ORIGINAL ARTICLE

PREVALENCE AND FACTORS ASSOCIATED WITH NON-PARTICIPATION IN PHYSICAL EDUCATION CLASSES IN SCHOOL ADOLESCENTS OF SERGIPE

Prevalência e fatores associados a não participação em aulas de educação física em adolescentes escolares de Sergipe

Prevalencia y factores asociados a la no participación a clases de educación física en adolescentes escolares de Sergipe

Marcelo Magalhães Sales[1] Marcelo Freire Guerra[2] Aldemir Smith Menezes[3] Luis Carlos Viera Tavares[4] Luís Carlos Lira[5]
José Fernando Vila Nova de Moraes[6] Mairiel Leila de Deus Bezerra[1] Karllos Henrique Santos[1] Lucas Santos Nascimento[1]
Elbert Wander Cantão[1] Márcia Cristina Silva[1] Alberto Souza Sá Filho[2]

[1]Universidade Estadual de Goiás; [2]Universidade Evangélica de Goiás; [3]Instituto Federal de Educação, Ciência e Tecnologia; [4]Universidade Católica de Brasília; [5]Universidade Federal de Juiz de Fora; [6]Fundação Universidade Federal do Vale do São Francisco

Corresponding author: Elbert Wander Cantão - elbertcantao@gmail.com

ABSTRACT

Introduction: the frequency in physical education (PE) classes, beyond being low, tends to decrease with the passing of school years, suggesting an understanding of the factors for possible intervention. **Objective:** to investigate the prevalence and risk factors associated with non-participation (NP) in PE classes. **Method:** a survey was self-administered to 3,992 students. The question used the measure the outcome was: over a typical or usual week, how many PE classes you attend? The possible answers were: 0; 1; 2; and ≥ 3 days. "0 days" were considered NP. The independent variables were: age, skin color, religion, practicing religion, school year, shift study, household situation, maternal and paternal education, family income mean and main source of income. **Results:** 25.7% of students are NP. Black and brown skin color, had 31 and 20%, respectively, less likely than white subjects to NP. Regarding to religion, those called "others" demonstrated a greater probability of NP (55%) than catholic, evangelical and spiritualist. Residents in rural areas were 20% less likely to NP. Night shift students were 59% more likely to NP. Among girls, black and brown skin color, had 38 and 21%, respectively less likely than white girls to participate. Those called "others" demonstrated a greater probability of NP (72%) than the others religions. Residents in rural areas were 22% less likely to NP. Night shift students were 80% more likely to NP. For the boys, night shift students were 42% more likely to NP. **Conclusion:** NP in PE classes is relatively high and girls showed more associated risk factors.

Keywords: Motor Activity; Health; Adolescent Behavior.
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RESUMO

Introdução: a frequência nas aulas de educação física (EF), além de baixa, tende a diminuir com o passar dos anos escolares, sugerindo uma compreensão dos fatores para uma possível intervenção. **Objetivo:** investigar a prevalência e os fatores de risco associados à não participação (NP) nas aulas de EF. **Método:** um questionário foi auto aplicada em 3.992 estudantes. A pergunta utilizada para medir o resultado foi: durante uma semana típica ou habitual, quantas aulas de EF você frequenta? As respostas possíveis foram: 0; 1; 2; e ≥ 3 dias. "0 dias" foram considerados NP. As variáveis independentes foram: idade, cor da pele, religião, prática religiosa, ano escolar, turno de estudo, situação de domicílio, escolaridade materna e paterna, média de renda familiar e principal fonte de renda. **Resultados:** 25,7% dos estudantes são NP. Pretos e pardos tiveram 31 e 20%, respectivamente, menos probabilidade que os brancos de NP. Quanto à religião, os chamados "outros" demonstraram maior probabilidade de NP (55%) do que católicos, evangélicos e espíritas. Os residentes em áreas rurais tinham 20% menos probabilidade de NP. Os alunos do noturno tiveram 59% mais chances de NP. Entre as meninas, de cor de pele pretas e pardas, tiveram 38 e 21%, respectivamente, menos chances do que as brancas de participar. As chamadas "outras" demonstraram maior probabilidade de NP (72%) do que as demais religiões. Os residentes em áreas rurais tinham 22% menos probabilidade de NP. Os alunos do noturno apresentaram 80% mais chances de NP. Para os meninos, aqueles do noturno apresentaram 42% maior chance de NP. **Conclusão:** O NP nas aulas de EF é relativamente elevado e as meninas apresentaram mais fatores de risco associados.

Palavras-chave: Atividade Motora; Saúde; Comportamento Adolescente.

