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Trends in physical activity in adolescents participating and not participating in organized team or individual physical activity

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Abstract

Introduction and Objective. Participation of adolescents in organized physical activity (PA), together with physical education, is essential for the development of a habit of regular PA, achievement of PA recommendations and adoption of physical literacy. The aim of the study is to identify the trends and differences in PA levels between adolescents participating in organized team PA, organized individual PA, and those not participating in organized PA. Another aim is to formulate proposals to eliminate the negative effects of the pandemic on adolescents' participation in organized PA.

Materials and method. The research took place between 2012–2021 in 51 secondary schools and involved a total of 1,202 boys and 1,561 girls. Participation in organized PA was examined using the 'Sports preferences survey'. Weekly PA was investigated by means of the 'International Physical Activity Questionnaire-Long Form'.

Results. The results confirmed the negative trend in participation in organized PA. However, this was predominantly caused by the negative effects of the pandemic in 2020–2021. Boys participating in organized team and individual PA had more school PA, recreation PA, vigorous PA, moderate PA and overall PA during the week, compared with boys not participating in organized PA (girls had more vigorous PA, moderate PA and overall PA).

Conclusions. Participation in organized team PA and individual PA plays an important role, primarily in supporting vigorous PA but also in overall weekly PA among boys and girls. The negative effects of the pandemic should be eliminated by increasing adolescents' participation in various forms of organized PA with an emphasis on organized individual PA which can be regularly pursued, even under restrictive measures at home, in the countryside or in nature.

Key words

trend, recommendation, healthy lifestyle, preferences, organized physical activity

INTRODUCTION

Adolescents' physical activity (PA) is an indispensable part of a healthy lifestyle which should be maintained throughout life [1]. Therefore, it is essential to adopt a habit of regular PA in childhood [2] and adolescence [3]. The most significant factors that affect the adoption of the habit of regular PA include especially family nurture [4, 5, 6], high-quality school-based physical education [7] and regular active participation in organized PA (OPA) [8]. Organized PA is understood as structured PA with a clear focus and under the leadership of a qualified 'instructor', while unorganized PA is unstructured PA that involves numerous forms of leisure PA [9]. Adolescents' participation in OPA, compared with adolescents not participating in OPA, increases the chances of lifelong PA [10, 11], and is strongly associated with greater health benefits [12, 13, 14] as well as academic achievement [15] or reported higher wellbeing [16]. Participation in OPA has significantly more advantages for adolescents' health compared with sole participation in other forms of self-organized PA [10, 17, 18].

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Active participation of adolescents in OPA in the school environment and community leisure institutions increases PA and decreases sedentary time [5, 10]. Adolescents' participation in OPA significantly increases moderate to vigorous PA (MVPA) and vigorous PA (VPA) [19, 20]. VPA and MVPA recommendations were achieved by 29.6% of Czech and Polish adolescents who participated in OPA, but only 14.9% of those who did not participate in OPA [21]. Czech and Polish adolescents who participated in OPA also had a greater chance of achieving the recommendation of 11.000 steps/day [22].

Participation of adolescents in OPA in Poland was assessed within the Global Matrix 3.0 Physical Activity Report Card Grades for Children and Youth [23] at a low level (D), indicating the involvement of 27–33% of adolescents. This level of involvement roughly corresponded to results from the UK, but participation of adolescents in Denmark, Germany, Belgium, Spain was twice as high. Adolescents in the Czech Republic also exceeded this level. According to another study, only 38% of more physically active boys in Poland were not involved in OPA, while only 18% of less physically active boys were involved [24].

Numerous studies indicate gender differences in participation in OPA and associations with different PA preferences between boys and girls [21, 25, 26, 27]. It is obvious

that participation in OPA depends especially on individual PA preferences [28], but their application is unfortunately limited by economic and staffing arrangements, and often by educational demands on adolescents. In order to increase participation in OPA, long-term monitoring and respecting adolescents' gender PA preferences is crucial [24]. Boys are more focused on fitness and team PA than girls, and tend to prefer sports-oriented OPA over the equally important recreation or health focused OPA [21]. As far as team PA is concerned, Polish girls prefer volleyball, while the most preferred individual PA includes modern dances, gymnastic activities, health swimming, and track and field activities. Boys favour soccer as a team PA, while preferred individual PA includes cycling, running/jogging and health swimming [24].

