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Bruxism and physical activity in teenagers

Bruxismo e atividade física em adolescentes

Bruxismo y actividad física en adolescentes

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ABSTRACT

Objective: To analyze the in adolescent students association between possible sleep and awake bruxism and the practice of physical activity. **Methods:** This is an analytical cross-sectional school-based study. A total of 1313 students aged 14-19 years of both sexes, enrolled in public high schools of Olinda, Northeastern Brazil were included. The variables evaluated included sociodemographic data, feelings of sadness, physical activity in the last week, and bruxism indicators. The questions used were taken from PeNSE, YRBS, and RDC/TMD questionnaires. Data were analyzed using STATA 12.0 software for Windows. **Results**: Among the participants, 22.5% had sleep bruxism, 20.4% had wakefulness bruxism, 80.4% did not practice physical activity at the recommended levels and 38.5% reported feelings of sadness. There was no statistically significant association in any of the variables analyzed in relation to the practice of physical activity. There was an association between sleep and wakefulness bruxism and feelings of sadness (p-value < 0.001), relating feelings of sadness to bruxism. **Conclusion:** No association was observed between possible sleep and wakefulness bruxism and the practice of physical activity in the studied population.

Keywords: Adolescent, Bruxism, Exercise.

RESUMO

Objetivo: Analisar a associação entre possível bruxismo do sono e da vigília e a prática de atividade física em escolares adolescentes. **Métodos:** Trata-se de um estudo transversal analítico de base escolar. Foram incluídos 1.313 estudantes de 14 a 19 anos, de ambos os sexos, matriculados em escolas públicas de ensino médio de Olinda, Nordeste do Brasil. As variáveis incluídas avaliaram dados sociodemográficos, sentimentos de tristeza, atividade física na última semana e indicadores de bruxismo. As questões utilizadas foram retiradas dos questionários PeNSE, YRBS e RDC/TMD. Os dados foram analisados por meio do software STATA 12.0 para Windows. **Resultados:** Entre os participantes, 22,5% apresentavam bruxismo do sono, 20,4% apresentavam bruxismo da vigília, 80,4% não praticavam atividade física nos níveis recomendados e 38,5% relataram sentimentos de tristeza. Não houve associação estatisticamente significativa em nenhuma das variáveis analisadas em relação à prática de atividade física. Houve associação entre bruxismo do sono e vigília e sentimentos de tristeza (p-valor < 0,001), relacionando sentimentos de tristeza ao bruxismo. **Conclusão:** Não foi observada associação entre possível bruxismo do sono e vigília e a prática de atividade física na população estudada.

Palavras-chave: Adolescente, Bruxismo, Exercício.

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RESUMEN

Objetivo: Analizar la asociación entre el posible bruxismo durante el sueño y la vigilia y la práctica de actividad física en escolares adolescentes. **Métodos:** Se trata de un estudio transversal analítico en escuelas. Se incluyeron 1.313 estudiantes de 14 a 19 años, de ambos os sexos, matriculados en escuelas secundarias públicas de Olinda, Nordeste de Brasil. Las variables incluidas evaluaron datos sociodemográficos, sentimientos de tristeza, actividad física en la última semana e indicadores de bruxismo. Las preguntas utilizadas fueron extraídas de los cuestionarios PeNSE, YRBS y RDC/TMD. Los datos se analizaron utilizando el software STATA 12.0 para Windows. **Resultados:** Entre los participantes, el 22,5% tenía bruxismo durante el sueño, el 20,4% tenía bruxismo durante la vigilia, el 80,4% no practicaba actividad física en los niveles recomendados y el 38,5% refirió sentimientos de tristeza. No hubo asociación estadísticamente significativa en ninguna de las variables analizadas en relación con la práctica de actividad física. Se encontró asociación entre el bruxismo durante el sueño y la vigilia y los sentimientos de tristeza (p-valor < 0,001), relacionando los sentimientos de tristeza con el bruxismo. **Conclusión:** No se observó asociación entre el posible bruxismo durante el sueño y la vigilia y la práctica de actividad física en la población estudiada.

Palabras clave: Adolescente, Bruxismo, Ejercicio.

INTRODUCTION

Bruxism is a condition characterized by repetitive activity in the masticatory muscles, involving clenching or grinding of the teeth and jaw immobilization or thrusting, without necessarily having dental contact. Bruxism has two distinct circadian manifestations: it can occur during sleep, referred to as sleep bruxism, or during wakefulness. In 2018, an international consensus developed different definitions for sleep bruxism (SB), which can be either rhythmic or non-rhythmic, and awake bruxism (AB), characterized by repetitive or sustained tooth contact or contraction of the jaw muscles (DE BAAT C,et al., 2021; LOBBEZOO F, et al., 2018; WETSELAAR P, et al., 2021).