RESUMEN

Introduction: Attendance at physical education (PE) classes, in addition to being low, tends to decrease with the passing of the school years, suggesting an understanding of the factors for possible intervention.**Objetivo:** investigar la prevalencia y los factores de riesgo asociados a la no participación (NP) en clases de EF. **Método:** se autoadministró un cuestionario a 3.992 estudiantes. La pregunta utilizada para medir el resultado fue: durante una semana típica o habitual, ¿a cuántas clases de educación física asiste? Las posibles respuestas fueron: 0; 1; dos; y ≥ 3 días. Se consideraron NP "0 días". Las variables independientes fueron: edad, color de piel, religión, práctica religiosa, año escolar, turno de estudio, estado de domicilio, educación materna y paterna, ingreso familiar promedio y principal fuente de ingresos. **Resultados:** El 25,7% de los estudiantes son NP. Las personas negras y morenas tenían un 31 y 20%, respectivamente, que las personas blancas de tener NP. En cuanto a la religión, los llamados "otros" demostraron una mayor probabilidad de NP (55%) que los católicos, evangélicos y espiritistas. Los residentes de zonas rurales tenían un 20% menos de probabilidades de sufrir NP. Los estudiantes nocturnos tenían un 59% más de probabilidades de tener NP. Entre las niñas, de color de piel negras y morenas, tenían un 38 y 21%, respectivamente, menos probabilidades de participar que las niñas blancas. Los llamados "otros" demostraron una mayor probabilidad de NP (72%) que otras religiones. Los residentes de zonas rurales tenían un 22% menos de probabilidades de sufrir NP. Los estudiantes nocturnos tenían un 80% más de probabilidades de tener NP. Para los niños, aquellos que trabajan de noche tenían un 42% más de posibilidades de sufrir NP. **Conclusión:** La NP en las clases de EF es relativamente alta y las niñas tenían más factores de riesgo asociados.

Palabras clave: Actividad Motora; Salud; Comportamiento adolescente**.**

INTRODUCTION

Studies realized in several countries have shown a disturbing prevalence of obesity[1,2], type 2 diabetes[3,4] and hypertension[5,6] in children and adolescents, these factors increase the chances of cardiovascular risks in adult life[7]. On the other hand, evidences show that regular physical exercise, moderate to vigorous intensity, may attenuate the possibility of develop these diseases.[8,9] Thus, physical exercise also increases motor skills, self-esteem and the ability of carry out daily activities with more vigor and disposal[10,11].

Nevertheless, several children and adolescents still show lower levels of motor coordination than the recommended for the specific age and don't reach the recommended level of physical activity[11], which could be exploited in physical education classes. In way that, the school is considered a favorable environment to achieve the recommendations above[12-14].

However, the frequency of students in physical education classes is low (47.5 - 48.8%) and tends to lower even more throughout the school years, and the reasons for that, are still unknown, even though some studies already investigated this, albeit in a very incipient way.[15,16] The Center for Disease Control only demonstrated that girls were more likely (28.5%) than boys (18.6%) to NP in PE classes. Lowry et al.[15], when carrying out linear regressions, showed that girls reduced their participation in PE classes by 2.2% per year, while boys reduced their participation in PE classes by 2.7%. Moreover, black people reduced their participation in PE classes by 3.3% per year and white people by 2.6%. Therefore, it appears that gender and skin color can affect participation in PE classes. On the other hand, as far as we know, nothing is known about other sociodemographic variables, such as: religion, religious practice, school year, study shift, household situation, maternal and paternal education, average family income and main source of income, which may affect participation in PE classes. Thus, intervention programs to increase participation in Physical Education classes will only be effective if there is a good understanding and control of the factors associated with absence in these classes. And that, by itself, justifies the present investigation. Therefore, the present study aimed to investigate the prevalence and associated factors of the absence in physical education classes in the Brazilian state of Sergipe.

METHOD

An epidemiological survey of school-based, cross-sectional design was conducted as part of the project "Condutas de Risco à Saúde em Escolares de Sergipe, Brasil" developed by the Federal Institute of Education. The project was approved by ethics committee of the University Hospital of the Federal Institute of Sergipe under number: (nº CAAE – 2006.0.000.107-10).

The sample was restricted to high school students of the state school network of Sergipe, Brazil. The state is composed by 75 municipalities, geographic divided in eight territories. Each municipalitie, inside a territory, shows similar characteristics in 15 variables and 79 indicators distributed in the following dimensions: economic-productive, social, politic institutional, sociocultural and environmental.

In estimating the sample size for analysis of prevalence was considered the size of the school population of 58.301; the prevalence estimated in 50%; the interval of confidence in 95%; the tolerable sample mistake in 5%; and, because it is a process by cluster sampling, we multiplied the sample size by 1.5 due to the correction of the design effect (deff = 1.5), estimating the need of students.

