ORIGINAL ARTICLE. PHYSICAL EDUCATION

Attitude of students of grades 5-11 towards physical education

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Abstract

Purpose: to determine the main vectors of the attitude of students of grades 5-11 to physical education.

Matherial and methods

The study was conducted in Lutsk Gymnasium No. 17, students of grades 5-11. The instrument was a questionnaire with the participation of 420 children, 30 boys and 30 girls from each class, aged 10-16 years. A questionnaire was specially developed for the pedagogical experiment, which included 9 questions. During the research, the data were processed using the methods of mathematical statistics.

Research methods. In the study, we used the following research methods: theoretical analysis and generalization of literary sources; survey; methods of mathematical statistics.

Results

In general, it is possible to state the heterogeneity of the answers regarding the students' attitude to physical culture, depending on gender characteristics.

Conclusions

With age, there is a gradual decrease in the interest of schoolchildren in physical exercises, as well as a low overall score in girls and a significant variability of their answers.

Key words: lesson, motor activity, schoolboy, interest, motivatio

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Анотація

Бакіко І.В., Коновальчук А.М., Мордик М.Ю. Ставлення учнів 5-11 класів до занять з фізичної культури

Мета: визначити основні вектори ставлення учнів 5-11 класів до занять з фізичної культури.

Матеріал і методи

Дослідження проводилося в Луцький гімназії № 17, школярів 5-11 класів. Інструментом виступало анкетування за участю 420 дітей, по 30 хлопців та 30 дівчат з кожного класу, віком 10 – 16 років. Для проведення педагогічного експерименту була спеціально розроблена анкета, яка включала 9 питань. Під час дослідження дані були оброблені методами математичної статистики.

Методи дослідження. У дослідженні ми використовували наступні методи дослідження: теоретичний аналіз та узагальнення літературних джерел; анкетування; методи математичної статистики.

Результати

Загалом можна констатувати, про неоднорідність відповідей, щодо ставлення учнів до занять з фізичної культури в залежності від гендерних особливостей.

Висновки

З віком спостерігається поступове зменшення інтересу школярів до занять фізичними вправами, а також низьку загальну оцінку в дівчат та значну варіативність їхніх відповідей.

Ключові слова: урок, рухова активність, школяр, інтерес, мотивація

Introdaction

In theoretical studies, a number of scientists deal with the issue of organizing physical education classes. In their research, the authors raise the problem of material needs in the structure of motivation, the influence of social and household needs on physical activity, the peculiarities of motivation and interest of people of different ages, genders and forms of education [1–6].

Despite the presence of theoretical studies and practical attempts to investigate the issue of the peculiarities of students' attitude to physical education, from the point of view of scientists, this problem remains not fully resolved [7–12]. First of all, this is explained by the fact that there is no unity in the understanding of the essence of this phenomenon in modern scientific literature [12–18]. Because of this, there is a need to study the aspects of forming a positive attitude in students towards physical education.

Scientists have emphasized that the student should be aware of the importance of physical education, because during them a healthy lifestyle is formed and the ability to eradicate a number of physiological disorders that are associated with dysfunctions of the cardiovascular and other systems [19–22].

The purpose: to determine the main vectors of the attitude of students of grades 5-11 to physical education.

Material and methods

Research material

The study was conducted in Lutsk Gymnasium No. 17, students of grades 5-11. The instrument was a questionnaire with the participation of 420 children, 30 boys and 30 girls from each class, aged 10-16 years. A questionnaire was specially developed for the pedagogical experiment, which included 9 questions. During the research, the data were processed using the methods of mathematical statistics.

Research methods

In the study, we used the following research methods:

– theoretical analysis and generalization of literary sources;
– survey;
– methods of mathematical statistics.

Results

Let's find out why schoolchildren attend physical education classes. Students were given 5 answer options: i like to do physical exercises, to get a positive score, to improve my health, to form a good figure and to improve my physical qualities. The results of the answers of boys and girls are presented in the table. 1.