A serious limitation to participation in OPA was the pandemic. The importance of preferred PA became obvious during the pandemic which, due to the restrictions imposed, on had a negative effect OPA, especially on boys' PA [29]. The negative effects of the pandemic caused a significant overall decline in PA [30, 31, 32]. In Polish schools, a decrease in PA was reported by 50.4% of adolescents [33].

The pandemic also led to a decrease in adolescents' fitness [34] and the level of their mental health [35, 36, 37]. Prohibition or restriction on OPA had a negative effect on the previously adopted habit of regular PA [29, 38] and it will be very difficult to restore this physical activity behaviour among adolescents. The isolation caused by the pandemic that restricted participation in OPA had a negative effect on adolescents' psyche; therefore, increasing adolescents' participation in OPA is of the utmost importance. High-quality OPA may significantly support the prevention and treatment of depression symptoms and thus contribute to reducing anxiety among adolescents [39, 40].

The current state and trends in adolescents' PA show that regular OPA among adolescents, supported by participation in PE and participation in various forms of self-organized PA, is difficult to substitute. Increasing the number of adolescents participating in OPA is therefore highly desirable, especially the period affected by the pandemic. Knowledge of the trends and gender differences in the preferences of team PA and individual PA, and the degree to which these preferences are respected in the development of opportunities for adolescents' participation in OPA, is very important for designing PA promotion strategies.

OBJECTIVE

The aim of the study was to identify the trends and differences in PA levels between adolescents participating in organized team PA, organized individual PA, and those not participating in OPA. Another aim was to formulate proposals to eliminate the negative effects of the pandemic on adolescents' participation in OPA.

MATERIALS AND METHOD

Participants and research environment. The research was carried out in September–November and March–May in 2012–2021 in 51 secondary schools in an urban agglomeration in the Silesian Province of south-west Poland. Schools were selected on the basis of long-term cooperation with the Academy of Physical Education in Katowice, Silesia. In the selection process, the following aspects were taken into account: size of region, type of school and previous non-involvement in the research. The groups of participants were selected by the school administration according to their educational programmes. Each year, the research involved 230–320 participants, a total of 1,561 girls and 1,202 boys. The results of the 10-year research were divided into five two-year stages. In the study, boys and girls were divided into groups participating in organized team PA, organized individual PA, and those not participating in OPA (Tab. 1).

The research was carried out in schools under identical organizational measures: in the computer room during a 45-minute lesson and under supervision of the same research team. During distance education caused by the pandemic between 2020–2021, the questionnaires were completed using the MS Teams application during a distance learning PE lesson, also under the supervision of the same research team. Data collection, storage and analysis was performed by means of the web-based application 'International Database for Research and Educational Support' (Indares, www.indares.com). The study was conducted in compliance with the Declaration of Helsinki and approved by the Ethical Committee of the Jerzy Kukuczka Academy of Physical Education Katowice (Reg. No. 2/2008).

Measurements. The level of PA was monitored using the 'International Physical Activity Questionnaire-Long Form' (IPAQ-LF) for adolescents [41]. The Polish version of the questionnaire was subjected to the required translation procedure pursuant to the EORTC Quality of Life Group [42], and empirically verified in international comparative studies [43, 44]. The coefficients of concurrent validity between weekly PA (METs-min) from the IPAQ-LF questionnaire and weekly step counts ranged from $r = 0.231–0.283$, per Pearson's correlation coefficient. Cronbach's alpha as an indicator of internal consistency reliability was $\alpha = 0.848$.