To the associations analysis, was also considered a statistic power of 80% and Odds Ratio (OR) of 1.2, being necessary a minimum sample of 3.876 adolescents for the state of Sergipe. To select the sample, we used the cluster sampling method using two-stage: 1. Considering the minimum necessary sample for the study, was realized the stratified sampling proportional to territory and possession of the college process (1= up to 199 students; 2 = 200-599 students; 3

= 500+students). For all territories were covered representatively with three sizes of colleges, was established as a criterion the draw of 25% of all units of public education in the State (155 school units), totalizing 39 schools in 27 municipalities. 2. Selected the classes, proportional to grade and period of study (day = morning + afternoon versus night), by using the random process considering 20 students per class.

The directors of each school as well as the parents or guardians of students under 18 years of age signed the free and informed consent form. In addition, students under 18 years of age signed an assent form. The physical education teachers were trained to apply the questionnaires. Anthropometric data and the application of questionnaires were made in the class room, and each student took about 45 minutes.

The questionnaire were self-administered based on Global School-based Student Health Survey (GSHS), proposed by World Health Organization (WHO) composed by two sections: 1. related to living conditions (demographic and educational information, information on employment and income, environmental information and education, information provision and health services). 2. related to health behaviors (alcohol and other drug use, eating habits, hygiene, feelings and relationships, habitual physical activity behaviors in school, sexual behavior, smoking, and violence).

The dependent variable of the study was "absence in physical education classes". The question used the measure the outcome was "over a typical or usual week, how many physical education classes you attend?". The possible answers were as follows: 0 = 0 days; 1 = 1 day, 2 = 2 days; and 3 = 3 + days. The students who reported participating "0 days" in physical education classes were considered "missing classes", the rest were classified as "attend classes". The independent variables considered was: age (14 – 15; 16 – 17; 18 – 19 years), skin color (White, Black, Brown; Other), religion (None; Catholic; Evangelical; Spiritualist; Other), practicing religion (Yes; NO), school year (high school: 1º year; 2º year; 3º year), shift study (Day; Night), Repeated a school year (Yes; No), domicile situation (Urban or Rural), maternal education (None; Not concluded Middle School; Concluded Middle School; Concluded High School; Concluded undergraduate; No answer), paternal education (None; Not concluded Middle School; Concluded Middle School; Concluded High School; Concluded undergraduate; No answer), family income mean (≤ $210.00; $210.00 – $420.00; > $420.00; No answer), main source of income (Work Mother/Father; Family allowance; Retirement income; Pension; Other).

The software HS-ICR-Teleform and the Fujitsu FI6230 scanner were used to perform the tabulation of data through optical reader. The readability of this equipment was about 80 pages per minute. After this stage, despite the accuracy of the equipment, all questionnaires were checked in order to find error due to sensitivity in reading, which were corrected.

The variables were analyzed using descriptive and inferential procedures. In the analysis of bivariate association was employed the chi-square test for heterogeneity and linear trend. In multivariate analysis was used to binary logistic regression for binary categorical variables. The variables that presented a p<0.20 in the crude analysis were included in the adjusted model. The level of significance was ≤ 0,05.

RESULTS

The study included 4701 children from the state school network. We excluded 16 students, who did not meet important issues such as age and sex, 5 refused to participate, and 778 over the age of 19 years old, getting the final sample of 3992 adolescents (1544 boys, 2448 girls). The prevalence who reported not to attend in physical education classes was 25.7% (male 21.8% and female 28.2%), being more evident among those who live in urban areas (27.4%; p=0.002), non-practicing religious (28.8%; p=0,001), stratified religion like others (36.4%; p=0.019) night shift students (31.8%; p=0,001) and when the mother did not have any level of

formal education (28.1%; p=0.0130) (Table 1). The other variables: age (p=0.182); grade (p=0.142); repeated a school year (p=0.717); paternal education (p=0.499); primary source of family income (p=0.675) and mean family income (p=0.152), did not show differences in prevalence between categories.

With regard to gender, both girls and boys who live in urban areas and study at night had a higher prevalence of non-participation in Physical Education classes (Table 1). Only white girls, those from the stratum called "other" religion, as well as those who do not practice religion, showed a higher prevalence of non-participation in physical education classes (Table 1). On the other hand, boys whose maternal education was stratified as "concluded undergraduate (UG)" had a lower prevalence (14.9%; p=0.0390) of non-participation in Physical Education classes (Table 1). The other variables: age; grade; repeated school year; paternal education; primary source of family income and average family income did not show differences in prevalence when analyzed by gender (Table 1).

