

**Original research paper**

**COMPARATIVE ANALYSIS OF STUDENTS' ATTITUDES  
TOWARDS PHYSICAL EDUCATION AND THEIR  
ENGAGEMENT IN EXTRACURRICULAR  
PHYSICAL ACTIVITIES**

*UDC 379.8:373.3/4; 371.3::796*

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**Abstract.** *The aim of this study was to answer to the basic question: Whether and to what extent the engagement of students in extracurricular sports activities has an impact on the general attitudes towards PE? The study included male (N = 150) and female (N = 152) students. According to the self-reported frequency of physical activity during the week, outside PE, respondents were divided into three independent groups: lightly physically active (1 – 2 times per week; N = 69), moderately physically active (3 – 4 times per week; N = 153), and very physically active (more than 5 times per week; N = 80). For the purposes of this research, PEAS was used, which consists of 43 items, followed by a five-point Likert-type scale (1-strongly disagree – 5-strongly agree). The results showed that there were statistically significant differences between three groups in attitudes towards PE, Satisfaction, Comfort, Activity, and Teacher  $\chi^2(2) = 19.89, 17.10, 20.22, 23.78, \text{ and } 7.19$ , respectively. Furthermore, Cohen's *d* was moderate for Attitudes towards PE, Satisfaction, Comfort, and Activity (.50, .46, .51, .56), and small for teacher (.26). The differences between lightly (1 – 2 times per week) and moderately (3 – 4 times per week), and lightly and very (more than 5 times per week) physically active groups were significant. In conclusion, we can state that the overall attitudes of the students included in this research are strongly positive. Furthermore, students who are more active in extracurricular sports activities had more positive attitudes towards physical education classes.*

**Key words:** *physical education, physical activity, attitudes towards PE.*

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Received June 06, 2021/Accepted June 08, 2021

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## 1. INTRODUCTION

The positive impact of regular physical activity on improving the quality of life, reducing the risk of various diseases, as well as on psychological and emotional well-being is well known (Sallis & Owen, 1998). Increased physical activity of students has a positive effect on the reduction of adipose (adipose) tissue (Barbeau, Litaker, Howe, Barry, & Gutin, 2003), cardiovascular fitness (Ewart, Young, & Hagberg, 1998), muscle strength and endurance (Faigenbaum, Westcott, Loud, & Long, 1999), bone density (Duncan et al., 2002), reduction of anxiety and depression (Jewett et al., 2014), self-confidence (Strong et al., 2005), academic achievement (Sibley & Etnier, 2003).

The school as an educational institution is the most important environment for the promotion of physical activity of students. Physical education and extracurricular sport activities, primarily enable increased physical activity of students during physical education and extracurricular sports activities (Bailey, 2006; Sallis et al., 1997). There is evidence that those who developed a strong foundation in basic sports skills were probably physically active during childhood and adolescence, and thus acquired positive habits of physical activity throughout life (Okely, Booth, & Patterson, 2001). In contrast, students who have not been able to gain adequate base motoric competences are likely not to be actively involved in organized sports activities due to a lack of basic motor skills and abilities (Ignico, 1990).

The contents of physical education (PE) programs and extracurricular sports activities can significantly contribute to the overall volume of physical activity, as well as that most students have positive attitudes towards them (Savić, Stojanović, Mitić, & Randelović, 2018; Savić, Stojanović, Randelović, & Stojiljković, 2015; Trudeau & Shephard, 2005). It is assumed that students, who are satisfied with PE, are significantly more physically active outside of school (Vilhjalmsson & Thorlindsson, 1998). The strength and direction of motivation for PE varies greatly, for some students' physical education is the most favorite part of the school day, and for others it is the main cause of stress and reason for students to miss school (Hagger, Chatzisarantis, & Biddle, 2002; Wang & Biddle, 2001). The reason for the reduced interest may be the exclusion of a larger number of students from school sports competitions, where the privilege is mostly athletes (Shephard, Lavalle, & Larivire, 1978), as well as students' fear of participating in sports competitions (Thompson, Humbert, & Mirwald, 2003). Students who are actively involved in PE and extracurricular sports activities have more positive attitudes compared to less physically inactive students (Koca & Demirhan, 2004). The quality of PE and extracurricular sport activities can significantly contribute to the overall engagement towards physical activity, which can influence the creation of positive attitudes towards PE (Trudeau & Shephard, 2005). During the period of puberty, physical activity is an extremely important factor because in this sensitive phase it could enable the fulfillment of full biological potential (Cvejić, Pejović, & Ostojić, 2013).

