Original Article

RBAFS Revista Brasileira de Atividade Física & Saúde
SOCIEDADE BRASILEIRA DE ATIVIDADE FÍSICA & SAÚDE

rbafs.org.br

Participation in Physical Education classes in High Schools in Pernambuco: what is the post-pandemic scenario?

A participação nas aulas de Educação Física no Ensino Médio de Pernambuco: qual o cenário pós-pandemia?

AUTHORS

Maria Júlia de Freitas Lourenço e Simão[1]
Mallú Dias Soares[1]
Murilo Gominho Antunes Correia Júnior[1]
Caroline Ramos de Moura Silva[1]
Marcos André Moura dos Santos[1]
Mauro Virgílio Gomes de Barros[1]
Jorge Bezerra[1]

1 Universidade de Pernambuco, Programa Associado de Pós-Graduação em Educação Física, UPE/UFPB, Recife, Pernambuco, Brazil.

CORRESPONDING

Maria Júlia de Freitas Lourenço e Simão
maju.freitas12@gmail.com
Rua Alameda das Mangabas, n. 88. Reserva do Paiva, Cabo de Santo Agostinho, Pernambuco, Brazil.
Zip Code: 54.522-080.

DOI

10.12820/rbafs.30e0420i

ABSTRACT

Objective: To analyze the participation of students in Physical Education (PE) classes in High School of the public school system of Pernambuco in 2022. Methods: A cross-sectional study was carried out with 4,514 adolescents (14 to 19 years of age) of both sexes, who answered the Global School-based Student Health Survey questionnaire. The dependent variable was participation in PE classes and the independent variables were demographic and school-related factors. Descriptive and inferential analyses were performed using the chi-square test and binary logistic regression (p>0.05). Results: In this sample, 82.2% of adolescents reported participating in at least one PE class. Differences in participation were observed regarding factors such as sex, geographic mesoregion, and school shift. Boys were more likely to participate than girls (OR = 2.34; 95% CI: 1.94 - 2.81), and night-shift students were less likely to participate than day-shift students (OR = 0.51; 95% CI: 0.31 - 0.84). Conclusion: Inclusive and motivating policies are essential to increase participation in PE classes, especially among female adolescents and night-shift students.

Keywords: Physical Education; Teenagers; Students; School.

RESUMO

Objetivo: Analisar a participação de estudantes nas aulas de Educação Física (EF) do Ensino Médio da rede pública de ensino de Pernambuco no ano de 2022. Método: Estudo transversal, com 4.514 adolescentes (14 a 19 anos) de ambos os sexos, que responderam o questionário Global School-based Student Health Survey. A variável dependente foi a participação nas aulas de EF e as variáveis independentes demográficas e sobre a escola. As análises descritivas e inferenciais, foram realizadas por meio do teste qui-quadrado e da regressão logística binária (p>0,05). Resultados: Dentre os adolescentes, 82,2% relataram participar de, pelo menos, uma aula de EF. Há diferença na participação com relação a fatores como sexo, mesorregião geográfica e turno escolar. Rapazes apresentaram maior chance de participação em comparação às moças (OR = 2,34; IC 95%: 1,94 - 2,81), e que os estudantes do turno noturno têm menos chance de participação em comparação ao turno diurno (OR = 0,51; IC 95%: 0,31-0,84). Conclusão: As políticas inclusivas e motivadoras são essenciais para aumentar a participação nas aulas de EF, especialmente entre adolescentes do sexo feminino e estudantes do turno noturno.

Palavras-chave: *Educação Física; Adolescentes; Estudantes; Escola.*

Introduction

On March 11, 2020, the disease caused by the novel coronavirus (SARS-CoV-2) was declared a COVID-19 pandemic by the World Health Organization[1]. The pandemic changed daily life around the world, and Brazil was no exception. In this context, a state of public calamity was declared on March 20, 2020, through Decree No. 33,551. As an infectious and contagious disease, the primary measures adopted to

prevent transmission included social distancing[2]. Thus, one of the actions taken by the government of the state of Pernambuco, Brazil was the suspension of classes through Decree No. 33,512 of March 15, 2020, and its extension based on Decree No. 49,147 of June 30, 2020.

In the state of Pernambuco, as in many other regions, the COVID-19 pandemic brought several challenges. Given the context of sanitary restrictions, the Ministry of Education approved the decision of the National Education Council, aligned with social distancing guidelines, under Ordinance No. 544/2020, which authorized the replacement of in-person classes with remote instruction[3]. The closure of schools and the abrupt transition to remote learning created a scenario in which physical activities, traditionally conducted in collective spaces, needed to be adapted to the virtual environment.

During this period, there was a shift toward more conceptual lessons. Despite the technological difficulties faced, teachers used resources such as games, films, and video production to maintain Physical Education (PE) classes as a way to adapt to the imposed reality[4]. In 2021, school activities began to return in a slow and gradual manner, initially through continuation of remote instruction and then, only in the following year, 2022, resumption of the in-person format (No. 04/2022-CEE/PE). During this period, society "learned" to coexist with the disease, and the advent of vaccines was crucial for ending the pandemic state, officially declared by the World Health Organization only on May 5, 2023[5].

A temporal trend study conducted prior to the pandemic reported an increase in participation in PE classes in Pernambuco (2006: 35%, 2011: 74%, 2016: 81.2%)[6]. However, the authors emphasized the need to expand discussions on the importance of participation among adolescents from Pernambuco in PE classes, as well as to strengthen the guarantee of this curricular component[6]. Thus, there is a need to understand the new scenario of students' participation in PE classes in the post-pandemic period, since the pandemic altered behaviors and daily routine[7] factors that may affect students' motivation and engagement. Additionally, the implementation of the New High School regulation introduces curricular and organizational changes, adding an extra layer of complexity to the context of school PE.