Table 1 - Sociodemographic characteristics of students that do not attend physical education classes, according to sex. Sergipe, Brazil, in 2011.

Variables	Non-participation in physical education classes					
	Boys (n=1544)		Girls (n=2448)		Total (n=3992)	
	%	*p*-value	%	*p*-value	%	*p*-value
Age (years)						
14-15	17.0	0.124	26.4	0.518	23.0	0.182
16-17	22.7		28.2		26.2	
18-19	22.8		29.5		26.5	
Domicile Situation						
Urban	23.1	**0.050***	30.2	**0.004***	27.4	**0.002***
Rural	19.4		25.2		23.1	
Skin Color						
White	24.4	0.623	32.5	**0.040***	29.4	**0.026***
Black	21.4		23.1		22.3	
Brown	20.9		27.6		25.1	
Other	23.3		21.3		22.2	
Religion						
None	24.2	0.114	30.3	**0.034***	27.0	**0.019***
Catholic	19.8		27.0		24.5	
Evangelical	24.6		29.2		27.4	
Spiritualist	17.1		36.7		25.4	
Other	30.0		42.9		36.4	
Practicing Religion						
Yes	20.4	0.070	26.1	**0.001***	24.1	**0.001***
No	23.7		33.3		28.8	
Grade (HS)						
1º year	22.7	0.714	28.7	0.110	26.2	0.142
2º year	20.7		25.8		23.9	
3º year	21.5		30.7		27.3	
Study Shift						
Day	19.5	**0.003***	24.5	**0.001***	22.7	**0.001***
Night	25.5		36.8		31.8	
Repeated a school year (ES; MS; HS)						
Yes	21.7	0.497	29.3	0.150	26.0	0.717
No	21.8		27.3		25.5	
Maternal Education						
None	24.1	**0.0390***	30.3	0.132	28.1	**0.0130***
Not concluded MS	22.2		29.2		26.6	
Concluded MS	26.3		26.8		26.6	
Concluded HS	21.8		23.7		23.0	
Concluded UG	14.9		27.9		21.7	

I don't know	16.0		29.8		23.9	
Paternal Education						
None	24.5	0.620	30.1	0.322	28.1	0.499
Not concluded MS	22.2		27.3		25.3	
Concluded MS	22.4		23.0		22.8	
Concluded HS	21.1		28.4		25.4	
Concluded UG	15.6		32.4		23.6	
I don't know	19.6		31.0		26.7	
Primary source of family income						
Work Mother/Father	22.0	0.346	27.2	0.344	25.0	0.675
Family allowance	16.9		29.6		26.1	
Retirement income	24.8		27.5		26.5	
Pension	25.9		26.8		26.5	
Other	19.0		33.6		28.6	
Mean Family income (US$)						
≤ $210.00	21.6	0.349	29.4	0.556	26.9	0.152
$210.00 – $420.00	23.8		28.3		26.6	
> $420.00	20.0		26.0		23.1	
I don't know	14.3		30.5		25.3	

ES=Elementary School; MS=Middle School; HS=High School; UG=under graduation; *: $p \leq 0.05$.

Regarding the associations between non-participation in Physical Education classes and the independent variables: age; skin color; religion; practice religion; school year; study in shifts; repeated a school year; domicile situation; maternal education; paternal education; average family income and main source of income, for the total sample (n=3,992), those with skin color stratified into black [OR 0.69 (CI95% 0.51-0.93) and brown [OR 0.80 (CI95% 0.68-0.95) and as well as those who live in rural areas [OR 0.80 (CI95% 0.69 - 0.92)], were less likely to not participate in Physical Education classes (Table 2). Those who were stratified as "others" by religion, as well as those categorized as "not practicing religion" and night shift students, were more likely to not participate in Physical Education classes, being 55% [OR 1.55 (CI95% 1.04-2.31)], 27% [OR 1.27 (CI95% 1.10-1.47)] and 59% [OR 1.59 (CI95% 1.38-1.85)], for "other" religions, non-religious practitioners and study shift, respectively (Table 2). The other variables: age; skin color, grade; repeated a school year; maternal education; paternal education; mean family income; primary source of family income, no significant associations were found with the outcome variable (Table 2). In boys, the night shift students were 42% [OR 1.42 (CI95% 1.11-1.81)] more likely to not a participate in physical education classes. With regard to girls, those with skin color stratified into black [OR 0.62 (CI95% 0.41-0.94) and brown [OR 0.80 (CI95% 0.68-0.95) and as well as those who live in rural areas [OR 0.79 (CI95% 0.64 - 0.98] less likely to not participate in Physical Education classes. However, "other" religions, those who responded that they were not religious practitioners, as well as night shift students, presented 72 [OR 1.42 (CI95% 0.99-3.01)], 41 [OR 1.41 (CI95% 1.17-1.71] and 80% [OR 1.80 (CI95% 1.49-2.16;], respectively, more likely to not participate in physical education classes (Table 2).