Table 1. Sample characteristics

Gender	Physical Activity	n (%)	Age (years)	Weight (kg)	Height (cm)	BMI (kg·m^{-2})
			M (SD)	M (SD)	M (SD)	M (SD)
Boys	Unorganized	386 (32.11)	16.46 (0.93)	68.47 (13.22)	176.61 (7.90)	21.87 (3.58)
	Organized Team PA	390 (32.44)	16.27 (0.97)	67.97 (11.97)	177.31 (7.26)	21.56 (3.22)
	Organized Individual PA	426 (35.44)	16.33 (0.86)	67.75 (12.35)	177.25 (7.55)	21.50 (3.26)
Girls	Unorganized	567 (36.32)	16.38 (0.87)	57.65 (9.78)	165.37 (6.05)	21.05 (3.19)
	Organized Team PA	348 (22.29)	16.24 (0.87)	57.46 (8.14)	165.94 (5.67)	20.86 (2.75)
	Organized Individual PA	646 (41.38)	16.29 (0.89)	56.72 (8.79)	165.98 (6.25)	20.56 (2.85)

BMI – Body Mass Index; M – mean; SD – standard deviation

Results of the IPAQ-LF were analysed in compliance with the IPAQ scoring protocol (www.ipaq.ki.se), but with the following adjustments: VPA time was converted to MET-min by a multiple of six (multiple of eight in the manual), the maximum number of MET-min per week was set at 16000 MET-min, and the maximum daily average sum of PA, transport PA, sitting and passive commuting, was set at 960 minutes. A total of 161 respondents were excluded due to non-compliance with the predetermined criteria.

The weekly PA recommendations were modified according to Healthy People 2030 [45] and Physical Activity Guidelines for Americans [46]. The IPAQ-LF questionnaire allows the determination of PA recommendation only by a single type of PA. Therefore, in order to achieve the PA recommendations, a stringent alternative was selected: at least 60 min of MVPA on five or more days a week, and concurrently at least 20 min of VPA on three or more days a week (3×20VPA+5×60 MVPA) [47].

The preferences of team and individual PA were identified by the Sports Preferences Survey which is regularly used in the Central European region as part of the web-based application 'International Database for Research and Educational Support' (Indares, www.indares.com). The questionnaire is standardized for Poland and the Czech Republic [21, 48], and includes the following types of PA: individual PA, team PA, fitness PA, water-based PA, outdoor PA, martial arts PA, rhythmic/dance PA and overall PA. Team PA includes the following: baseball, basketball, curling, floorball, frisbee, handball, lacrosse, ice hockey, rugby, soccer, water polo, volleyball and similar types of PA. Individual PA includes the following: track and field, badminton, bowling, skating, cycling, golf, rowing, combined sports, cross-country skiing, downhill skiing, swimming, snowboard, artistic gymnastics, squash, table tennis, tennis, shooting, archery, and similar types of PA. Respondents choose the first five preferred PA types which receive points according to their ranking. Unselected PA types receive an average score of the number of these unselected PA types. The order of preferences is determined by the sum of points scored. In the questionnaire, respondents report active participation in regular OPA (under supervision of a coach, teacher, trainer, or a different leader) during the past 12 months.

The questionnaires were completed by respondents during a 45-minute lesson in the computer room using the Indares web-based application. At first, the IPAQ long form questionnaire was completed which was followed by the Sports Preferences Survey. During distance education caused by the pandemic between 2020 and 2021, the questionnaires was completed using the MS Teams application.

Data analysis. Statistical analysis was conducted using Statistica, version 13 (StatSoft, Prague, Czech Republic). Descriptive characteristics and the Kruskal-Wallis ANOVA were used to determine the structure of weekly PA according to participation in OPA. Cross-tabulations were used to assess compliance with the PA recommendations by different groups of OPA participants. Effect size coefficient η^2 was used to determine practical significance and interpreted as follows: small effect 0. $01 \leq \eta^2 < 0.06$ ($0.1 \leq r < 0.2$), medium effect $0.06 \leq \eta 2 < 0.14$ ($0.2 \leq r < 0.6$) and large effect $\eta 2 \geq 0.14$ ($r \geq 0.6$). Statistical significance was set at $p < 0.05$. The logically significant difference in weekly PA was determined at 2,000 MET-min/week.