As our research showed, the main reason why schoolchildren attend physical education classes is "I like to do physical exercises" (37.9% in total). This reason received the highest percentages among students from 5th to 11th grade, both among boys and among girls. The second reason was given by schoolchildren - "to get a positive score". This reason received 19.6% of respondents' votes. The third step was occupied by motivation - "to improve one's own physical qualities" (18.0%).

The fact that such a reason as "to improve health" was indicated by a small number of surveyed students (13.1%) is a cause for concern. It should be noted that such a reason as "for the formation of a good figure" did not find its supporters among boys and girls of the 9th grade.

The curriculum "Physical Culture" was developed in accordance with the requirements of the State Standard of Basic and Complete General Secondary Education, approved by Resolution No. 1407 of the Cabinet of Ministers of Ukraine dated October 23, 2017.

The program is aimed at implementing the principle of variability, which predicts the planning of educational material in accordance with the age, gender characteristics of children, their interests, material and technical base, personnel potential.

The curriculum is developed according to the modular system. In its content, it includes two invariant or mandatory modules: theoretical and methodological knowledge and general physical training and variable modules [1].

We asked schoolchildren: "Is the modern physical education program effective for schoolchildren?". 29.5% of schoolchildren are convinced that it is effective, 1.6% indicated that it is "no", 42.7% are convinced that it is "partially" and 26.2% could not answer this question. A similar trend is observed in schoolchildren regardless of age and gender characteristics (Table 2).

Answering the questionnaire question: "Are you satisfied with the material and technical base of your educational institution (sports equipment, condition of the sports hall, stadium, etc.)?", the highest percentage (37.9%) received the option - "no", 34.4% of respondents indicated that "in part". A small percentage fell on the options "yes" and "it is difficult to answer" (Table 3).

Boys of the 5th grade gave the most votes to the option "no" (55.0%), girls pointed to the option " partly " (50.1%). Boys of the 6th grade preferred the option " partly " (43.3%), while girls preferred the option "no" (50.0%). Half of the male respondents of the 7th grade pointed to the column - "partly" (50.0%), and 33.8% of the girls are satisfied with the material and technical base. 53.3% of 8th-grade students are not satisfied with the sports equipment of the educational institution, and 50.0% of girls answered "partly". A similar trend is observed in 9th grade students (50.0% and 40.0%, respectively). 40.0% of 10th-grade boys and 50.0% of 11th-year students are not satisfied with the material and technical base. 37.2% of girls in the 10th grade are satisfied with the availability of sports equipment, the condition of the gymnasium, and the stadium of their educational institution, and 50.0% of the graduating class indicated the option - "partly".

A similar trend occurred with the answers of schoolchildren who answered the question: "Are you satisfied with the hygienic standards of the conditions in which physical education lessons are held?" (Table 4).

Table 1

Reasons for schoolchildren attending physical education classes, %

Options answers	In general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g	b	g	b	g	b	g	b	g	b	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
i like to exercise	37.9	29.2	46.7	46.6	33.3	36.6	46.6	43.3	40.0	26.6	46.6	23.3	36.6	43.3	33.3
to get a positive score	19.6	22.5	16.6	16.6	20.0	13.3	6.6	6.6	16.6	36.6	13.5	36.6	13.3	16.6	20.0
to improve health	13.1	19.3	6.7	13.3	10.0	3.3	16.6	26.6	13.3	26.6	26.6	16.6	13.3	13.3	10.0
to form a beautiful figure	11.4	16.1	6.7	6.9	10.1	33.5	16.9	10.2	13.5	0	0	10.2	10.2	13.5	23.4
to improve one's own physical qualities	18.0	12.9	23.3	16.6	26.6	13.3	13.3	13.3	16.6	10.2	13.3	13.3	26.6	13.3	13.3