Studies suggest that bruxism is a multifactorial condition, influenced by genetic, environmental, and behavioral factors (MANFREDINI D, et al., 2011). The genetic predisposition to bruxism has been highlighted in twin studies, which indicate a higher concordance rate among monozygotic twins compared to dizygotic twins (LOBBEZOO F, et al., 2014). Furthermore, neurotransmitter imbalances, particularly involving dopamine, have been associated with the pathophysiology of bruxism, suggesting a link between central nervous system activity and this parafunctional habit (KATO T, et al., 2003).

Etiologically, evidence suggests that bruxism can be triggered by biological and psychological risk factors, with exogenous risk indicators having greater involvement than morphological factors (WETSELAAR P, et al., 2020). In addition, the literature points to an association between both types of bruxism and psychological factors such as anxiety, stress, and depression (STRAUSZT, et al., 2010; DOS ANJOS RS, et al., 2020). Within this context, adolescence can be a period prone to the emergence of bruxism, as numerous problems surround this period, increasing the level of stress in this age group (MANFREDINI D, et al., 2020). The presence of academic pressure, social conflicts, and emotional instability during adolescence may contribute to the increased prevalence of bruxism in this population (RESTREPO C, et al., 2008). Additionally, the use of electronic devices before bedtime has been linked to alterations in sleep patterns, which may exacerbate the occurrence of sleep bruxism (MARTYNOWICZ H, et al., 2019). With the prevalence of bruxism in adolescents ranging from 6% to 50%, depending on the diagnostic criteria and the population studied (LOBBEZOO F, et al., 2018).

From this perspective, lifestyle changes, such as regular physical activity, act as a protective measure against stress, as they help reduce anxiety and improve depression, through the release of hormones such as endorphin and serotonin, promoting a sense of well-being, reducing significant contributors to bruxism, which are increasingly exposed to these risk factors (AZEVEDO CB, 2020;DINAS PC, et al., 2011). Studies indicate that adolescents who engage in regular physical activity exhibit lower levels of perceived stress and better sleep quality, which may contribute to the reduction of bruxism episodes (BRAND S, et al., 2010). Moreover, physical activity has been associated with the modulation of the autonomic nervous system, which plays a crucial role in the regulation of muscle activity, potentially mitigating the occurrence of bruxism (PERES MA, et al., 2019).

According to the Pan American Health Organization manual, 60 minutes of daily physical activity is recommended for children and adolescents, as it provides numerous health benefits, including improved physical fitness, cardiometabolic, bone, cognitive, and mental health, and reduced adiposity (WORLD HEALTH ORGANIZATION, 2020). Despite these benefits, studies indicate that a significant proportion of adolescents do not meet the recommended levels of physical activity, which may contribute to increased stress and associated conditions such as bruxism (HALLAL PC, et al., 2012). Therefore, investigating the relationship between physical activity and bruxism in adolescents is essential for understanding potential preventive measures and promoting overall health in this age group.

In this context, the objective of the present study was to describe the prevalence of possible sleep and wake bruxism and its association with the practice of physical activity, in adolescent students from the state education network of Olinda, Pernambuco, aged 14 to 19 years of both sexes.

METHODS

This is an analytical, school-based cross-sectional study carried out in the city of Olinda, the state of Pernambuco, Northeastern Brazil. The study is part of a larger study entitled “Oral Health and modifiable risk behaviors in Adolescence – follow up to Prevent”. Olinda had a territorial extension of 41,300 km2, and according to updated data from the Brazilian Institute of Geography and Statistics – IBGE, an estimated population of 391,835 inhabitants, with 62,025 adolescents aged 10-19 years, representing about 16% of the total population. In addition, it had a population density of 9,063,58 inhabitants per square kilometer, which was the highest rate in the state and the fifth highest in Brazil in 2018 (IBGE, 2018).

The sample corresponded to 1313 high-school students enrolled in public state schools. The sample calculation equation study used proportion in a finite population to determine the sample size, considering the results previous pilot study, where the prevalence of bruxism was 33%. The estimated minimum sample was 760 to account for potential dropouts, the number was augmented by 20%, ultimately yielding an estimated sample size of 912 participants.

The inclusion criteria to compose the sample were: students of both sexes, aged 14-19 years, and enrolled in public high schools. Exclusion criteria were any disability or dysfunction that prevented filling out the questionnaire, the non-completion of questions referring to sociodemographic data, and questions referring to study variables, not being used in statistical analyses, which were considered losses.

