

MOTIVATION OF YOUTH FOR PHYSICAL ACTIVITY IN THE LIGHT OF SELF-DETERMINATION THEORY

ABSTRACT

Introduction

The rapid development of science and technological progress has led to tremendous changes in the way people live. Manifestations of this trend can be seen in almost every sphere of activity, although these changes are not always positive. Satisfying the ever-increasing needs of the population causes many negative effects, such as the destruction of the natural human environment, unfavorable behaviors, especially among young people, or a decrease in people's physical activity, the consequence of which are numerous diseases, commonly referred to as "civilization-related". Physical activity, especially that which is undertaken in free time, of one's own free will, is one of the one of the most important factors influencing the maintenance of health and good physical condition. Unfortunately, it can be observed that, however, many people lack the motivation to voluntarily undertake physical activity that allows for measurable health-promoting benefits, as recommended by the World Health Organization (WHO) (WHO, 2020). In order to carry out effective activities promoting physical activity, it is necessary to know the factors that determine people's volitional behavior in the context mentioned above. The ideal place to promote physical activity among adolescents is a school that has educated staff, appropriate programs, and infrastructural capacity (Londsale et al., 2016). Empirical studies reveal that leisure time behaviors and lifestyles in adults are greatly influenced by experiences gained in physical education classes (Lim and Wang, 2009). Increasing percentages of adolescents who do not exercise in physical education classes with successive years of schooling (Dobosz and Trzcńska, 2000) and the still far from universal participation in physical culture among adults show how necessary it is to understand the essence of motivational processes related to physical activity and their correlates. One of the theories used to explain motivation that is the subject of this dissertation is Deci and Ryan's (2008) self-determination theory, which allows us to

understand the antecedents and consequences of various motivational processes occurring in both sport and physical education.

Aim of the study

The main purpose of this study was to determine the relationship between self-determination theory constructs and attitudes toward physical education, attitudes toward leisure-time physical activity, and leisure-time physical activity of high school students.

Materials and methods

The study was conducted in April 2018 in the city of Katowice. The respondents were students from six general secondary schools in Katowice (V LO, III LO, II LO, IV LO, XV LO, XIV LO) from classes I and III. Both genders participated in the study. The schools were selected randomly from an operator created on the basis of the list of schools of the Education Office in Katowice. More than 500 questionnaires were distributed. Only those that were received fully completed, i.e. 457 copies, were included in the analyses. Females constituted 60.39% (n=276) of the surveyed group, while males 39.61% (n=181). Students of class I comprised 47.70% (n=218) of the study group, while class III comprised 52.30% (n=239). The proportions of both sexes in grades I and III were, respectively, 44.93% female (n=124) - 55.07% male (n=152) and 51.93% female (n=94) - 48.07% male (n=87). Respondents ranged in age from 16 (Class I) to 19 years (Class III). The mean age of the respondents was 17.57 years. Diagnostic survey method, questionnaire technique was used in this study. The following research tools were used to evaluate the variables: *Behavioural Regulation in Exercise Questionnaire* (BREQ) by Mullan et al. (1997) and Markland and Tobin (2004) in the *International Database for Research and Educational Support, Basic Psychological Needs in Physical Education Scale* (BPN-PE) (Vlachopoulos et al, 2011), Attitudes Towards Physical Education Scale and Towards Leisure-time Physical Activity Scale constructed according to Ajzen's proposal (1988, 2001, 2002), recreational activity subscales of the *International Physical Activity Questionnaire* (IPAQ) in the Polish version developed by Biernat and Stupnicki (2004). The tools were accompanied by brief information for the respondent describing the purpose and subject matter of the study

and a metric that allowed us to obtain data on the gender of the respondents and the school class they attend.

Results

It was shown that the highest means were obtained by subscales of need for relationship (4.69 ± 1.63) and competence (4.08 ± 1.75), and the lowest - by subscale of need for autonomy (2.92 ± 0.60). The differences between the means were highly statistically significant: Chi square. ANOVA = 269.49; $p < 0.001$, and as post hoc analysis revealed the need for autonomy was significantly different from the others. The analysis of variance showed that the state of satisfaction of needs - predictors of behavioral regulation significantly differed between girls Wilks' Lambda=0.94, $F_{(3, 453)}=9.69$, $p < 0.001$, $\eta^2=0.06$. However, attention should be paid to the effect size which indicated moderate strength of the discussed relationships. As the post hoc analysis (Tukey's test) showed, the only statistically significant difference was that concerning the need for competence, in which the girls' mean was significantly lower than the boys' mean. There were no significant differences between classes, Wilks' Lambda=0.99, $F_{(3, 453)}=1.28$, $p=0.28$. The results of the BREQ (*Behavioral Regulation in Exercise Questionnaire*) showed that irrespective of gender and the class attended by the respondents, the lowest values were observed regarding amotivation and extrinsic motivation, and the highest values for intrinsic motivation and identification. As the cluster analysis revealed, the first two and the last two of the behavioral regulations mentioned constituted separate clusters with a separate location for introjection, which, however, also formed a group with both of the strongest self-determined types of motivation at higher levels of binding. When comparing the means of the different types of regulation among girls and boys, it was observed that the only statistically significant difference was in the case of intrinsic regulation ($p=0.003$), with higher values found in boys. None of the means of the individual types of behavioural regulation, however, were statistically significant in the comparisons between pupils in Classes I and III. Only with respect to identification there was a trend toward significance of differences and with an effect size showing only marginal degree