Table 2

Effectiveness of the modern physical education program, according to schoolchildren, %

Options answers	In general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g.	b	g	b	g	b	g	b	g	b	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
yes, effective	29.5	25.8	30.0	23.3	30.0	26.6	33.3	13.3	36.6	30.0	36.6	33.3	13.3	26.6	23.3
no	1.6	3.2	0	3.3	6.6	9.9	9.9	13.3	3.3	13.3	16.6	6.6	16.6	16.6	3.3
partly	42.7	51.7	36.7	50.0	43.3	46.6	43.3	36.6	43.3	33.3	33.3	40.0	43.3	43.3	40.0
difficult to answer	26.2	19.3	33.3	23.4	20.1	16.9	13.5	36.8	16.8	23.4	13.5	20.1	26.8	13.5	33.4

Table 3

Correspondence of the material and technical base of the institution to the preferences of schoolchildren, %

Options answers	In general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g	b	g	b	g	b	g	b	g	b	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
yes	11.4	16.1	6.6	3.4	6.8	3.4	33.8	3.4	10.4	3.4	16.7	13.4	37.2	6.8	3.4
no	37.9	55.0	20.0	40.0	50.0	43.3	26.6	53.3	30.0	50.0	30.0	40.0	26.6	50.0	43.3
partly	34.4	19.3	50.1	43.3	26.6	50.0	30.0	40.0	50.0	43.3	40.0	30.0	26.6	26.6	50.0
difficult to answer	16.3	9.6	23.3	13.3	16.6	3.3	9.6	3.3	9.6	3.3	13.3	16.6	9.6	16.6	3.3

Table 4

Observance of hygienic standards in which physical education classes are held, %

Options answers	in general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g	b	g	b	g	b	g	b	g	b	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
yes	18.0	35.6	0	36.6	16.6	23.3	13.3	16.6	13.3	23.3	16.6	13.3	16.6	13.3	23.3
no	34.6	29.0	40.1	30.0	40.0	36.6	26.6	23.3	40.0	20.0	36.6	43.3	23.3	26.6	20.0
partly	27.8	22.5	33.3	26.6	30.0	23.3	20.0	43.3	36.6	23.3	16.6	26.6	30.0	40.0	36.6
difficult to answer	19.6	12.9	26.6	6.8	13.4	16.8	40.1	16.8	10.1	33.4	30.2	16.8	30.1	20.1	20.1

A teacher is a person who carries out the educational process and is responsible for the intellectual, spiritual, physical, social development and activities of students. Therefore, the teacher's personality should be characterized by high morality, decency and honesty [2].

Schoolchildren, answering the question of the questionnaire: "To what extent does the personality of the teacher influence your interest in physical education lessons?", were offered to choose one of the following options - very influential; affects, but it is not the most important thing for me; Does not matter; Difficult to answer.

Analyzing the results of schoolchildren's answers, for the majority of respondents, the teacher's personality is very important for the interest in physical education classes (46.1%). 27.8% indicated that it affects, but it is not the most important thing for them, 18.0% indicated that it does not matter to them, and 8.1% could not answer the question of the questionnaire. Schoolchildren showed a similar tendency regardless of age and gender characteristics (Table 5).

In response to the questionnaire question: "Do your parents treat physical education lessons the same way as physics, mathematics, etc.?", we received the following results: 47.7% of respondents indicated that they do, they treat physical education classes culture in the same way as to lessons in mathematics, physics, etc.; 27.8% stated that no, physical education is perceived as an optional discipline; 21.3% chose the option - they don't care, and 3.2% hesitated with the answer. A similar dynamic is observed among all age groups, regardless of the gender of the respondent (Table 6).

