques et al., 2016). The results corroborate the study by Lobo et al. (2015) that showed a positive relationship between the time dedicated to physical activities and measures of self-concept and self-esteem.

According to Tamayo et al. (2001), physical activity may not only have physiological impact on psychological factors, but there seems to be a social dimension contained in that variable as well.

CONCLUSION

Moderate-to-vigorous physical activity has been found to correlate with psychological factors that are important to human and academic development.

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