RESULTS

The 10-year monitoring of weekly PA in boys showed a significant decrease in PA only in the last two years affected by the pandemic. A statistically significant decrease in overall weekly PA ($H=100.85$; $p<0.001$, $\eta^2=0.082$) was observed between 201–2013 and 2020–2021 in boys not participating in OPA ($p<0.001$) and boys participating in individual OPA ($p=0.004$) (Fig. 1). The smallest weekly PA of 2,183 MET-min/week was reported by boys not participating in OPA in the last two-year period. The decrease in weekly PA in boys participating in team OPA from 5,685 to 3,584 MET-min/week is considered only logically significant. The differences between boys participating in team and individual PA were not significant in any of the two-year periods.

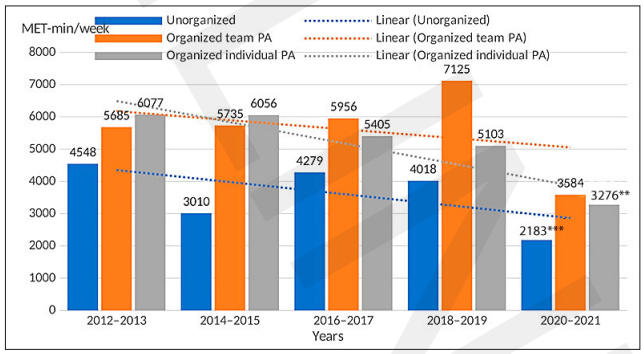

Figure 1. Weekly physical activity (MET-min·week^{-1}) in boys according to participation in organized physical activity in the period 2012–2021

Girls showed a decrease in weekly PA in 2018–2019 and the largest in 2020–2021 (Fig. 2). A statistically significant decrease in overall weekly PA ($H=86.31$; $p<0.001$, $\eta^2=0.054$) was observed between 2012–2013 and 2020–2021 in girls not participating in OPA ($p=0.005$). The smallest weekly PA of 2249 MET-min/week was reported by girls not participating in OPA in the last two-year period. The differences between girls participating in team and individual PA were not significant in any of the two-year periods.

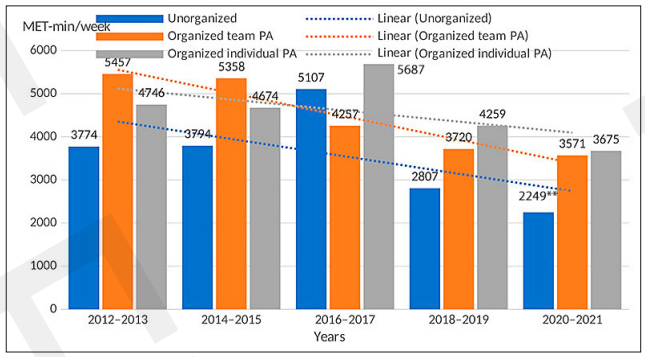

Figure 2. Weekly physical activity (MET-min·week^{-1}) in girls according to participation in organized physical activity in the period 2012–2021

In aggregate for the ten-year period of monitoring, significant differences were observed in vigorous and moderate PA, as well as total weekly PA between both boys and girls not participating in OPA, and those participating in organized team PA and individual PA (Tab. 2). Significant differences were also observed in recreation PA between boys participating and not participating in organized team PA and

Table 2. Structure of weekly physical activity in adolescents (MET-min.week-1) participating in organized team PA, organized individual PA and not participating in OPA