of association between variables. It turned out that of the three intensity ranges assessed, respondents were most likely to engage in light level activity for an average of 45.6 minutes per day (319.41±265.65 min/week). It was the only one for which no statistically significant differences were found between girls and boys: respectively, 44.4 minutes per day versus 47.4 (311.08±269.81 min/week. girls, 332.19±259.36 min/week. boys, $t=0.83$, $p=0.41$, $d=0.08$). Moderate to vigorous activity (MVPA), was undertaken to a lesser extent, i.e.: an average of 23.3 minutes per day (162.86±164.27 min/week), especially for the vigorous forms (159.61±184.51 min/week vs. 166.11 ±197.73 min/week). As expected, weekly MVPA volume was higher in boys than in girls. Male students undertook it for an average of 29.9 minutes per day (209.38±177.60 min/week), compared with a corresponding value in female students of 18.9 minutes (132.53±147.57 min/week). It turned out that this difference was not only statistically significant ($p<0.001$), but also reached a moderate effect size ($d=0.48$). Among boys, none of the differences were statistically significant, which means that the level of physical activity they undertake does not change significantly during their high school years. In girls, on the other hand, age was found to determine performance. It was observed that younger female students were more active than their older counterparts in each of the three intensity ranges studied. Within the MVPA, the average activity of students in grades I was nearly 28 minutes per day, while in grades III decreased to about a quarter of an hour, while with respect to regarding light activity from 50 minutes per day to about 42 minutes. The analysis of the obtained results indicates that both categories of attitudes have a positive direction and quite high strength, however, attitudes towards physical activity are significantly stronger than attitudes towards physical education (respectively, 6.14±1.03 versus 5.24±1.56; $p<0.001$). The size of the effect coefficient ($d=0.68$) suggests that the difference between the two categories of attitudes is statistically significant. Comparing both categories of attitudes taking into account the gender of the respondents, it was observed that the difference between the attitudes in question was stronger in girls (6.18±0.94 versus 5.06±1.60, respectively, $p<0.001$, $d=0.85$) than in boys (6.06±1.15 versus 5.51±1.46, $p<0.001$, $d=0.42$). No significant differences by age were found in either sex. Analyzing both components separately, it was noted that with respect to attitudes towards physical education, in both genders the emotional component was significantly lower than the instrumental

component. In boys, both components were more strongly shifted in the positive direction, but the effect size indicating the actual magnitude of differences between them was similar in both sexes (girls $d=0.39$, boys $d=0.32$). This pattern repeats the difference between the two is significant only in girls. In boys, emotional and instrumental attitudes did not differ in a statistically significant manner. Furthermore, the analyses and composite modelling showed that the XGBoost model built correctly predicted the level of physical activity determined using the IPAQ questionnaire based on information regarding motivational behavior. Relatively low model and predictive errors were obtained at each modeling step. Absolute errors were less than 1%. Similarly, the coefficient of determination indicated good fits of the data to XGBoost in each modeling stage. According to the results obtained, more positive attitudes were declared towards physical activity than towards physical education which directly influenced higher involvement in physical activity itself.

Conclusions

The conducted own research allows us to formulate the following final conclusions:

1. Regardless of gender and class attended by the respondents, amotivation and extrinsic motivation had the lowest values, while intrinsic motivation and identification had the highest values.
2. Compared to girls, boys had higher levels of intrinsic motivation.
3. The highest mean scores were obtained for affiliation needs, both for the total number of respondents and separately for each group.
4. The lowest values were found in relation to the need for autonomy in both boys and girls.
5. In terms of all variables, the greatest absolute variation in the value of the variable "competence" was achieved among all subjects and in each individual grouping.
6. Needs for competence and belonging were the strongest predictors of intrinsic motivation to participate in physical education.
7. The adolescents surveyed displayed positive attitudes toward both physical education and physical activity.
8. Both categories of attitudes are quite strong.

9. The category of physical activity which, in the light of the results obtained, is undertaken to the greatest extent by the young people surveyed was light activity.

10. The more strongly the motives for participating in physical education are internalized, the more positive the attitudes towards this subject and towards physical activity itself.

11. More positive attitudes toward physical education and toward physical activity, indicate a greater likelihood of engaging in leisure time physical activity.

Keywords: motivation, self-determination theory, physical activity, youth, physical education, IPAQ