In this context, the present investigation focuses on identifying whether changes occurred in participation after the pandemic period. By understanding the current scenario, the intention is to provide data for educators, school administrators, and policymakers, contributing to the improvement of the quality and effectiveness of PE in the post-pandemic context. Therefore, the aim of the current study was to analyze participation in PE classes among students enrolled in High School of the public system of the state of Pernambuco in 2022.

Methods

This is a descriptive analytical cross-sectional study, aligned with the research project "Exposure to Alcoholic Beverages, Tobacco, and Other Drugs and Screening for Common Mental Disorders in Adolescents from the State of Pernambuco: An Epidemiological Study to Support a Proposal for 'SCHOOL-RAPS' Integration", known as the Atitude Project. The research is led by the Lifestyle and Health Research Group, affiliated with the School of Physical Education at the University of Pernambuco (*Escola Superior de Educação Física da Universidade de Pernambuco* – ESEF/UPE).

The research protocol was approved by the Human Research Ethics Committee of the Hematology and Hemotherapy Foundation of the State of Pernambuco, under No. 4,449.705, following all ethical guidelines of Resolution No. 466/2012 of the National Health Council. Students under 18 years of age were given the Informed Consent Form the day before data collection to obtain authorization from parents or legal guardians, and only those who returned the form signed were included in the study. At the time of data collection, minors under 18 years of age signed the Assent Form, while students aged 18 years or older signed the Informed Consent Form.

The sample selection was conducted through a two-stage cluster sampling design: (I) the sampling unit was the school, selected by stratified random sampling based on the distribution of schools by size and geographic region; (II) classes were randomly selected considering the distribution by school shift (day-time/night-time) and grade, selected in the previous stage. The sample size calculation considered a 95% confidence interval (95% CI), a maximum tolerable error of 2%, and an estimated prevalence of variables of 50%. Additionally, a correction was applied (design effect – deff of 2), considering that the sample selection occurred through a two-stage cluster design (schools and classes). In total, 4,570 adolescents participated by re-

sponding to the questionnaire, but only students aged 14 to 19 years were included in this study.

Data were collected using an adapted version of the Global School-based Student Health Survey (GSHS) developed by the World Health Organization[8]. The instrument was translated and adapted for this study and aims to assess exposure to health risk behaviors in adolescents. The Global School-based Student Health Survey consists of 176 questions covering various aspects related to adolescent health. However, for the present study, only modules related to personal information, school information, and physical activity were used.

Planning meetings and training sessions were conducted with the research team to standardize procedures related to administration of the questionnaire. Data collection took place between April and October 2022. For improved management of data collection, the research team was divided among the Regional Education Management Offices (*Gerências Regionais de Educação* – GREs) of the state of Pernambuco: Team 1 – Agreste Meridional, Centro Norte, and Zona da Mata (North, Center, and South); Team 2 – Metropolitan Region and Recife (North and South); and Team 3 – Sertão Médio do São Francisco, Sertão Central, and Sertão do Araripe. Prior contact with the school administration was made 1 and/or 2 days before the data collection date, with visits to schools to present the research and deliver the consent forms.

Participation was voluntary, and the questionnaire was administered in the classroom, to all students present, regardless of age, without the presence of teachers. Initially, the researcher explained the objectives of the study and clarified that the information provided would be kept confidential so that it would not influence their school performance and would be used solely for research purposes.

Thus, data collection was conducted through a self-administered electronic questionnaire, pre-configured on Samsung Galaxy Tab A or A7 tablets, using Sphynx Mobile® software (Sphynx Software Solutions Incorporation, Washington, United States). Data tabulation was also performed in Sphynx Mobile ® software, with information synchronized daily after data collection to an electronic database.

The dependent variable in this study was participation in Physical Education classes, assessed by the question: "During a typical or normal week, how many Physical Education classes do you attend?" with four response options: "0 (none)," "1," "2," and "3 or more classes." For the analysis, responses were categorized as No (0) and Yes (1, 2, or 3 or more classes). The demographic independent variables were: sex (male and female), age group (14–16, 17–19), place of residence (urban and rural), and employment status (no and yes). School-related independent variables included: geographic mesoregion (Metropolitan, Zona da Mata, Agreste, Sertão, Sertão do São Francisco), school shift (day-time, night-time, semi-full-time/full-time), and grade (1st, 2nd, and 3rd years).

Statistical analyses were performed using Stata software (StataCorp), version 14.0. Descriptive analysis included the distribution of absolute and relative frequencies. For inferential analyses, Pearson's chi-square test was used for bivariate analyses. For multivariate analyses, crude and adjusted logistic regression analyses were performed. The cluster sampling strategy (svyset option in Stata) was applied to adjust all calculated precision estimates, without using weighting.

The enter method was chosen for the inclusion of independent variables in the analysis, and all variables were retained in the adjusted model based on theoretical justification. The significance level adopted for adjusted associations was $p < 0.05$.

Results

The final sample consisted of 4,514 adolescent students of both sexes. The majority were female, aged 14 to 16 years, living in urban areas and in the Metropolitan Region of the state of Pernambuco, who were not employed, enrolled in semi-full-time or full-time school shifts, and in the 3rd year of high school (Table 1).

Regarding participation in PE classes, the prevalence was 82.2%. Among the students included, 36.1% reported participating in at least one class, 29.1% in two classes, 17% in three or more classes, and 17.8% did not participate in any classes.

According to the regression analysis results, the variables sex, geographic mesoregion, and school shift showed statistically significant differences in participation in PE classes. Boys reported higher participation compared to girls. Regarding the geographic mesoregion of the state of Pernambuco, participation was highest among students living in the Agreste region, followed by the Sertão do São Francisco and the Metropolitan Region. With respect to school shift, the prevalence of participation in PE classes was higher in the full-time shift compared to the day-time and night-time shifts. The variables age, place of residence,

Table 1 – Demographic and school characteristics of high school adolescent students, Pernambuco, Brazil, 2022.