The aim of this study was to provide an answer to the basic question: Whether and to what extent the engagement of students in extracurricular sports activities has an impact on the general attitudes towards PE.

## 2. METHODS

### 2.1. Participants

The sample included the 7<sup>th</sup> and 8<sup>th</sup> grade students from "Kralj Petar II Karađorđević" primary school in Belgrade. The study included male (N = 150) and female (N = 152)

students. According to the self-reported frequency of physical activity during the week, outside PE, respondents were divided into three independent groups: lightly physically active (1 – 2 times per week; N = 69), moderately physically active (3 – 4 times per week; N = 153), and very physically active (more than 5 times per week; N = 80).

## 2.2. Instrument

For the purposes of this research, the online questionnaire Physical Education Attitude Scale – PEAS (Orlić et al., 2017) was used, which consists of 43 items, followed by a five-point Likert-type scale (1-strongly disagree – 5-strongly agree). The questionnaire is divided into the following subscales: Satisfaction (12 items, e.g., “I do my best in PE classes”), which refers to emotions during a PE, Comfort (12 items, e.g., “I’ve learned a lot in PE classes”), which refers to comfortable feelings towards PE, Activity (11 items, e.g., “I can’t wait to have a PE class”), which refers to active participation and motivational processes during PE, and Teacher (8 items, e.g., “I am active in PE classes”), which refer to the relationship with the physical education teacher. Questions related to gender, age, grade, as well as, whether, and to what extent students are involved in extracurricular sports activities are added to this questionnaire.

## 2.3. Data collection

The questionnaire is designed to include all the necessary statements that should provide an answer to the problem posed by this research. It is important to note that the statements in the above questionnaire are not ambiguous, and do not interfere with intimacy of the respondents. The online examination of students was performed during the second semester of the 2020/2021 school year. The research was approved by the school principal, physical education teacher, and parents. It was important to acquaint physical education teachers with the construct of the questionnaire and possibly clarify any doubts. Due to the epidemiological situation and the possible risk of transmitting COVID 19, the questionnaire was made in electronic form (Google forms). Completion of the questionnaire was not limited by time. To ensure complete honesty and reliability of the answers, respondents were informed that their answers would remain anonymous, and that the results would be published only for research purposes. Incompletely administrated or responses with ambiguous outcome were not included in the further analysis. Of the 306 completed responses, 302 met the necessary criteria for further statistical analysis. The procedures in this study were conducted according to the Declaration as a statement ethical principle for the research involving human subjects.

## 2.4. Statistical procedures

Raw data from Google form was exported excel and checked for errors, such as incomplete personal data, data on physical activity outside PE, straightforward answers, missing values. After initial management, the data were exported to a statistical program to conduct a reliability analysis (Cronbach’s alpha) and to obtain basic descriptive parameters (min, max, mean, SD, and Kolmogorov-Smirnov test). After determining that the variables were not normally distributed, we had to apply nonparametric statistical procedures.

To examine differences in attitudes toward PE between groups, we conducted the Kruskal-Wallis ANOVA. After identifying significant differences at the multivariate level, we applied the Mann-Whitney U test for pairwise comparisons. The level of significance was set

at  $p < .05$  in this study, and all statistics were performed using SPSS 20 (SPSS Inc., Chicago, IL, USA).

### 3. RESULTS

In order to calculate the psychometric abilities of the scale, it should be emphasized that items with negative scores are inverted, so that higher scores show positive attitudes. The overall scale (Attitude towards PE) and its subscales (Satisfaction, Comfort, Activity, and Teacher) have a satisfactory reliability, which can be concluded based on the Cronbach  $\alpha$  values of .93, .83, .80, .77, and .70, as well as satisfactory average inter-item intercorrelations of .28, .33, .26, .26, .26, respectively. Mean values of 4.34, 4.51, 4.38, 4.13, and 4.34, indicate strongly positive attitudes towards physical education classes. The examined parameters are shown in table 1 did not meet the normal distribution criteria, which is the basic assumption for the parametric statistical methods. Therefore, the comparison of significant differences amongst groups were examined using the nonparametric Kruskal Wallis H test.