	Preferences								
	Unorganized		Organized team PA		Organized individual PA				
Type of PA (MET-min.week^{-1})	Boys (n=386)	Girls (n=567)	Boys (n=390)	Girls (n=348)	Boys (n=426)	Girls (n=646)	H	p	η^2
	Mdn (IQR)	Mdn (IQR)	Mdn (IQR)	Mdn (IQR)	Mdn (IQR)	Mdn (IQR)			
School PA	608 (2403)	660 (2184)	1672 (4253)	1282 (3239)	1442 (3345)	907 (3090)	54.63^{a,b,d}	<0.001	0.018*
Transportation PA	594 (1617)	594 (1419)	780 (1914)	924 (1782)	875 (1941)	693 (1749)	11.69	0.036	0.002
Home PA	320 (815)	350 (780)	350 (955)	485 (975)	360 (1045)	450 (905)	16.98	0.005	0.004
Recreation PA	405 (1155)	396 (1230)	866 (2458)	660 (1457)	895 (2212)	812 (1962)	90.04^{a,b,e}	<0.001	0.031*
Vigorous PA	**240 (1350)**	**60 (750)**	**1440 (3120)**	**705 (1980)**	**1260 (3000)**	**765 (2400)**	**222.52^{a,b,d,e}**	**<0.001**	**0.079****
Moderate PA	**930 (2325)**	**820 (1620)**	**1590 (2830)**	**1285 (2041)**	**1575 (3193)**	**1205 (2385)**	**64.55^{a,b,d,e}**	**<0.001**	**0.022***
Walking PA	1089 (2574)	1337 (2640)	1229 (2591)	1708 (2475)	1287 (2607)	1460 (2855)	21.79	<0.001	0.006
Total PA	**3398 (5183)**	**3350 (4557)**	**5779 (6789)**	**4678 (6340)**	**5405 (6933)**	**4581 (6337)**	**99.63^{a,b,d,e}**	**<0.001**	**0.034***

Mdn – median; IQR – interquartile range; H – Kruskal-Wallis test; p – level of significance.
[a] Boys – unorganized and organized team PA; [b] Boys – unorganized and organized individual PA; [c] Boys – organized team PA and organized individual PA; [d] Girls – unorganized and organized team PA; [e] Girls – unorganized and organized individual PA; [f] Girls – organized team PA and organized individual PA
* η^2=0.01–0.059: small size of the effect; ** η^2=0.06–0.139:average effect size; *** η^2≥0.14; large effect size

individual PA, and between girls not participating in OPA and participating in organized individual PA. Significant differences were also observed in school PA between boys involved in unorganized PA and organized team and individual PA, and between girls involved in unorganized PA and organized individual PA. The differences between those who participate in organized team PA and organized individual PA were not significant, neither in boys nor in girls.

Boys not participating in OPA reported significantly lower achievement of the VPA 3×20 recommendation than boys participating in organized team PA (χ^2=53.42; p<0.001, r=0.262) and organized individual PA (χ^2=43.68; p<0.001, r=232). Similarly, girls not participating in OPA reported significantly lower achievement of the VPA 3×20 recommendation than girls participating in organized team PA (χ^2=25.39; p<0. 001, r=0.117) and organized individual PA (χ^2=43.10; p<0.001, r=0.189) (Fig. 3).

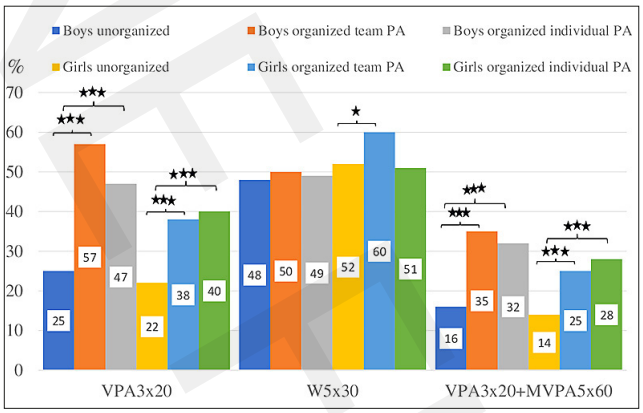

Figure 3. Achievement of the recommendations for weekly physical activity PA according to adolescents' participation in organized physical activity (PA).
VPA3×20 – 3×20 min of vigorous PA
W5×30 – 5×30 min of walking
VPA3×20+MVPA5×60 – combined with 3×20 min of vigorous PA and 5×60 min of moderate to vigorous PA
*p<0.05; **p<0.01; ***p<0.001

Similar significant differences were observed in the achievement of the 3x20 VPA+5x60 MVPA recommendation. Boys not participating in OPA reported significantly lower achievement of this recommendation than boys participating in organized team PA (χ^2=38.12; p<0.001, r=0.222) and organized individual PA (χ^2=43.68; p<0.001, r=0.232). Girls not participating in OPA reported significantly lower achievement of this recommendation than girls participating in team OPA (χ^2=18.17; p<0.001, r=0.141) and individual OPA (χ^2=32.31; p<0.001, r=0.163). Girls participating in organized team PA showed better achievement of the walking recommendation (W5×30min) than girls not participating in OPA (χ^2=5.38; p=0.020, r=0.077).