Table 5

The importance of the teacher's personality on the interest of schoolchildren in physical exercises, %

Options answers	In general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g	b	g	b	g	b	g	b	g	b.	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
very influential	46,1	45,2	46,7	46,6	43,3	40,0	36,6	43,3	46,6	36,6	40,0	36,6	43,3	46,6	43,3
affects, but it is not the most important thing for me	27,8	25,8	30,0	20,0	23,3	26,6	30,0	30,0	20,0	26,6	23,3	30,0	20,0	23,3	20,0
does not matter	18,0	25,8	10,0	20,0	23,3	13,3	10,0	20,0	13,3	23,3	10,0	20,0	13,3	20,0	23,3
difficult to answer	8,1	3,2	13,3	13,4	10,1	20,1	23,4	6,7	20,1	13,5	26,7	13,4	23,4	10,1	13,4

Table 6

The attitude of parents of schoolchildren towards physical education as a compulsory subject, %

Options answers	in general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g	b	g	b	g	b	g	b	g	b	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
yes	47.7	48.5	46.8	46.6	43.3	40.0	36.6	43.3	36.6	36.6	46.6	43.3	40.0	36.6	46.6
no, physical education is perceived as an optional discipline	27.8	35.4	20.0	33.3	30.0	26.6	33.3	23.3	30.0	26.6	33.3	23.3	26.6	33.3	30.0
they don't care	21.3	16.1	26.6	20.0	16.6	26.6	20.0	20.0	26.6	20.0	16.6	16.6	20.0	26.6	20.0
difficult to answer	3.2	0	6.6	0.1	10.1	6.8	10.1	13.4	6.8	16.8	13.5	16.8	13.4	3.5	3.4

Table 7

Schoolchildren's interest in physical culture and health systems, %

Options answers	in general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g	b	g	b	g	b	g	b	g	b	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
yes, and i want to do it	22.9	22.5	23.3	20.0	16.6	23.3	16.6	22.5	16.6	20.0	23.3	16.6	23.3	20.0	22.5
yes, i'm interested, but i do other sports	9.8	6.4	3.3	3.4	13.5	10.1	26.8	14.3	6.8	20.0	6.8	10.2	20.1	13.4	4.2
no, i'm not interested	26.2	32.2	20.0	30.0	26.6	26.6	20.0	26.6	30.0	20.0	26.6	26.6	20.0	20.0	30.0
difficult to answer	41.1	38.9	43.4	46.6	43.3	40.0	36.6	36.6	46.6	40.0	43.3	46.6	36.6	46.6	43.3

Table 8

Possession of the theory of physical education by schoolchildren, %

Options answers	in general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g	b	g	b	g	b	g	b	g	b	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
yes	49	9.6	0	16.8	4.4	13.4	13.7	4.4	13.5	13.7	10.1	11.1	13.7	13.4	1.0
no	27.8	29.0	26.6	20.0	29.0	23.3	26.6	29.0	23.3	26.6	23.3	29.0	26.6	20.0	29.0
partly	59.2	55.0	63.4	56.6	60.0	53.3	53.3	60.0	56.6	53.3	56.6	53.3	53.3	56.6	60.0
never even heard of that	8.1	6.4	10.0	6.6	6.6	10.0	6.4	6.6	6.6	6.4	10.0	6.6	6.4	10.0	10.0

Table 9

Use of physical education facilities by schoolchildren depending on their state of health, %

Options answers	In general	5 grade		6 grade		7 grade		8 grade		9 grade		10 grade		11 grade	
		b	g	b	g	b	g	b	g	b	g	b	g	b	g
		n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30	n=30
yes	4.9	9.6	0	10.0	3.3	9.6	6.6	9.6	0	10.0	3.3	9.6	6.6	9.6	0
no	27.8	29.1	26.6	33.3	36.6	40.0	30.0	26.6	33.3	26.6	30.0	30.0	40.0	36.6	33.3
partly	34.6	32.2	36.7	40.0	36.7	32.2	43.3	43.3	40.0	43.3	36.7	32.2	43.3	36.7	40.0
difficult to answer	32.7	29.1	36.7	16.7	23.4	18.2	20.1	20.5	26.7	20.1	30.0	28.2	10.1	17.1	26.7

Discussion

We asked schoolchildren whether they are interested in such physical culture and health systems as fitball aerobics, step aerobics, shaping, etc.? The results of the study showed that the vast majority of respondents could not answer the question (41.1%). A small percentage received options: no, I'm not interested in it (26.2%), yes, I want to do it (22.9%), I am interested, but I do another sport (9.8%). Therefore, those who are interested and want to engage in physical culture and health systems turned out to be a small number (Table 7).