Variables	Year 2022 (n = 4,514)	
	n	%
Sex		
Female	2,464	54.6
Male	2,050	45.4
Age (years)		
14 - 16	2,294	50.8
17 - 19	2,220	49.2
Place of residence		
Urban	3,432	76.0
Rural	1,082	240
Occupation status		
No	4,079	90.4
Yes	435	9.6
Geographic mesoregion		
Metropolitan	1,532	34.0
Zona da Mata	750	16.6
Agreste	787	17.4
Sertão	786	17.4
Sertão do São Francisco	659	14.6
School shift		
Day-time	831	18.4
Night-time	122	2.7
Full-time*	3,561	78.9
Grade		
1st year	1,567	34.7
2nd year	1,327	29.4
3nd year	1,620	35.9

*Full-time = Semi-full-time and Full-time.

Table 2 – Prevalence of participation in Physical Education classes according to demographic and school variables among high school adolescents, Pernambuco, Brazil, 2022

Variables	Does not participate		Participates		p
	n	%	n	%	
Sex					
Female	569	23.1	1,895	76.9	<0.001
Male	234	11.4	1,816	88.6	
Age (years)					
14 - 16	403	17.6	1,891	82.4	0.692
17 - 19	400	18.0	1,820	82.0	
Place of residence					
Urban	625	18.2	2,807	81.8	0.187
Rural	178	16.4	904	83.5	
Occupation status					
No	736	18.0	3,343	82.0	0.171
Yes	67	15.4	368	84.6	
Geographic mesoregion					
Metropolitan	272	17.7	1,260	82.3	
Zona da Mata	162	21.6	588	78.4	
Agreste	111	14.1	676	85.9	<0.001
Sertão	158	20.1	628	80.0	
Sertão do São Francisco	100	15.2	559	84.8	
School shift					
Day-time	169	20.3	662	79.7	
Night-time	42	34.4	80	65.6	<0.001
Full-time	592	16.6	2,969	83.4	
Grade level					
1st year	266	17.0	1,301	83.0	
2nd year	236	17.8	1,091	82.2	0.496
3nd year	301	18.6	1,319	81.4	

n = Absolute frequency; % = Relative frequency; p = Statistical test value.

employment status, and grade did not show significant differences (Table 2).

The possible factors associated with participation in PE classes included sex and school shift (Table 3). According to the results, male adolescents are more likely to participate in classes when compared with female adolescents (OR = 2.34; 95% CI: 1.94–2.81). Additionally, students in the night-time shift have a lower likelihood of participating in PE classes when compared with students in the day-time shift (OR = 0.51; 95% CI: 0.31–0.84).

Discussion

The present study analyzed participation in PE classes in the public high school system of Pernambuco in 2022. Participating in PE classes represents an opportunity for active moments during school hours. It was found that 82.2% of adolescents reported participating in PE classes, which demonstrates good adherence to the classes. A previous analysis showed an increasing trend in class participation within this same population (2006: 35%, 2011: 74%, 2016: 81.2%)[6], while the results of the present study indicate stabilization in participation rates[9]. However, a concerning finding is that 17.8% of adolescents reported not participating in any PE classes, with this proportion being higher among students in the 2nd and 3rd years of high school.

Similar data are presented in the Global School-based Student Health Survey (2010–2015), which analyzed the prevalence of participation in PE classes among 170,347 adolescents from 54 countries. Of these, 55.2% participated in PE classes one to two days per week, but nearly 20% reported never participating. Moreover, girls showed a lower prevalence of partici-

Table 3 – Crude and adjusted binary logistic regression of possible factors associated with participation in Physical Education classes among high school adolescents, Pernambuco, Brazil, 2022

Variables	Crude			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Sex						
Female		1	<0.001		1	<0.001
Male	2.33	1.93 - 2.81		2.34	1.94 - 2.81	
Age (years)						
14 - 16		1	0.771		1	0.826
17 - 19	0.96	0.78 - 1.19		1.02	0.79 - 1.33	
Place of residence						
Urban		1	0.367		1	0.264
Rural	1.13	0.86 - 1.47		1.15	0.89 - 1.50	
Occupation status						
No		1	0.249		1	0.481
Yes	1.21	0.87 - 1.67		1.11	0.81 - 1.52	
Geographic mesoregion						
Metropolitan		1			m 1	
Zona da Mata	0.78	0.52 - 1.16	0.221	0.82	0.54 - 1.24	0.349
Agreste	1.31	0.84 - 2.05	0.227	1.29	0.80 - 2.07	0.283
Sertão	0.85	0.51 - 1.43	0.557	0.90	0.55 - 1.48	0.690
Sertão do São Francisco	1.21	0.75 - 1.92	0.427	1.25	0.77 - 2.03	0.346
School shift						
Day-time		1			1	
Night-time	0.48	0.28 - 0.84	0.011	0.51	0.31 - 0.84	0.009
Full-time	1.28	0.91 - 1.78	0.142	1.38	0.97 - 1.95	0.067
Grade level						
1st year		1			1	
2nd year	0.94	0.74 - 1.19	0.637	0.97	0.74 - 1.26	0.831
3nd year	0.89	0.71 - 1.14	0.371	0.93	0.66 - 1.28	0.633

OR = odds ratio; 95% CI = 95% confidence interval; p = statistical test value.

pation ≥5 days per week (girls: 16.8%, boys: 20%)[10]. The results of that survey highlight the importance of improving participation in PE classes, especially among girls and older adolescents, emphasizing the need for enhanced and continuous monitoring of PE policies[10]. These findings are consistent with those reported in a review study, in which participation in PE classes among Brazilian adolescents ranged from 41.9% to 84.7% across all regions of the country, assessing both public and private schools using questionnaires[11].