Table 2 - Crude logistic regression analysis of factors associated with the absence in physical education classes, according to sex. Sergipe, Brazil, in 2011.

Variables	Non-participation in physical education classes		
	Boys (n=1544)	Girls (n=2448)	Total (n=3992)
	OR (CI 95%)	OR (CI 95%)	OR (CI 95%)
Age (years)			
14-15	1	1	1
16-17	1.43 (0.99-2.07)	1.10 (0.87-1.39)	1.19 (0.97-1.45)
18-19	1.44 (0.99-2.12)	1.17 (0.90-1.52)	1.21 (0.97-1.50)
p-value	0.127	0.518	0.183
Skin Color			
White	1	1	1
Black	0.85 (0.54-1.33)	0.62 (0.41-0.94)	0.69 (0.51-0.93)
Brown	0.82 (0.61-1.12)	0.79 (0.64-0.98)	0.80 (0.68-0.95)
Other	0.94 (0.44-1.99)	0.56 (0.27-1.16)	0.69 (0.41-1.15)
p-value	0.623	**0.041***	**0.026***
Religion			
None	1	1	1
Catholic	0.78 (0.56-1.08)	0.85 (0.62-1.16)	0.88 (0.70-1.10)
Evangelical	1.02 (0.69-1.53)	0.95 (0.66-1.36)	1.02 (0.78-1.33)
Spiritualist	0.65 (0.27-1.53)	1.33 (0.60-2.96)	0.92 (0.52-1.63)
Other	1.34 (0.75-2.42)	1.72 (0.99-3.01)	1.55 (1.04-2.31)
p-value	0.117	**0.039***	**0.021***
Practicing Religion			
Yes	1	1	1
No	1.21 (0.95-1.54)	1.41 (1.17-1.71)	1.27 (1.10-1.47)
p-value	0.124	**0.001***	**0.001***
Domicile Situation			
Urban	1	1	1
Rural	0.80 (0.62-1.03)	0.78 (0.65-0.94)	0.80 (0.69-0.92)
p-value	0.089	**0.008***	**0.003***
Grade (HS)			
1º year	1	1	1
2º year	0.89 (0.67-1.18)	0.86 (0.70-1.06)	0.88 (0.75-1.04)
3º year	0.93 (0.69-1.27)	1.10 (0.88-1.37)	1.06 (0.89-1.26)
p-value	0.714	0.110	0.142
Study Shift			
Day	1	1	1
Night	1.42 (1.11-1.81)	1.80 (1.49-2.16)	1.59 (1.38-1.85)
p-value	**0.005***	**0.001***	**0.001***
Repeated a school year (ES. MS. HS)			
No	1	1	1
Yes	0.99 (0.78-1.27)	1.10 (0.92-1.32)	1.03 (0.89-1.18)
p-value	0.946	0.279	0.717
Maternal Education			
None	1	1	1
Not concluded MS	0.90 (0.60-1.34)	0.95 (0.72-1.25)	0.93 (0.74-1.17)
Concluded MS	1.13 (0.69-1.84)	0.84 (0.57-1.24)	0.93 (0.69-1.25)
Concluded HS	0.88 (0.55-1.41)	0.72 (0.51-1.01)	0.76 (0.58-1.01)
Concluded UG	0.55 (0.31-0.99)	0.89 (0.58-1.37)	0.71 (0.50-1.00)
I don't know	0.60 (0.31-1.16)	0.98 (0.62-1.55)	0.80 (0.55-1.17)
p-value	0.138	0.381	0.177
Paternal Education			
None	1	1	1
Not concluded MS	0.88 (0.63-1.24)	0.87 (0.69-1.11)	0.87 (0.71-1.06)
Concluded MS	0.89 (0.54-1.46)	0.70 (0.48-1.02)	0.76 (0.56-1.02)
Concluded HS	0.82 (0.53-1.28)	0.92 (0.67-1.28)	0.87 (0.67-1.13)
Concluded UG	0.57 (0.29-1.12)	1.12 (0.65-1.91)	0.79 (0.53-1.20)
I don't know	0.75 (0.48-1.18)	1.05 (0.77-1.42)	0.94 (0.73-1.21)