One of the priority tasks of the course of theory and methods of physical education is the ability to integrate knowledge and find ways to implement this knowledge in practical activities. Theory is research, observation, logical generalization of the experience of social practical activity, which reflects the objective laws of human and society development (a system of generalizing provisions in one or another field of knowledge) [6].

As the results of our research showed, when answering the question: "Do you know the theory of physical education (do you know the methods of forming motor actions, do you know your own daily norm of motor activity, do you know your standards of physical fitness)?", 59.2% of schoolchildren indicated that they have partially, 27.8% - no. A small percentage fell on the answer options "yes" and "not even heard of such a thing" (4.9% and 8.1%, respectively). A similar trend is observed among respondents of all classes (Table 8).

Means of physical education include motor actions, forces of nature and hygienic factors. The main means of physical education is physical exercise, auxiliary means are the forces of nature and hygienic factors [4, 5].

Answering the question of the questionnaire: "Do you know how to use the means of physical education depending on your state of health?", it was suggested to choose one of the following options: yes; No; part; Difficult to answer. The schoolchildren's answers were distributed as follows: 34.6% of the respondents partially know how to use the means of physical education, depending on their state of health; 32.7% – could not answer the question; 27.8% do not use means of physical education. The fact that only 4.9% of respondents know how to use physical education tools depending on their state of health is alarming (Table 9).

It should be noted that more boys than girls use the means of physical education. This applies to all age groups.

Conclusions

In general, it is possible to state the heterogeneity of the answers regarding the students' attitude to physical culture, depending on gender characteristics. With age, there is a gradual decrease in the interest of schoolchildren in physical exercises, as well as a low overall score in girls and a significant variability of their answers.

Conflict of interest

The authors declare that they have no conflict of interest.