Questions related to sociodemographic data were taken from the National School Health Survey questionnaire – PeNSE. Variables related to life satisfaction and feelings of sadness were taken from the Youth Risk Behavior Survey – YRBS (GUEDES DP, LOPES CC, 2010) and Health Behaviour in School – Aged Children (HSBC). The question about life satisfaction using one question: In general, where on the ladder do you feel you stand at the moment? With five options: (A) I’m not anything happy (B) I don’t feel happy (C) I feel happy (D) I feel very happy (E) I feel completely happy. The question for physical activity was taken from the YRBS(Guedes e Lopes, 2010), with the following question: a) During the past 7 days, how many days were you physically active for at least 60 minutes a day? (Consider the time you spent in any type of physical activity that increased your heart rate and made your breathing faster for some time), with the options: (A) none (B) 1 day (C) 2 days (D) 3 days (E) 4 days (F) 5 days (G) 6 days (H) 7 days. Questions regarding physical activity were categorized into 5 to 7 days and less than 5 days.

Data related to the presence of possible sleep and awake bruxism were collected through the Research Diagnostic Criteria for Temporomandibular Disorders questionnaire (RDC/TMD) (de Lucena LB, et al., 2006), using three questions: a) Have you ever noticed or has someone told you that you grind or clench your teeth while sleeping? b)Do you feel your jaw (chin) “tired” or sore when you wake up in the morning? Those who answered “yes” to at least one of these two questions were considered to have possible sleep bruxism. c) During the day, do you grind or clench your teeth? Those who answered “yes” to this question were considered to have possible awake bruxism.

Data were double-entered into the Epidata 3.3 software and the STATA 12.0 software for Windows was used for data analysis. To assess the students' profiles, absolute and relative frequencies were calculated. The chi-square test was applied to verify the existence of an association for categorical variables. To compose the multivariate analysis model, variables that obtained significance ≤0.20 in the bivariate analysis were taken into account. Conclusions of the multivariate analysis were made considering the 5% significance level. The prevalence ratio (PR) with confidence interval was calculated.

This project was developed following Resolution 466/2012 of the National Health Council of the Ministry of Health and was approved by the Research Ethics Committee, CAAE: 76609817.1.0000.5207, CEP 2.361.780, with consent from the Department of Education of the state of Pernambuco.

RESULTS

Of the initial pool of participants, 52.9% responded, resulting in a final sample of 1313 teenagers with a mean age of 16.51 years. The remaining 47.1% were lost due to the non-completion of questions about sociodemographic data and study variables.

The general characteristics of adolescents included in the present study are shown in **Table 1**. Most adolescents aged 14-16 years, were in the third grade of high school, were female, whose mothers had less than 11 years of schooling, and monthly family income of up to 1 minimum wage.

Table 1 - Sociodemographic profile of the population and frequency of variables under study.

Variables	n = 1313	%
Sex		
Female	755	57.5
Male	558	42.5
Age (years)		
14-16	636	48.4
17-19	677	51.6
Grade		
1st year	401	30.5
2nd year	363	27.6
3rd year	549	41.9
Maternal schooling		
< 11 year	711	54.2
≥ 11 year	602	45.8
Monthly family income		
Up to 1 MW	754	57.4
More than 1 MW	559	42.6
Feelings of sadness		
Yes	506	38.5
No	807	61.5
Satisfied with life		
Yes	1078	82.1
No	235	17.9
Possible awake bruxism		
Yes	268	20.4
No	1045	79.6
Possible sleep bruxism		
Yes	295	22.5
No	1018	77.5
Physical activity		
Less than 5 days	1055	80.4
5-7 days	258	19.6

Source: Soares K, et al., 2025.

Table 2 presents associations between possible awake bruxism and independent variables. Statistically significant association in variables “Feelings of sadness” (p <0.001) and “Satisfied with life” (p= 0.012).

Table 2 - Bivariate analysis corresponds to the association between possible awake bruxism and independent variables.

Variables	Possible awake bruxism		PR	95% CI PR	p-value *
	Yes n (%)	No n (%)			
Sex					
Female	157 (20.8)	598 (79.2)	1.05	0.84 – 1.30	0.688
Male	111 (19.9)	447 (80.1)	1.00	---	
Age (years)					
14-16	141 (22.2)	495 (77.8)	1.18	0.95 – 1.46	0.125
17-19	127 (18.8)	550 (81.2)	1.00	---	
Grade					
1st year	84 (20.9)	317 (79.1)	1.14	0.88 – 1.48	0.248
2nd year	83 (22.9)	280 (77.1)	1.24	0.96 – 1.61	
3rd year	101 (18.4)	448 (81.6)	1.00	---	
Maternal schooling					
< 11 year	143 (20.1)	568 (79.9)	0.97	0.78 – 1.20	0.770
≥ 11 year	125 (20.8)	477 (79.2)	1.00	---	
Monthly family income					
Up to 1 MW	150 (19.9)	604 (80.1)	0.94	0.76 – 1.17	0.589
More than 1 MW	118 (21.1)	441 (78.9)	1.00	---	
Feelings of sadness					
Yes	137 (27.1)	369 (72.9)	1.67	1.35 – 2.06	**< 0.001**
No	131 (16.2)	676 (83.8)	1.00	---	
Physical activity					
Less than 5 days	206 (19.5)	849 (80.5)	0.81	0.63 – 1.04	0.108
5-7 days	62 (24.0)	196 (76.0)	1.00	---	
Satisfied with life					
Yes	206 (19.1)	872 (80.9)	1.00	---	**0.012**
No	62 (26.4)	173 (73.6)	1.38	1.08 – 1.77	