**Table 1** Descriptive statistics and reliability of PEAS scale

Scale	Min	Max	M	SD	KS	$\alpha$	r
Attitude towards PE	2.09	5.00	4.34	.52	.132*	.93	.28
Satisfaction	2.25	5.00	4.51	.51	.177*	.83	.33
Comfort	1.92	5.00	4.38	.56	.151*	.80	.26
Activity	1.73	5.00	4.13	.62	.127*	.77	.26
Teacher	2.25	5.00	4.34	.58	.127*	.70	.26

Legend. Min – minimum, Max – maximum, M – mean, SD – standard deviation, KS – Kolmogorov-Smirnov test,  $\alpha$  – Cronbach's  $\alpha$  reliability measure, r – average item intercorrelation.  
\* Indicates significant Kolmogorov-Smirnov test.

The results in table 2 showed that there were statistically significant differences between three groups in attitudes towards PE, satisfaction, comfort, activity, and teacher  $\chi^2(2) = 19.89, 17.10, 20.22, 23.78,$  and  $7.19,$  respectively. Furthermore, Cohen's d (effect sizes) were moderate for Attitudes towards PE, Satisfaction, Comfort, and Activity (.50, .46, .51, .56), and small for teacher (.26) (Sawilowsky, 2009).

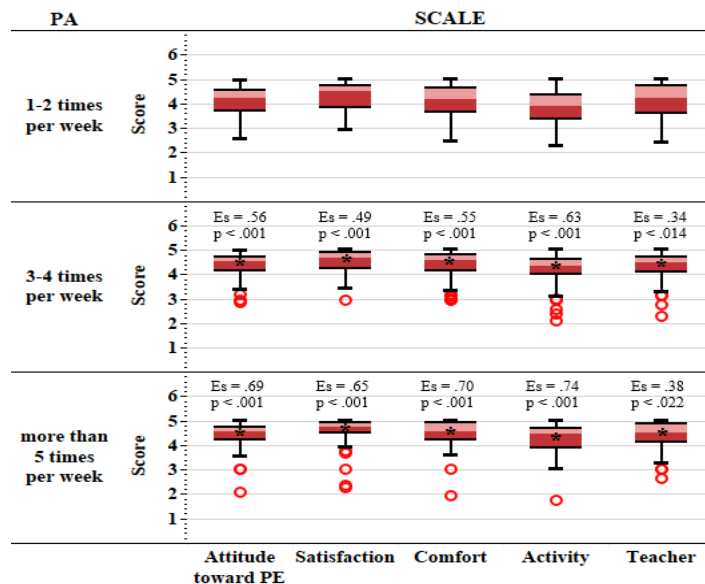
To evaluate differences between the three means, the statistically significant Kruskal-Wallis ANOVA was followed-up with Mann-Whitney U test for pairwise comparisons between groups. The differences between lightly (1 – 2 times per week) and moderately (3 – 4 times per week) physically active group were significant for Attitude toward PE, Satisfaction, Comfort, Activity, and Teacher  $U = 3505.50, z = -4,$  sig. (2-tailed)  $< .001, d = .56, U = 3704.50, z = -3.57,$  sig. (2-tailed)  $< .001, d = .49, U = 3518.50, z = -3.98,$  sig. (2-tailed)  $< .001, d = .55, U = 3307.50, z = -4.46,$  sig. (2-tailed)  $< .001, d = .63, U = 4184.50, z = -2.48,$  sig. (2-tailed)  $< .014, d = .34,$  respectively. The differences between lightly (1 – 2 times per week) and very (more than 5 times per week) physically active group were significant for Attitude toward PE, Satisfaction, Comfort, Activity, and Teacher  $U = 1719, z = -3.96,$  sig. (2-tailed)  $< .001, d = .69, U = 1767, z = -3.80,$  sig. (2-tailed)  $< .001, d = .65, U = 1698, z = -4.05,$  sig. (2-tailed)  $< .001, d = .70, U = 1650.50, z = -4.229,$  sig. (2-tailed)  $< .001, d = .74, U = 2158.50, z = -2.30,$  sig. (2-tailed)  $< .022, d = .38,$  respectively. Finally, the differences between moderately and very physically active group were not significant for Attitude toward PE, Satisfaction, Comfort, Activity, and Teacher  $U = 5806, z = -.64,$  sig. (2-tailed)  $< .521, d = .08$