References

1. *Curriculum on physical education for general educational institutions grades 5-9.* MES; from 23.10.2017. №1407.
2. Mischenko N., Kolokoltsev M., Romanova E., Vorozheikin A., Ivanova E., Suslina I. Schoolchildren's motivation to increase motor activity using the foot bag freestyle game. *Journal of Physical Education and Sport.* 2021; 21(5): 2657-2663. doi:10.7752/jpes.2021.05354.
3. Romar JE., Enlund M., Lind S. Björkgren M. Movement integration in academic classrooms; a focus on secondary students' experiences. *Journal of Physical Education and Sport*. 2023;23(4):918-928. doi:10.7752/jpes.2023.04115.
4. Sawicki Z. Attitudes of austrian high-school students towards selected aspects of school physical education in light of gender and environmental conditions. *Journal of Physical Education and Sport*. 2023;23(7):1660-1669. doi:10.7752/jpes.2023.07203.
5. Tortella P., Ceciliani A., Fumagalli G., Jidovtseff B., Wainwright N., Fjortoft I., Sigmundsson H., Haga M., Sgrò F., Lipoma M., Sääkslahti, A. Children's outdoor movement education: position statement. *Journal of Physical Education and Sport*. 2021;21(Supplement issue 1):451-462. doi:10.7752/jpes.2021.s1046.
6. Flores Ferro E., Maureira Cid F., Villaseca-Vicuna R., Valenzuela-Contreras L., Moral Moreno L., Barrera Diaz J., Hadweh Briceno M. Attitudes on gender equality in soccer among primary and secondary students in Santiago de Chile. *Journal of Physical Education and Sport*. 2023;23(issue 4):965-974. doi:10.7752/jpes.2023.04121.
7. Larsen RT, Wagner V, Korfitsen CB, Keller C, Juhl CB, Langberg H, et al. Effectiveness of physical activity monitors in adults: systematic review and meta-analysis. *BMJ.* 2022 Jan 26;:e068047.
8. Harari GM, Lane ND, Wang R, Crosier BS, Campbell AT, Gosling SD. Using Smartphones to Collect Behavioral Data in Psychological Science. *Perspect Psychol Sci*. 2016 Nov;11(6):838-54.
9. Coughlin SS, Whitehead M, Sheats JQ, Mastromonico J, Smith S. A Review of Smartphone Applications for Promoting Physical Activity. *Jacobs J Community Med*. 2016;2(1):021.
10. Tong HL, Quiroz JC, Kocaballi AB, Ijaz K, Coiera E, Chow CK, et al. A personalized mobile app for physical activity: An experimental mixed-methods study. *DIGITAL HEALTH*. 2022;8:205520762211150.
11. World Health Organization. Global recommendations on physical activity for health. *Whoint* [Internet]. 2010; Available from: https://apps.who.int/iris/handle/10665/44399
12. Ilnitskaya AS, Kozina ZhL, Barybina LN, Kolomiez NA, Cieślicka M, Stankiewicz B, Pilewska W. Author's internet blog as information and communication technologies in the educational space within the physical education students. *Physical education of students.* 2014;18(1):22-26
13. Kozina Z, Kozin V. *Little wizards. Cheerful children's gymnastics in verses*. Kharkov. 2009. 72 p.
14. Kozina Z. The substantive provisions of author course of preparation of pregnant to natural healthy births «Opening of flower». *Pedagogika, psihologia ta mediko-biologicni problemi fizicnogo vihovanna i sportu [Pedagogics, psychology, medical-biological problems of physical training and sports*]. 2008;3:81-92.
15. Nollen NL, Mayo MS, Carlson SE, Rapoff MA, Goggin KJ, Ellerbeck EF. Mobile Technology for Obesity Prevention. *American Journal of Preventive Medicine*. 2014 Apr;46(4):404-8.
16. Schoeppe S, Alley S, Van Lippevelde W, Bray NA, Williams SL, Duncan MJ, et al. Efficacy of interventions that use apps to improve diet, physical activity and sedentary behaviour: a systematic review. *Int J Behav Nutr Phys Ac*t. 2016 Dec;13(1).
17. Gowin M, Cheney M, Gwin S, Franklin Wann T. Health and Fitness App Use in College Students: A Qualitative Study. *American Journal of Health Education.* 2015 Jul 4;46(4):223-30.
18. Middelweerd A, van der Laan DM, van Stralen MM, Mollee JS, Stuij M, te Velde SJ, et al. What features do Dutch university students prefer in a smartphone application for promotion of physical activity? A qualitative approach. *Int J Behav Nutr Phys Act.* 2015 Dec;12(1).
19. Abate Daga F, Agostino S, Peretti S, Beratto L. COVID-19 nationwide lockdown and physical activity profiles among North-western Italian population using the International Physical Activity Questionnaire (IPAQ). *Sport Sci Health*. 2021 Jun;17(2):459-64.
20. Roberts-Lewis SF, White CM, Ashworth M, Rose MR. The validity of the International Physical Activity Questionnaire (IPAQ) for adults with progressive muscle diseases. *Disability and Rehabilitation.* 2022 Nov 6;44(23):7312-20.
21. Clemente-Suárez VJ, Beltrán-Velasco AI, Ramos-Campo DJ, Mielgo-Ayuso J, Nikolaidis PA, Belando N, et al. Physical activity and COVID-19. The basis for an efficient intervention in times of COVID-19 pandemic. *Physiology & Behavior*. 2022 Feb;244:113667.

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