At the national and regional levels, a study examined the correlates of non-participation in PE classes among Brazilian students across the five regions of Brazil, reporting a prevalence of non-participation of 17.9%, which was higher in the Northeast region (26.9%)[12]. The female sex, lack of sports equipment, and physical inactivity during leisure time were associated with higher odds of non-participation in all regions; additionally, students from non-capital municipalities demonstrated lower odds of non-participation[12]. These data highlight the need to consider regional differences when proposing interventions aimed at increasing participation in PE classes. The significant differences in participation in PE classes among geographic mesoregions suggest possible inequalities in the process of implementing reference schools in the state of Pernambuco, considering that these schools have two PE classes in their curricular structure[6].

In line with previously cited studies, the present investigation also found significant differences in participation between female and male students. There is a consensus in the literature that male adolescents participate more frequently in PE classes than their female counterparts[11,13]. It is also reported that boys attribute greater importance to PE, enjoy it more, and participate more actively than girls[14]. This behavior

is influenced by social and cultural aspects that favor male participation in PE classes[15]. However, considering these findings, what are the next steps? What actions are being implemented in interventions to change this scenario? There is a need for studies that analyze adolescents' perceptions and propose equity-focused actions for participation in PE classes, by exemplifying activities and suggesting and encouraging active methodologies to ensure full engagement from all students.

Another aspect to be considered when discussing participation in PE classes is the devaluation of the PE subject within the school curriculum. This scenario is concerning, especially with constant changes in the Base Nacional Comum Curricular and following the High School Reform, which attempted to remove the mandatory nature of the discipline[16,17]. These changes may negatively affect curriculum development, and consequently, the offer of and participation in PE classes, students' holistic development, and the professional value attributed to PE teachers.

Additionally, these changes contradict the public health recommendations of the Physical Activity Guidelines for the Brazilian Population, which suggest the provision of at least three 50-minute PE classes per week[18]. It is known that more PE classes are associated with higher levels of physical activity among Brazilian adolescents, and changes in legislation to create the requirement for three weekly PE classes have been recommended for 10 years[19]. Studies also indicate that the COVID-19 pandemic affected participation in PE classes, reinforcing the importance of public and school policies that promote an active lifestyle, even in remote learning contexts[20,21].

The literature addresses the disengagement of students from PE classes, identifying factors such as the curricular devaluation of the discipline, lack of meaning perceived by students, and low motivation toward proposed activities[22]. Reasons for non-participation among high school students range from personal reasons, such as illness, specific clothing for classes, and laziness, to issues related to the physical school infrastructure[23]. The relationship students build with knowledge and the identities of PE constructed through school experiences are strained by school logic, resulting in a progressive loss of interest in PE classes throughout the schooling process[24].

The results of this study show that adolescents in night-time shifts tend to have a lower likelihood of participating in PE classes when compared with adolescents in day-time shifts. However, caution is advised when interpreting these findings due to the cross-sectional design of the study. Thus, causal inference between the analyzed variables cannot be established. Nonetheless, it is true that the implementation of full-time schools in the state of Pernambuco has significantly contributed to the reduction in night-time classes, since students remain in school throughout the day.

Students in night-time shifts may face several barriers to participating in PE classes. Lack of time is one of the main obstacles, and fewer sports activities offered outside regular hours make adherence even more difficult, as many of these students work during the day and arrive in a tired state to night-time classes, reducing their willingness and energy for physical activities[25,26]. In addition, the infrastructure of schools with night-time classes may be inadequate for PE, for example, with insufficient lighting, that makes physical activities less attractive and more difficult to perform[23]. Therefore, it is essential to develop policies and educational practices that address the specific needs of these adolescent students, promoting an adequate, inclusive, and motivating environment for participation in PE classes.

As a limitation of the current study, the self-reported questionnaire requires consideration of factors such as forgetfulness and recall bias; these results represent students' perceptions of their own routines. However, as strengths, this research has high external validity based on the sample representativeness of this population. These data can support policy development and guide practical interventions in adolescent education and public health.

Despite being conducted during the pandemic period, the current study presents a scenario of maintenance of percentage participation in PE classes. Moreover, the study highlights lower participation among female adolescents and students in night-time shifts, despite the curricular changes and modifications brought by the High School Reform. Policies should consider regional specificities and the needs of these different groups of students. It is urgent that three weekly PE classes be implemented immediately and that actions be taken to encourage participation from all students, promoting an active and healthy lifestyle that is essential for adolescents' holistic development.

Conflict of interest

The authors declare no conflict of interest.

Funding

National Council for Scientific and Technological Development (*Conselho Nacional de Desenvolvimento Científico e Tecnológico* - CNPq), Coordination for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* - CAPES) and State Funding Agency of Pernambuco (*Fundação de Amparo à Ciência e Tecnologia de Pernambuco* - FACEPE).

Authors' contributions

Simão MJFL: Conceptualization; Methodology; Data analysis; Research; Funding acquisition; Original manuscript writing; Writing - revision and editing; Approval of the final manuscript version. Soares MD: Conceptualization; Research; Funding acquisition; Original manuscript writing; Writing - revision and editing; Approval of the final manuscript version. Correia Júnior MGA: Data analysis; Data curation; Data presentation design; Funding acquisition; Original manuscript writing; Writing - revision and editing; Approval of the final manuscript version. Silva CRM: Methodology; Data analysis; Data curation; Data presentation design; Funding acquisition; Original manuscript writing; Writing - revision and editing; Approval of the final manuscript version. Santos MAM: Supervision; Project administration; Funding acquisition; Writing - revision and editing; Approval of the final manuscript version. Barros MVG: Methodology; Supervision; Project administration; Receiving funding; Writing - reviewing and editing; Approval of the final version of the manuscript. Bezerra J: Conceptualization; Research; Supervision; Project management; Receiving funding; Writing - reviewing and editing; Approval of the final version of the manuscript.