U = 5710.50, z = -.854, sig. (2-tailed) < .398, d = .11, U = 5759.50, z = -.740, sig. (2-tailed) < .460, d = .098, U = 5807, z = -.642, sig. (2-tailed) < .522, d = .08, U = 6013.50, z = -.219, sig. (2-tailed) < .827, d = .03, respectively. Effect sizes and p values are presented in fig. 1.

**Table 2** Kruskal Wallis test results according to weekly physical activity frequency of students

Scale	PA	N	M Rank	df	$\chi^2$	Cohen's d	P Value
Attitude towards PE	1	69	110.71	2	19.89	.50	.000
	2	153	161.03				
	3	80	168.44				
Satisfaction	1	69	114.30	2	17.10	.46	.000
	2	153	159.11				
	3	80	169.03				
Comfort	1	69	110.60	2	20.22	.51	.000
	2	153	160.65				
	3	80	169.28				
Activity	1	69	106.86	2	23.78	.56	.000
	2	153	162.34				
	3	80	169.28				
Teacher	1	69	126.92	2	7.19	.27	.027
	2	153	157.96				
	3	80	160.35				

*Legend.* PA – physical activity groups, 1 = 2 – 3 times per week, 2 = 3 – 4 times per week, 3 = more than 5 times per week, N – number of participants per group, M Rank – Mean of ranks, df – Degrees of freedom,  $\chi^2$  – Chi-square, Cohen's d – Effect size, P value – statistically significant difference.



**Fig. 1** Attitude toward PE scale and its subscales, differences in weekly physical activity frequency

*Legend.* PA – physical activity. \* Indicates significant difference (Mann-Whitney) in comparison with the lightly physically active group (1 – 2 times per week). Values are expressed as median. Red circles represent outliers. Es – Indicates effect size for significantly different scale responses.

#### 4. DISCUSSION

The aim of this study was to point out the importance of frequent physical activity in creating positive attitudes towards PE. The results of our study indicate that students who are more physically active in extracurricular sports activities have more positive attitudes toward PE. The best indicator of this claim are the results shown in fig. 1. The magnitude of the effects is moderate in moderately (3 - 4 times per week) and highly (more than 5 times per week) physically active groups in comparison with to the lightly physically active group, except in the Teacher subscale, where the values of the effects are low.

Mean values from 4.13 to 4.51 obtained in our study are strongly positive and somewhat higher than results in previous studies (Cruz, Kim, & Kim, 2021; Orlić et al., 2017; Orlić, Mijatović, & Lazarević, 2018). Possible explanation could be that high school students are less involved in PE, than their primary school counterparts. Older students face increased stress, which is caused by biological changes in puberty (Prusak, Treasure, Darst, & Pangrazi, 2004; Sibley & Etnier, 2003). During this period, their school tasks are higher, which may explain decreased engagement in physical activity and overall positive attitudes towards PE for some students (Protić & Prahović, 2007). Furthermore, a possible explanation for these results can be found in the fact that higher participation in extracurricular sports activities can provide students with the opportunity to connect with their peers and their school (Brettschneider, 2001; McBride et al., 1995), which could positively influence generating positive attitudes towards PE in general (Jewett et al., 2014; McBride et al., 1995). According to (Boone & Leadbeater, 2006), the benefits of extracurricular sports activities can mostly be described as positive experiences, which could increase social acceptance and reduce dissatisfaction with own body. Moreover, mastery, self-esteem, emotional well-being, self-concept and quality of life, can be improved and potentially associated with better mental health (Brettschneider, 2001; Erkut & Tracy, 2002; Ferron, Narring, Cauderay, & Michaud, 1999; Pyle, Mc Quivey, Brassington, & Steiner, 2003; Snyder et al., 2010). Based on the results of the mentioned research, students should be encouraged to get involved in extracurricular sports activities, in order to create positive attitudes towards PE, which can also affect the quality of certain psychological indicators of mental health.