p-valor	0.625	0.324	0.500
Mean Family income (US$)			
≤ $210.00	1	1	1
$210.00 – $420.00	1.13 (0.84-1.53)	0.95 (0.77-1.16)	0.98 (0.83-1.16)
> $420.00	0.90 (0.66-1.24)	0.85 (0.67-1.07)	0.82 (0.68-0.99)
I don't know	0.60 (0.20-1.79)	1.05 (0.59-1.87)	0.92 (0.56-1.52)
p-value	0.353	0.557	0.153
Primary source of family income			
Work Mother/Father	1	1	1
Family allowance	0.72 (0.46-1.18)	1.13 (0.88-1.43)	1.06 (0.86-1.30)
Retirement income	1.17 (0.82-1.65)	1.02 (0.78-1.33)	1.08 (0.87-1.33)
Pension	1.24 (0.66-2.32)	0.98 (0.59-1.62)	1.08 (0.73-1.60)
Other	0.83 (0.51-1.35)	1.36 (1.00-1.83)	1.20 (0.93-1.55)
p-value	0.349	0.346	0.675

ES=Elementary School; MS=Middle School; HS=High School; UG=under graduation; *: $p \leq 0.05$.

After adjusting the variables with p-value ≤ 0.20 in the crude analysis, it was observed that, in total sample, those with skin color stratified into black [OR 0.70 (CI95% 0.51-0.94) and brown [OR 0.80 (CI95% 0.67-0.95) were less likely to not participate in physical education classes, as were those who live in rural areas [OR 0.82 (95%CI 0.70-0.95)]. In contrast, those who were stratified as "others" by religion, as well as those categorized as "non-religionists" and night shift students, were more likely to not participate in Physical Education classes, being 66% [OR 1, 66 (95%CI 1.10-2.50)], 23% [OR 1.23 (95%CI 1.05-1.45)] and 63% 1.23 [OR (95%CI 1.05-1.45)], for "other" religions, "not practicing religion" and night shift, respectively (Table 3). For girls, those who were stratified as "not practicing religion" were more likely to not participate in physical education classes [OR 1.35 (95%CI 1.10-1.65). On the other hand, those with skin color stratified into black [OR 0.60 (CI95% 0.40-0.91) and brown [OR 0.77 (CI95% 0.62-0.96) were less likely to not participate in physical education classes (Table 3).

Similarly, girls and boys, urban residents, demonstrated 23 [OR 0.77 (CI95% 0.64-0.9] and 24% [OR 0.76 (CI95% 0.59-0.99)], respectively, less likely to not participate in physical education classes (Table 3). In addition, night shift students are more likely to not participate in physical education classes, being [OR 1.85 (CI95% 1.53-2.24)] and [OR 1.143 (CI95% (1.09-1.88)], for girls and boys, respectively (Table 3). The other variables no significant associations were found with the outcome variable (Table 3).

Table 3 - Adjusted logistic regression analysis of factors associated with absence in physical education classes, according to sex. Sergipe, Brazil, in 2011.

Variables	Non-participation in physical education classes		
	Boys (n=1544)	Girls (n=2448)	Total (n=3992)
	OR (CI 95%)	OR (CI 95%)	OR (CI 95%)
Age (years)			
14-15	1		1
16-17	1.32 (0.91-1.91)		1.18 (0.97-1.44)
18-19	1.18 (0.78-1.78)		1.24 (0.99-1.54)
p-value	0.317		0.147
Skin Color			
White		1	1
Black		0.60 (0.40-0.91)	0.70 (0.51-0.94)
Brown		0.77 (0.62-0.96)	0.80 (0.67-0.95)
Other		0.53 (0.25-1.10)	0.67 (0.40-1.14)
p-value		**0.022***	**0.028***
Religion			
None	1	1	1
Catholic	0.81 (0.57-1.16)	1.04 (0.74-1.46)	0.95 (0.74-1.20)
Evangelical	1.07 (0.70-1.64)	1.21 (0.82-1.79)	1.10 (0.83-1.46)
Spiritualist	0.66 (0.28-1.58)	1.42 (0.62-3.23)	0.97 (0.54-1.74)
Other	1.35 (0.74-2.46)	1.93 (1.09-3.41)	1.66 (1.10-2.50)
p-value	0.180	0.105	**0.023***
Practicing Religion			
Yes	1	1	1
No	1.16 (0.89-1.50)	1.35 (1.10-1.65)	1.23 (1.05-1.45)
p-value	0.274	**0.005***	**0.010***
Domicile Situation			
Urban	1	1	1
Rural	0.76 (0.58-0.99)	0.77 (0.64-0.93)	0.82 (0.70-0.95)
p-value	**0.044***	**0.007***	**0.009***
Grade (HS)			
1º year		1	1
2º year		0.86 (0.70-1.06)	0.87 (0.73-1.04)
3º year		1.00 (0.80-1.25)	0.99 (0.82-1.22)
p-value		0.293	0.224
Study Shift			
Day	1	1	1
Night	1.43 (1.09-1.88)	1.85 (1.53-2.24)	1.63 (1.40-1.92)
p-value	**0.009***	**0.001***	**0.001***
Maternal Education			
None	1		1
Not concluded MS	0.93 (0.62-1.39)		0.95 (0.75-1.20)
Concluded MS	1.18 (0.71-1.96)		0.95 (0.70-1.30)
Concluded HS	0.90 (0.55-1.47)		0.77 (0.58-1.03)
Concluded UG	0.58 (0.32-1.05)		0.75 (0.60-1.29)
No answer	0.64 (0.33-1.24)		0.88 (0.45-1.99)
p-value	0.165		0.304
Mean Family income (US$)			
≤ $210.00			1
$210.00 – $420.00			0.95 (0.79-1.14)
> $420.00			0.81 (0.65-1.01)
No answer			0.94 (0.56-1.57)
p-value			0.266