Declaration regarding the use of artificial intelligence tools in the article writing process

The authors did not use artificial intelligence tools to prepare the manuscript.

Availability of research data and other materials

The data is available upon request from the reviewers.

Acknowledgements

The authors thank the Programa Associado de Pós-Graduação em Educação Física, Universidade de Pernambuco/Universidade Federal da Paraíba and the sources of funding: National Council for Scientific and Technological Development (*Conselho Nacional de Desenvolvimento Científico e Tecnológico* - CNPq), Coordination for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* - CAPES) and State Funding Agency of Pernambuco **(***Fundação de Amparo à Ciência e Tecnologia de Pernambuco* - FACEPE).

References

1. Organização Pan-Americana da Saúde. COVID-19: Informações e Atualizações. Available from: <https://www.paho.org/bra/index.php?option=com_content&view=article&id=6101:covid19&Itemid=875> [2024 Enero].
2. Rosângela B. Análise documental das notas técnicas, diretrizes e portarias publicadas pelo Ministério da Saúde, referente ao uso de máscaras como medida de prevenção ao coronavírus [monografia]. Belo Horizonte, Minas Gerais: Escola de Saúde Pública do Estado de Minas Gerais Especialista em Saúde Pública; 2020.
3. Temudo SP. O trabalho docente durante a pandemia da COVID-19: trabalho home office, gênero e precarização [dissertação de mestrado]. Recife, Pernambuco: Universidade Fed-eral de Pernambuco; 2023.
4. Silva L. Ensino remoto e educação física no ensino médio: com a palavra os professores [dissertação de mestrado]. Rio Grande do Sul: Universidade Federal do Rio Grande do Sul, Escola de Educação Física, Programa de Pós-Graduação e Ciências do Movimento Humano, Porto Alegre, Rio Grande do Sul; 2022.
5. Organização Pan-Americana da Saúde. OMS declara fim da Emergência de Saúde Pública de Importância Internacional referente à COVID-19. 5 de maio de 2023. Available from:: <https://www.paho.org/pt/noticias/5-5-2023-oms-declara-fim-da-emergencia-saude-publica-importancia-internacional-referente> [2024 Julio].
6. Soares MD, Simão MJFL, Soares FC, Barbosa Filho VC, Tassitano RM, Bezerra J. Participação nas aulas de Educação Física em Pernambuco: uma análise de tendência temporal. Rev. Bras. Ativ. Fís. Saúde. 2025;27:1-9. doi: https://doi.org/10.12820/rbafs.27e0292
7. Reis MAOM, Correa BC, Moura CVB, Oliveira FERL, Nascimento MS, Pinto RT, et al. Impac-tos na saúde mental por distanciamento e isolamento sociais pela COVID-19: uma per-spectiva brasileira e mundial. REAS. 2021;13(2):e6535. doi: https://doi.org/10.25248/reas.e6535.2021
8. World Health Organization - WHO. Global school-based student health survey-GSHS. 2005. Available from: <https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/global-school-based-student-health-survey/questionnaire> [2024 Julio].
9. Simão MJFL. Tendência Temporal da participação nas aulas de Educação Física dos estu-dantes do ensino médio da rede pública estadual de Pernambuco de 2006 a 2022. [Dissertação de Mestrado]. Recife, Pernambuco: Universidade de Pernambuco/Universidade Federal da Paraíba, Programa Associado de pós-graduação em Educação Física; 2022.
10. Martins J, Marques A, Peralta M, Henriques-Neto D, Costa J, Onofre M, et al. A Compara-tive Study of Participation in Physical Education Classes among 170,347 Adolescents from 54 Low-, Middle-, and High-Income Countries. Int. J. Environ. Res. Public Health 2020;17(15):5579. doi: https://doi.org/10.3390/ijerph17155579
11. Simão MJFL, Soares MD, Silva AO, Tenório MCM, Bezerra J. Participação nas aulas de edu-cação física e fatores associados ao nível de atividade física de adolescentes brasileiros: uma revisão de escopo. Cenas Educ. 2023;6:1-14. doi: https://doi.org/10.5281/zenodo.13831155.
12. Silva VD, Silva Filho RCS, Lourenço CLM. Correlatos da não participação nas aulas de Edu-cação Física entre escolares brasileiros nas cinco regiões do Brasil. Rev Bras Educ Fís Esporte. 2022;36:e36178118. doi: https://doi.org/10.11606/issn.1981-4690.2022e36178118