It should be noted, quality of developed motor skills at a younger age can also predict the level of physical activity outside school. Adolescents with better motor skills will find it easier to engage in physical activity, compared to peers with lower abilities and motor skills (Wrotniak, Epstein, Dorn, Jones, & Kondilis, 2006). Adolescents with poorer motor abilities can potentially develop sedentary lifestyle, in order to avoid difficulties in performing movements (Petroliini, Iughetti, & Bernasconi, 1995). Therefore, feeling comfortable during physical activity is essential for developing positive attitudes towards PE, so we can assume that students who are more frequently engaged in extracurricular sports activities are more positive oriented towards PE.

Moreover, research by Valois, Umstatt, Zullig, and Paxton (2008) examined the relationship between different forms of behavior during physical activity, determined by intensity ranging from moderate to intense, and found that the recommended level of physical activity and participation in sports school teams significantly associated with better emotional self-efficacy. Another study investigated the frequency of extracurricular sports activities and perceived health, attitudes about health, and behaviors (Michaud, Jeannin, & Suris, 2006). Students with a higher participation rate (at least twice a week) have a more pronounced sense of well-being compared to those who participated less than once a week

(Michaud et al., 2006). Furthermore, one more study looked at the number of sports, the type of sport, and the years spent in sports, and found that participation in sports was positively associated with self-assessment of physical appearance and physical competence, physical self-esteem, and general self-confidence (Bowker, 2006). Based on the results of these studies, we can conclude that students who are more frequently engaged in extracurricular sports activities experience pleasant emotions, which could emphasize their positive attitudes towards PE. However, it is important to point out that it is not enough to just learn certain skills, but it is necessary to apply them in the context of other areas that are not necessarily related to sports. Skills can be mastered through formal instruction or can be learned through repetition and mistakes. It is important that students in physical activity recognize why they want to learn a skill and whether they have tried to apply the acquired skills in different contexts, or at least determine what prevents them from doing so. One of the basic problems that arises when learning new skills and applying them in different circumstances is the fear of failure or "not looking bad" in the eyes of their peers (Danish & Nellen, 1997). Previous statement could be a possible explanation that the less physically competent students could associate unpleasant feelings with PE.

Considering the fact, that there are different theoretical approaches in sociology that indicate that physical and other forms of social activities, which begin at an early age, are likely to continue as long as there is adequate reward, opportunities for voluntary participation and certain competitive activities (Curtis, McTeer, & White, 1999). The explanation for this statement could be related to the fact that students who participate in sports activities have a higher level of motor abilities and skills, and therefore a greater interest in sports, better knowledge of sports and more time dedicated to sports. One or more of these factors and their impact on continued participation in sports may have a stronger impact on the effect of sports and physical activity in the future (Curtis et al., 1999; Howell & McKenzie, 1987). It is also probable that those who are involved in competitive school sports are more committed to competitive activities outside of school. Therefore, it seems that the effects of more frequent participation in extracurricular sports activities are related to more positive attitudes towards PE in general.

Few studies have investigated the impact of sport as a form of extracurricular activities on positive youth development (Eime, Young, Harvey, Charity, & Payne, 2013; Holt, Kingsley, Tink, & Scherer, 2011; Linver, Roth, & Brooks-Gunn, 2009; Zarrett et al., 2009), personal development (Hansen, Larson, & Dworkin, 2003), and general behavior (Howie, Lukacs, Pastor, Reuben, & Mendola, 2010). Howie et al. (2010) confirmed in their research that students participating in extracurricular sports activities and school sports sections showed better results in social skills, compared to children who were not involved in any kind of extracurricular activities. The participation of students in extracurricular sports activities, in relation to students who did not attend any extracurricular activities, as well as those who were engaged in other extracurricular activities not related to sports and physical activity, contributed to their better development. However, it is important to mention that students who are involved in extracurricular sports activities and other extracurricular activities have the greatest benefits (Howie et al., 2010; Linver et al., 2009).