ES=Elementary School; MS=Middle School; HS=High School; UG=under graduation; *: $p \leq 0.05$.

DISCUSSION

The present study aimed to investigate the prevalence and associated factors of the absence in physical education classes in the Brazilian state of Sergipe. It was found that approximately one every four young people do not attend classes in Physical Education in State Schools (25.7%), and, being more evident among those who live in urban areas (27.4), non-practicing religious (28.8%), stratified religion like "others" (36.4%), night shift students (31.8%) and when the mother did not have any level of formal education (28.1%).

Although a high prevalence, Silva et al.[17] evaluated the prevalence and factors associated with insufficient physical activity, sedentary behavior and absence from school Physical Education in 5028 from High School of Santa Catarina, reported that 48.6% of the sample did not participate in physical education classes. What can be partly explained by ethnic, behavioral, geographic and climatic differences between the regions investigated (Sergipe and Santa Catarina). However, the results of this study seem to reflect a global trend, to the extent that, in the USA, Lowry et al.[15] found a reduction in the participation of students in daily physical education classes, as well as reduction in the prevalence of school students considered physically active.

Regarding the domicile situation (rural or urban), Patterson et al.[18] highlighted that people living in rural areas acquire more physical activity in domains such as occupational and domestic physical activity, meanwhile, populations urban populations tend to accumulate greater physical activity through leisure and commuting to work. Therefore, it is reasonable to infer that students who live in rural areas, who in turn, can work at home, can use Physical Education classes for leisure, thus showing greater participation in these classes.

Few studies have explored the relationship between skin color and physical activity behavior[19,20]. A recent study carried out with North American adolescents found important ethnic differences in the associations between physical activity or inactivity and being overweight[19]. In our study, white skin color was associated with non-participation in Physical Education classes. Some studies have demonstrated that leisure-time physical inactivity is inversely associated with socioeconomic level[20,21]. Hallal et al.[22] found a positive linear association between social status and total prevalence of physical inactivity. It is known that individuals of lower socioeconomic status tend to have a higher level of occupational activity and less participation in leisure activities[23]. We speculate that those who declare themselves black and brown may participate more frequently in domestic activities, as well as carry out more work activities more frequently than whites and, thus, may use Physical Education classes for leisure, thus demonstrating greater participation in Physical Education Classes. In other words, skin color is associated with socioeconomic status, which, in turn, can result in more work activities and, therefore, less time for leisure, using physical education classes for this purpose.

In relation to religion, those stratified as "others", both in the total sample (n=3,992) and among girls (n=2,448), were more likely to not participate in Physical Education classes, being [OR: 1.55 (95%CI: 1.04-2.31)] and [OR: 1.72 (95%CI 0.99-3.01), for the total sample and girls, respectively. We emphasize that, in our country, those who reported "other" as religion, can be more associated with no religion, to the extent that, in Brazil, only the Catholic (64.6%) and Evangelical (22.2%) religions exceed in prevalence the non-religious stratum, which totals 8%. While Spiritualists (2%), Candomblé and Umbanda (0.3%), total only 2.3%[24]. The remaining 2.9% may be from other religions, which were not identified. Therefore, it is reasonable to infer that religion does not seem to interfere with non-participation in Physical Education classes.

However, Benjamins[25] found that religious beliefs influence decision-making related to physical activity among Jewish adolescents. Furthermore, Aljayyousi et al.[26] found that religion explicitly and implicitly influences family health values and adolescent physical activity among

Muslim university students in Qatar. Thus, although these religions may interfere with participation in Physical Education classes, they were not discriminated against in the instrument. This allows us to make an inference and consider that religion does not seem to affect the outcome variable investigated here. Additionally, a recent and elegant study demonstrated that the results indicate that religious faith did not play a mediating role in participation in physical activity[27]. These aspects can also explain the variable: "practitioners of religion".