13. Araújo BGS, Tassitano RM, Dias M, Tenório MCM. Participação de adolescentes brasileiros nas aulas de educação física escolar: revisão sistemática. Pensar Prát. 2019;22:53618. doi: https://doi.org/10.5216/rpp.v22.53618
14. So MR, Martins MZ, Rodrigues GS, Prodócimo E, Ushinohama TZ, Betti M. Gosto, im-portância e participação de meninas e meninos na educação física no ensino médio. Educ. fís. cienc. 2021;23(1):158. doi: https://doi.org/10.24215/23142561e158
15. Souza Junior PR. A questão de gênero, sexualidade e orientação sexual na atual base nacional comum curricular (BNCC) e o movimento LGBTTQIS. Rev. Gênero, Sex. Direito. 2018;(1):1–21. doi: https://doi.org/10.26668/25259849/Index_Law_Journals/2018.v4i1.3924
16. Santos BCA, Fuzii FT. A Educação Física na área da linguagem: o impacto da BNCC no currículo escolar. Comunicações. 2019;26(1):327-47. doi: https://doi.org/10.15600/2238-121X/comunicacoes.v26n1p327-347
17. Beltrão JA, Taffarel CNZ, Teixeira DR. A educação física no novo ensino médio: implicações e tendências promovidas pela reforma e pela BNCC. Revista Práxis Educacional. 2020;16(43):656-80. doi: https://doi.org/10.22481/rpe.v16i43.7024
18. Brasil. Ministério da Saúde. Secretaria de Atenção Primária à Saúde. Departamento de Promoção da Saúde. Guia de Atividade Física para a População Brasileira [recurso eletrônico] / Ministério da Saúde, Secretaria de Atenção Primária à Saúde, Departamento de Promoção da Saúde. – Brasília: Ministério da Saúde, 2021.
19. Soares CA, Hallal P. Interdependência entre a participação em aulas de Educação Física e níveis de atividade física de jovens brasileiros: estudo ecológico. Rev. Bras. Ativ. Fís. Saúde. 2015;20(6):588. doi: https://doi.org/10.12820/rbafs.v.20n6p588
20. Kovacs VA, Starc G, Brandes M, Kaj M, Blagus R, Leskošek B, et al. Physical activity, screen time and the COVID-19 school closures in Europe - An observational study in 10 countries. Eur J Sport Sci. 2022;22(7):1094-03. doi: https://doi.org/10.1080/17461391.2021.1897166.
21. Frömel K, Groffik D, Valach P, ŠafáŘ M, MitáŠ J. The Impact of Distance Education during the COVID-19 Pandemic on Physical Activity and Well-Being of Czech and Polish Adoles-cents. J Sch Health. 2022;92(12):1137-1147. doi: https://doi.org/10.1111/josh.13232
22. Pujol LAP. O afastamento dos alunos das aulas de educação física no ensino médio: Estudo de caso do Colégio Estadual Júlio de Castilhos, Porto Alegre, RS. [monografia]. Porto Ale-gre, Rio Grande do Sul: Universidade Federal do Rio Grande do Sul; 2016.
23. Franca AB. A evasão nas aulas de Educação Física no Ensino Médio: um comparativo entre público e privado. / Adriana Barbosa de Franca. - 2018. 28f.: il. [monografia]. Natal, Rio Grande do Norte: Universidade Federal do Rio Grande do Norte; 2018.
24. Santos W, Santos VF, Gama JCF, Paula SC, Cassani JM. Da relação com o saber às iden-tidades da educação física: narrativas de estudantes do Ensino Médio. Pro-Posições. 2020;31:e20190074. doi: https://doi.org/10.1590/1980-6248-2019-0074
25. Ferreira Silva RM, Mendonça CR, Azevedo VD, Raoof Memon A, Noll PRES, Noll M. Barriers to high school and university students' physical activity: A systematic review. PLoS One. 2022;17(4):e0265913. doi: https://doi.org/10.1371/journal.pone.0265913
26. Karchynskaya V, Kopcakova J, Madarasova Geckova A, Katrusin B, Reijneveld SA, de Winter AF. Barriers and enablers for sufficient moderate-to-vigorous physical activity: The per-spective of adolescents. PLoS One. 2024;19(2):e0296736. doi: https://doi.org/10.1371/journal.pone.0296736

Received: 03/26/2025
Reviewed: 04/30/2025
Approved: 10/19/2025

Cite this article as:
Simão MJFL, Soares MD, Correia Júnior MGA, Silva CRM, Santos MAM, Barros MVG, Bezerra J. Participation in physical education classes in high schools in Pernambuco: what is the post-pandemic scenario?. Rev. Bras. Ativ. Fis. Saúde. 2025;30:e0420i. doi: 10.12820/rbafs.30e0420i

Reviewers' assessment

The reviews of this article were originally conducted in Portuguese. This version has been translated using ChatGPT and subsequently reviewed by the Chief Editors.

Reviewer A

Naildo Santos Silva
Regional University of Cariri, Iguatu, Ceará, Brazil.

Format

- Does the article comply with the manuscript preparation guidelines for submission to the *Revista Brasileira de Atividade Física e Saúde*?
  Partially
- Regarding formal aspects, is the manuscript well structured, containing the following sections: introduction, methods, results, and discussion (conclusion as part of the discussion)?
  Partially
- Is the language appropriate, clear, precise, and objective?
  No
- Was any evidence of plagiarism observed in the manuscript?
  No

Suggestions/comments:

- Review the language used. Be clear, precise, and objective. Avoid repeating ideas and using disconnected sentences. Better contextualize sentences and paragraphs.

Abstract

- Are the abstract and resumo appropriate (including: objective, information about study participants, studied variables, main results, and a conclusion) and do they reflect the manuscript content?
  Partially

Suggestions/comments:

- Rewrite the objective in the abstract. I suggest replacing "com objetivo" with "O objetivo deste estudo foi analisar a participação de estudantes nas aulas de Educação Física da rede pública de ensino de Pernambuco no ano de 2022."
- Add information about study participants, such as age, gender, and inclusion and exclusion criteria.
- Rewrite the section describing the instrument used; it currently lacks coherence.
- In the statistical section, indicate that "a p-value < 0.005 was adopted for statistical significance."

Introduction

- Was the research problem clearly stated and delimited?
  No
- Is the research problem adequately contextualized in relation to existing knowledge, moving from general to specific?
  No
- Are the reasons justifying the need for the study (including the authors' assumptions) well established?
  No
- Are the references used to support the presentation of the research problem current and relevant to the topic?
  Partially
- Was the objective clearly presented?
  No

Suggestions/comments:

- The study seeks to investigate the current situation of Physical Education classes in the state of Pernambuco. However, the text discusses conceptual issues about the pandemic, decrees, and regulations. It would be important to describe how Physical Education classes were structured before the pandemic—for example, the number and duration of classes per week, and the state government's recommendations for Physical Education teachers. Revise the introduction to include these contextual details.
- Provide information justifying the relevance of the research. Why is it necessary to investigate the current scenario of Physical Education classes in Pernambuco?
- Avoid repeating the phrase "government of the state of Pernambuco." Once mentioned, it is clear which state is being referred to (see lines 5, 8, 11, page 1).
- Clarify which activities resumed (lines 21–22, page 1).
- Lines 23–24 (page 1) mention the implementation of the high school reform, but this information is not properly contextualized. Consider merging it with content from lines 6–8 (page 2).
- There is a disconnected sentence on line 8 (page 2): "Diante deste cenário, e partindo do pressupos-

to anterior a este advento." It lacks context within the paragraph. The same issue occurs in lines 9–11 (page 2), where a study is cited without prior contextualization. The paragraph mentions impacts of the pandemic on students' mental health, motivation, and engagement (line 5, page 2), but it is unclear whether the manuscript evaluates mental health, motivation, engagement, or participation in Physical Education classes.
- Clarify the actual objective of the research: to identify whether participation changed after the pandemic or to analyze participation (of whom?) in Physical Education classes in Pernambuco's public school system in 2022 (lines 12–17, page 2).
- Although relevant, avoid overemphasizing conceptual issues about the pandemic, decrees, and regulations. Focus on contextualizing students' participation in Physical Education classes during the pandemic in connection with the new high school curriculum.

Methods

- Are the methodological procedures generally appropriate for studying the research problem?
  Partially
- Are the methodological procedures sufficiently detailed?
  Partially
- Was the participant recruitment and selection process appropriate and clearly described?
  Partially
- Were data collection instruments, their psychometric properties (e.g., reliability, internal consistency, validity), and the operational definition of variables described?
  Partially
- Is the data analysis plan appropriate and adequately described?
  Partially
- Were inclusion and/or exclusion criteria described and appropriate?
  Partially
- Did the authors provide clarification regarding the ethical procedures adopted for conducting the study?
  Partially

Suggestions/comments:

- Line 19 (page 3): The study is described as a cross-sectional descriptive-analytical design. However, one of its aims is to predict possible factors associated with adolescents' participation in Physical Education classes (Table 3). The study design should be reviewed for consistency.
- Lines 1–2 (page 4): The authors report that parents were informed about the study through consent and assent forms (TCLE and TALE), but the data collection process is not explained. Given that students from multiple regions (Metropolitan, Zona da Mata, Agreste, Sertão, Sertão do São Francisco) were evaluated, how were consent forms distributed to geographically distant parents? Through online forms? If so, how were parents' contacts obtained? Were forms sent via email, WhatsApp, Instagram, TikTok? How were they returned? How many schools provided formal authorization for data collection? How were students from different regions invited to participate?
- Lines 3–4 (page 4): Add exclusion criteria.

Results

- Is the use of tables and figures appropriate and helpful for presenting the results?
  Yes
- Is the number of illustrations consistent with the journal's guidelines?
  Yes
- Are the number of participants at each stage and the reasons for losses/refusals presented?
  Partially
- Are participant characteristics adequately presented?
  Yes
- Are the results appropriately presented, highlighting the main findings and avoiding unnecessary repetition?
  Partially

Suggestions/comments:

- Line 8 (page 4): Indicate the number of refusals and losses, and reasons for them.
- Line 25 (page 4): Include the mean age of adolescents and the standard deviation.
- Line 6 (page 5): Move the title of Table 1 to line 3 (page 5).
- Lines 3–5 (page 5): Move the paragraph to fit the context of Table 2.
- Line 9 (page 6): Correct and standardize terms used for variables in the text and tables. Replace "sex" with "gender," and "mesoregion" with "geo-

graphic mesoregion." Verify if inconsistencies occur elsewhere.
- Lines 11–12 (page 6): Avoid describing interpretative results already presented in Table 2. Emphasize only the values directly related to the study's objective, such as gender differences.
- Lines 16–17 (page 6): Even when differences are not statistically significant, highlight results for age, place of residence, occupational status, and grade level.
- What are the school-related characteristics mentioned in the title of Table 1?
- Add N and % information in the legend of Table 1.
- What are the school-related variables mentioned in the title of Table 2?
- Add a legend for Table 2.
- Include P, N, and SF information in the legend of Table 3.

Discussion

- Are the main findings of the study presented?
  Partially
- Are the study's strengths and limitations discussed?
  Partially
- Are the results discussed in light of the study's limitations and existing knowledge?
  No
- Are the potential contributions of the findings to scientific development, innovation, or practical intervention discussed?
  No

Suggestions/comments:

- Highlight the main findings of the study and present results related to possible factors associated with participation in Physical Education classes.
- Line 4 (page 10): The text claims that "this research has high external validity," but no psychometric results are reported in the Methods or elsewhere, nor is there evidence that the sample is representative. How, then, can these findings inform public policy or guide educational and health interventions for adolescents?
- Overall, the discussion does not address the research problem. Only lines 23–25 (page 8) mention how the pandemic affected Physical Education classes. The rest focuses on issues such as infrastructure, undervaluation of the subject, and low motivation. Revise the discussion structure to ensure it actually responds to the research question.

Conclusion

- Was the conclusion appropriately presented and consistent with the study's objective?
  No
- Is the conclusion original?
  Partially

Suggestions/comments:

- The conclusion does not address the study's objective. The objective itself is unclear and should be reformulated. The manuscript does not actually conclude how the current situation of Physical Education classes stands after the pandemic.
- Lines 9–15 (page 10): Avoid repeating results already presented in the Results and Discussion sections.
- The conclusion should be written as part of the Discussion section, not as a separate topic.

References

- Are the references updated and sufficient?
  Partially
- Are most references from original research articles?
  Yes
- Do the references follow the journal's guidelines (quantity and format)?
  Yes
- Are in-text citations appropriate, i.e., do statements in the text cite references that truly support them?
  Partially

Suggestions/comments:

- Some references are from 2005 (line 36, page 11), 2015 (lines 38–41, page 12), and 2016 (lines 2–4, page 13). If these are not classic references, consider updating them.