DISCUSSION

The decrease in weekly PA among boys and girls who did not participate and those who participated in OPA was significantly affected throughout the 10-year period by the effects of the pandemic in 2020–2021. The observed decrease in adolescents' PA is consistent with the vast majority of similar research studies reporting a decrease in PA during the pandemic [14, 27, 49], especially in MVPA [50, 51], and an increase in adolescents' sedentary behaviour [52]. The decrease in adolescents' PA was also observed in Poland [29, 33, 53]. In addition to the decrease in PA among Polish and Czech adolescents, an increase was observed in depressive symptoms by 9% in girls and 16% in boys [29]. According to another study, the decrease in PA was accompanied by numerous negative consequences of the pandemic restrictions on adolescents' mental health [54, 55].

A serious finding of the study was that during the pandemic, PA decreased not only in those who participated in OPA, but also in boys and girls not participating in OPA. Regarding the global trend of insufficient PA among adolescents [56], this highlights the need for promoting PA among adolescents not participating in OPA. The alarming decrease in the frequency and duration of organized PA in schools and sports clubs was emphasised by Rossi, Behme and Breuer [57]. The decrease in unorganized PA between late childhood (10–11 years) and early adolescence (12–13 years) was also observed in Australia by Kemp et al. [58]. There is no doubt that the decrease in adolescents' PA is significantly correlated with the decrease in adolescents' participation in organized PA [59, 60].

Participation in OPA increases PA time and intensity among children [61, 62] and adolescents [10, 63, 64]. The level of participation in organized PA is positively associated with adolescents' overall PA [27]. In Australia, adolescent, and had by seven min/day more MVPA than adolescents not participating in OPA [65]. Research of PA among Norwegian children and adolescents (9–15 years) confirmed that those who participated in OPA for eight or more hours a week had by 15–18 minutes more MVPA per day than those who participated in OPA for two hours or less [61].

Increasing adolescents' participation in OPA is strongly affected by physical education (PE) in schools and the quality of comprehensive school PA programmes [7]. An analysis of school PA in Polish and Czech schools confirmed the irreplaceability of PE lessons in the system of adolescents' organized PA [8]. A positive fact is that in Europe, Poland is among the countries with the highest number of PE lessons in the curriculum (four lessons per week in elementary schools and three lessons per week in secondary schools) [8, 66]. An effective application of enjoyment and competence motives in PE lessons may significantly support the participation of children [67] and adolescents [68] in OPA.

The habit of regular PA, which is supported particularly by OPA, had an even greater role during the restrictive pandemic measures [69]. This is confirmed by the results of the current study in which the smallest weekly PA at the time affected by the restrictive pandemic measures, was observed in boys and girls not participating in OPA. It is important to make a link between organized PA and regular self-organized PA, which may be very stimulating and beneficial at the times when the regular physical activity behaviour of adolescents is disrupted.

Although the finding that participation in OPA has the greatest effect on VPA was confirmed by numerous studies [49], fewer studies have addressed the associations between the types of OPA and types of PA. The outcome of the current study is that participation in organized team PA and individual PA among boys and girls has a positive effect on higher MPA, VPA, and overall weekly PA, compared with those individuals who do not participate in OPA. It is also remarkable that participation in organized team PA and individual PA is associated with higher school PA in boys, while in girls the association is only with participation in organized individual PA. Girls' participation in organized individual PA during leisure activities increases their P, compared with girls who do not participate in OP. This may be related to a greater offer of preferred types of individual PA [70].