Pereira et al.[28] demonstrated a higher prevalence (p<0.001) of workers among students on the night shift (49.4%) compared to those in the morning (17.6%) and afternoon (7.4%). Therefore, it is reasonable to infer that night shift students may not have the motivation to participate in Physical Education classes, due to being exhausted due to work activities during the day.

Among boys, students from the night shift present 42% more likely to not participate in physical education classes. Similarly, Silva et al.[17] also demonstrated higher chance (45%) of insufficient physical activity in students from the night shift in both sexes. Moreover, Quadros et al.[29] reported that students of the night shift have 70% more likely to have a sedentary lifestyle.

With regard to girls, the students who self-reported non-white, religion practitioners, urban residents and day students attended more classes of Physical Education. Similarly, Santos et al.[30] evaluated the factors associated with physical inactivity shift school students in 4,207 public schools in the Brazilian state of Pernambuco, showed that girls from rural areas have 260% more likely to be physically inactive compared to their peers in urban area.

In the present study, it was found that girls exhibit a greater number of associated factors with the absence in PE classes when compared to males. Similarly, several investigations have shown that girls appear to be less active than boys[31-33].

Isorna et al.[34] pointed out that girls' physical inactivity can be influenced by gender stereotypes that condition pedagogical processes and students' aptitude. These processes, in turn, can affect personal interests and motivations, reverberating in their level of involvement in some physical activities. Castejón and Gimenez[35] showed that, during physical education classes, boys prefer sports, while girls opt for expressive activities, such as dancing. Alsarve[36] suggests that this may be associated with the masculinized approach used in Physical Education classes, as it highlights that beliefs and views of masculinity and femininity are stereotypical. In this same research, masculinity was associated with characteristics such as: physical strength, virility and agility. Meanwhile, female roles were related to domestic tasks, fragility, rhythm, subordination and weakness. According to Alvariñas and Pazos[37], Curieses[38] and Mujica[39], these stereotypes threaten women's involvement in disciplines traditionally dominated by men and are justified by the idea of sport as an impractical and dangerous activity for women. Furthermore, historically, an image has been constructed that women who practice sports are stereotyped as transgressors.

Regarding the role played by Physical Education, some authors[36,37] express that this issue is permeated by male and female stereotypes that are present at school, validating the differences between genders and thus affecting school culture and, in turn, the lower participation in Physical Education classes by girls. Cameron and Humbert [40] indicated that this situation is closely related to the roles played by men and women in society, representing this concretely through the differentiation between sports designated as "masculine" or "feminine". In this way, gender differences in physical education and physical activity at school become natural for educators[41], favoring that this situation still remains today.

Despite several health institutions defend public policies within the school to increase time practices in physical education classes[35], few studies have investigated the effects on the health of school children. Evidences show that measures, such as these, may contribute to the

increased levels of physical activity in children and adolescents,[13,35] however, are not yet clear evidence about increasing physical activity out of school.[13]

Similarly, the relation of Physical Education classes with obesity presents positive for boys, being considered as a complement to other extracurricular physical activities, in contrast to what happens with the girls for being considered the main physical activity.[2] In this research, evidence of a greater number of associated factors in females compared to boys, complement the studies mentioned.

The cross-sectional design cannot provide strong evidence about the direction of causality: age, skin color, religion, practicing religion, school year, shift study, repeated a school year, domicile situation, maternal education, paternal education, family income mean, main source of income to non-participation in Physical Education classes. A longitudinal study could better establish whether these variables above mentioned causes changes in non-participation in Physical Education classes. This may be a limitation of the present study. On the other hand, the sample size and the fact that data was collected from schools in all regions of the state can characterize the robustness of the present investigation.

The findings of this research can help the state, the school, and, mainly, the Physical Education teachers develop strategies to decrease the lack of students in their classes, since the lack of physical activity can result in the onset of several chronic diseases.

It is noteworthy that investigations which have evaluated the prevalence and associated factors with the Non-participating in Physical Education classes are scarce, which may not help to fully explain our findings. Leaving a clear need for further investigations to be carried out in different countries and cultures.

CONCLUSION

In conclusion, a significant number of students reported non-participation to physical education classes. In addition, the variables that were associated with non-participation in physical education classes were: skin color black and brown, girls, who live in urban areas, stratified religion like "others", non-practicing religious and night shift students. Thus, the results suggest preventive ways differentiated between the sexes, and future studies could assess gender specific intervention approaches, in order to increase participation in physical education classes. Intervention programs will only be effective if there is a good understanding and control of the factors associated with participation in physical education. And that, by itself, justifies the present investigation.

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