## 5. CONCLUSION

In the conclusion of this study, we can state that the overall attitudes of the students included in this research are strongly positive. Furthermore, students who are more active in extracurricular sports activities had more positive attitudes towards physical education classes, which we can relate to the development of students in many domains: physical, life, affective, social and cognitive. Participation in school sports and physical education classes protects against poor mental health, improves physical health, as well as psychological and social status. Our recommendations are that the purpose of the constructed PE curricula is to promote life and sports skills of adolescents, especially those who are insufficiently trained, as well as their orientation towards extracurricular sports activities, in order to develop positive attitudes towards PE and physical activity in general.

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## KOMPARATIVNA ANALIZA STAVOVA UČENIKA PREMA FIZIČKOM VASPITANJU I NJIHOVOG ANGAŽOVANJA U VANNASTAVNIM FIZIČKIM AKTIVNOSTIMA

*Cilj ove studije bio je da pruži odgovor na osnovno pitanje: Da li i u kojoj meri angažovanje učenika u vannastavnim sportskim aktivnostima utiče na opšte stavove prema fizičkom vaspitanju? Studija je obuhvatila ispitanike muškog (N = 150) i ženskog (N = 152) pola. Prema učestalosti samoprijavljene fizičke aktivnosti, van nastave fizičkog vaspitanja, ispitanici su podeljeni u tri nezavisne grupe: slabo fizički aktivni (1 – 2 puta nedeljno; N = 69), umereno fizički aktivni (3 – 4 puta nedeljno; N = 153), i vrlo fizički aktivni (više od 5 puta nedeljno; N = 80). Za potrebe ovog istraživanja korišćen je upitnik "Skala odnosa prema fizičkom vaspitanju – PEAS", koji se sastoji od 43 ajtema Likertovog tipa (1 - u potpunosti se ne slažem – 5 - u potpunosti se slažem). Rezultati su pokazali da postoje statistički značajne razlike između tri grupe u stavovima prema fizičkom vaspitanju, zadovoljstvu, udobnosti, aktivnosti i nastavniku fizičkog vaspitanja  $\chi^2(2) = 19.89, 17.10, 20.22, 23.78$  i  $7.19$ . Vrednosti Cohen's d (effect size) bio je umeren kod skale odnosa prema fizičkom vaspitanju, kao i subskalama zadovoljstva, udobnosti i aktivnosti (.50, .46, .51, .56), i mali kod subskale koja se odnosi na nastavnike fizičkog vaspitanja (.26). Razlike između slabo (1 – 2 puta nedeljno) i umereno (3 – 4 puta nedeljno) fizičke aktivne grupe su bile značajne kod skale odnosa prema fizičkom vaspitanju i kod subskala koje se odnose na zadovoljstvo, udobnost,*

aktivnost i nastavnike fizičkog vaspitanja  $U = 3505.50, z = -4, sig. (2-tailed) < .001, d = .56, U = 3704.50, z = -3.57, sig. (2-tailed) < .001, d = .49, U = 3518.50, z = -3.98, sig. (2-tailed) < .001, d = .55, U = 3307.50, z = -4.46, sig. (2-tailed) < .001, d = .63, U = 4184.50, z = -2.48, sig. (2-tailed) < .014, d = .$  Razlike između slabo (1–2 puta nedeljno) i veoma (više od 5 puta nedeljno) fizički aktivne grupe su bile značajne kod skale odnosa prema fizičkom vaspitanju i kod subskala koje se odnose na zadovoljstvo, udobnost, aktivnost i nastavnike fizičkog vaspitanja  $U = 1719, z = -3.96, sig. (2-tailed) < .001, d = .69, U = 1767, z = -3.80, sig. (2-tailed) < .001, d = .65, U = 1698, z = -4.05, sig. (2-tailed) < .001, d = .70, U = 1650.50, z = -4.229, sig. (2-tailed) < .001, d = .74, U = 2158.50, z = -2.30, sig. (2-tailed) < .022, d = .38.$  U zaključku, možemo konstatovati da su stavovi studenata u ovom istraživanju veoma pozitivni. Štaviše, učenici koji su više fizički aktivni u vannastavnim sportskim aktivnostima su imali pozitivnije stavove prema nastavi fizičkog vaspitanja.

Ključne reči: fizičko vaspitanje, fizička aktivnost, stavovi prema fizičkom vaspitanju.