Opportunities for participation in organized individual PA among boys and girls should, as much as possible, respect their preferred types of PA and new emerging attractive types of PA. Participation in organized individual PA should also support participation in school PA, especially not only in PE lessons, but also in other attractive forms of PA in school settings.

The greatest negative impact of the pandemic on OPA was a decrease in participation in organized team PA. The proportion of schoolchildren participating in team PA and racket PA decreased by 76% during the pandemic [71]. A significant decrease in PA during the pandemic in children participating in organized team PA was also reported by Yomoda et al. [72]. The negative impact of the pandemic restrictions on adolescents' mental health highlights the need to respect the specifics and differences between organized team and individual PA. If organized team PA is more effective in the prevention of adolescents against depression symptoms than individual PA [73], it should be considered how to replace these benefits of team PA with changes in pursuing individual PA.

As expected, a significantly greater proportion of boys and girls participating in OPA achieved the VPA and MVPA recommendations, compared with those not participating in OPA, which is consistent with the results of similar studies. According to Groffik et al. [49], the weekly VPA recommendation was achieved by 61% of adolescents who had three or more hours of OPA per week, 29% of adolescents with one or two hours of OPA per week, and only 24% of adolescents who did not participate in OPA. According to another study, the recommendation of 5x60 MVPA+3x20 VPA was achieved by 30% of adolescents participating in OPA, but only 15% not participating in OPA [21]. The chances of achieving this recommendation are increased by participation in OPA focused on enjoyment, competence, and appearance motives for PA among boys and girls [68]. It should also be considered that sole participation in OPA is not sufficient to meet the PA recommendations; therefore, PA should be supported throughout the day [74].

In summary, the results of this study confirm the significant role of OPA in adolescents' weekly PA, particularly its increased role in the context of the negative effects of the pandemic. The results emphasise the importance of monitoring the trends in OPA, monitoring the preferred types of PA, and respecting gender specifics in promoting participation in OPA. Future research should focus on the associations between the preferred types of PA and the possibilities of participation in these preferred types of OPA. Research should also focus on the contribution of participation in OPA in pursuing other forms of self-organized PA.

Strengths and limitations of the study. One of the strengths of the study is the 10-year monitoring of the associations between weekly PA of adolescents who participate in team OPA, individual OPA, and those who do not participate in OPA. Another strength is the comparison of weekly PA of adolescents by participation in OPA before and during the pandemic.

The biggest limitation of the study is the impossibility to ensure representative samples of adolescents in the school settings for the two-year research periods. The groups of adolescents were recruited subject to consent by school administrations, region and type of school. The subjectively estimated weekly PA types and the determined PA recommendations were also limited by the structure of the IPAQ-LF questionnaire. In the last two-year stage in 2020–2021, the method of completing the questionnaires had to be changed using the MS Teams application, which decreased the number of participants in the research.

CONCLUSIONS

The decrease in adolescents' participation in organized PA caused mainly by the negative effects of the pandemic is a call for a radical increase in participation of boys and girls in OPA, with an emphasis on equal access of all adolescents

to organized and preferred types of PA. Participation in organized team PA and individual PA plays an important role not only in primarily in supporting VPA, but also in overall weekly PA among boys and girls. The Polish education system and community environment place great emphasis on team PA – especially soccer (boys) and volleyball (girls). The study confirmed that adolescents were capable of achieving the PA recommendations equally effectively through participation in organized individual PA, as well as organized team PA. In a simplified way, any participation in OPA (structured PA) brings a significantly greater number of benefits to most adolescents in terms of adopting a healthy lifestyle and physical literacy, as opposed to sole participation in self-organized PA (unstructured PA).

The negative effects of the pandemic emphasise the importance of adoption of individual types of PA which can be regularly pursued, even under restrictive measures at home, in the countryside or in nature. The promotion of greater participation of adolescents in OPA is dependent on positive changes in school PE, as well as on extending the offer of possibilities of participation in OPA in sports clubs and other leisure institutions. The development of opportunities for the achievement of preferred PA in the context of both organized and unorganized PA, is conditioned by effective and responsive school, municipal, health and State policy that promotes healthy lifestyles in all population groups.

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