Comments to the author

- The study addresses a relevant topic concerning adolescents' participation in Physical Education classes in the state of Pernambuco and questions how these classes are currently structured after the pandemic.
- However, the study does not adequately address the research problem. In addition, several recommendations regarding formatting and writing have been included in the specific comments above.

Final decision

- Major revisions required

Reviewer B

Anonymous

Format

- Does the article comply with the manuscript preparation guidelines for submission to the *Revista Brasileira de Atividade Física e Saúde*?
  Partially
- Regarding formal aspects, is the manuscript well structured, containing the following sections: introduction, methods, results, and discussion (with the conclusion as part of the discussion)?
  Partially
- Is the language appropriate, and is the text clear, precise, and objective?
  Yes
- Was any indication of plagiarism detected in the manuscript?
  No
  Suggestions/comments:
- *Title:* The running title must contain a maximum of 50 characters.
- *Formatting:* The manuscript must be paginated according to the journal's guidelines (A4-sized pages, numbered in the upper right corner starting from the "title page," with 2.5 cm margins on all sides—top, bottom, left, and right).

Abstract

- Are the abstract and *resumo* appropriate (including: objective, participant information, studied variables, main results, and a conclusion) and do they reflect the content of the manuscript?
  Yes
  Suggestions/comments:
- No suggestions or comments.

Introduction

- Was the research problem clearly stated and defined?
  Yes
- Is the research problem properly contextualized in relation to existing knowledge, moving from the general to the specific?
  Yes
- Are the reasons that justify the study (including the authors' assumptions about the problem) well established in the writing?
  Yes
- Are the references used to support the presentation of the research problem current and relevant to the topic?
  Yes
- Was the objective clearly presented?
  Yes
  Suggestions/comments:
- No suggestions or comments.

Methods

- Are the methodological procedures, in general, appropriate for studying the research problem?
  Yes
- Are the methodological procedures adopted for the study sufficiently detailed?
  Partially
- Was the procedure for participant selection or recruitment appropriate for the research problem and described clearly and objectively?
  Yes
- Were details provided about the instruments used for data collection, their psychometric properties (e.g., reproducibility, internal consistency, and validity), and, when relevant, the operational definition of the variables?
  Yes
- Is the data analysis plan adequate and properly described?
  Yes
- Were the inclusion and/or exclusion criteria for the sample described and appropriate for the study?
  Partially
- Did the authors provide information about the ethical procedures adopted for the study?
  Partially
  Suggestions/comments:
- **Ethics**: It is recommended that the authors include the approval number from the Research Ethics Committee involving human participants, as required for studies with human subjects. This information should appear in the Methods section, accompanied by the name of the institution that granted approval.
- **Inclusion and Exclusion Criteria:** The inclusion and exclusion criteria are not sufficiently clear. It should be specified whether all adolescents in the sample participated in the study or whether any selection process was applied. Moreover, it is important to clarify whether the 14–19 age range was the

only inclusion criterion. The reasons for excluding 56 questionnaires from the analyses should also be detailed—whether due to inconsistencies, incomplete responses, or other factors.

- **Prevalence:** It is suggested to indicate the source used to justify the estimated 50% prevalence adopted in the sample size calculation. Providing a bibliographic reference for this assumption strengthens the methodological consistency of the study.
- **Statistical Analysis**: The description of the statistical analysis requires more detail. It is not clear which variables were included in the adjusted regression analysis. The authors should clearly specify the dependent and independent variables used, as well as the criteria adopted for inclusion in the adjusted model.

Results

- Is the use of tables and figures appropriate and does it facilitate proper presentation of the study results?
  Yes
- Is the number of illustrations in the article consistent with the journal's submission guidelines?
  Yes
- Is the number of participants at each stage of the study, as well as the number and reasons for losses and refusals, presented in the manuscript?
  Yes
- Are participant characteristics presented and sufficient?
  Yes
- Are the results presented appropriately, highlighting the main findings and avoiding unnecessary repetition?
  Yes

  Suggestions/comments:
- No suggestions or comments.

Discussion

- Are the main findings of the study presented?
  Yes
- Are the study's limitations and strengths discussed?
  Yes
- Are the results discussed in light of the study's limitations and existing knowledge on the subject?
  Yes
- Do the authors discuss the potential contributions of the main findings to scientific development, innovation, or practical applications?
  Yes

  Suggestions/comments:
- When using abbreviations, authors should first write the full term followed by the abbreviation in parentheses, in accordance with scientific writing conventions. It is therefore recommended that the abbreviation "BNCC" be preceded by its full form when first mentioned in the text.

Conclusion

- Was the study's conclusion appropriately presented and coherent with the study's objective?
  Partially
- Is the study's conclusion original?
  Yes

  Suggestions/comments:
- It is recommended that the conclusion be integrated into the discussion, in accordance with the journal's editorial guidelines. This approach allows a more fluid interpretation of the results in light of the literature, enabling the implications and contributions of the study to be presented more cohesively.

References

- Are the references up to date and sufficient?
  Yes
- Are most of them original research articles?
  Yes
- Do the references comply with the journal's standards (quantity and format)?
  Partially
- Are in-text citations appropriate—that is, do they cite references that truly substantiate the statements made?
  Yes

  Suggestions/comments:
- *References:* The reference formatting follows the Vancouver style, as required by the journal. However, according to Elsevier–Vancouver formatting guidelines, references should be *left-aligned*, not justified. It is recommended that the author(s) adjust the alignment to ensure uniformity and adherence to the required standard.

Comments to the author

- The manuscript addresses a relevant and timely topic with potential contributions to the field. However, attention is required regarding the points

highlighted—particularly methodological clarity, ethical aspects, and formatting in accordance with the journal's guidelines. Improving these areas will significantly enhance the scientific quality and consistency of the paper. A careful revision and resubmission of the manuscript with the necessary adjustments are encouraged.

Final decision

- Minor revisions required