(*) Chi-Square Test
Source: Soares K, et al., 2025.

Table 3 shows the association of possible sleep bruxism with variables “Sex” (p=0.014), “Grade” (p=0.012), “Feelings of sadness” (p <0.001), and “Satisfied with life” (p=0.001).

Table 3 - Bivariate analysis corresponding to the association between possible sleep bruxism and independent variables.

Variables	Possible sleep bruxism		PR	95% CI PR	p-value *
	Yes n (%)	No n (%)			
Sex					
Female	188 (24.9)	567 (75.1)	1.30	1.05 – 1.60	**0.014**
Male	107 (19.2)	451 (80.8)	1.00	---	
Age (years)					
14-16	152 (23.9)	484 (76.1)	1.13	0.93 – 1.38	0.228
17-19	143 (21.1)	534 (78.9)	1.00	---	
Grade					
1st year	90 (22.4)	311 (77.6)	1.17	0.91 – 1.51	**0.012**
2nd year	100 (27.5)	263 (72.5)	1.44	1.13 – 1.83	
3rd year	105 (19.1)	444 (80.9)	1.00	---	
Maternal schooling					
< 11 year	160 (22.5)	551 (77.5)	1.01	0.82 – 1.23	0.973
≥ 11 year	135 (22.5)	467 (77.5)	1.00	---	
Monthly family income					
Up to 1 MW	167 (22.1)	587 (77.9)	0.97	0.80 – 1.18	0.748
More than 1 MW	128 (22.9)	431 (77.1)	1.00	---	
Feelings of sadness					
Yes	155 (30.6)	351 (69.4)	1.77	1.44 – 2.16	**< 0.001**
No	140 (17.3)	667 (82.7)	1.00	---	
Physical activity					
Less than 5 days	246 (23.3)	809 (76.7)	1.23	0.93 – 1.62	0.136
5-7 days	49 (19.0)	209 (81.0)	1.00	---	
Satisfied with life					
Yes	223 (20.7)	855 (79.3)	1.00	---	**0.001**
No	72 (30.6)	163 (69.4)	1.48	1.18 – 1.86	

(*) Chi-Square Test
Source: Soares K, et al., 2025.

Table 4 presents the multivariate analysis for both types of possible bruxism, taking into account variables that obtained a significance of ≤ 0.20 in the bivariate analysis. In the possible awake bruxism type, it was observed that only the variable "Feelings of sadness" remained. In the possible sleep bruxism type, variables "Grade" and "Feelings of sadness" remained, where the greater influence for the variable "Feelings of sadness" was observed, with PR of 1.74.

Table 4 - Multivariate analysis for possible awake and sleep bruxism.

Possible awake bruxism			
Variables	**PR**	**95% CI PR**	**p-value ***
Feelings of sadness			
Yes	1.67	1.35 – 2.06	**< 0.001**
No	1.00	---	
Possible sleep bruxism*			
Variables	**PR**	**95% CI PR**	**p-value ***
Grade			**0.022**
1st year	1.18	0.92 – 1.50	
2nd year	1.40	1.10 – 1.77	
3rd year	1.00	---	
Feelings of sadness			
Yes	1.74	1.43 – 2.13	**< 0.001**
No	1.00	---	

*Variables that entered the model: Sex, Grade, Physical Activity, Feeling sad, and Feeling happy.
Source: Soares K, et al., 2025.

DISCUSSION

The prevalence of both types of bruxism was approximately 20% in this study. This result is relevant, as it indicates that a considerable number of adolescents may be affected by this condition, which may have significant impacts on the oral health and quality of life of these individuals. In the literature, bruxism presents a wide variation in prevalence, with the lowest value (6.5%) found by Itani O, et al. (2013). The author had already conducted four studies with identical methodology in Japanese adolescents and the percentage of bruxists was low in all outcomes. This low prevalence may be related to cultural, environmental or even genetic factors that influence the manifestation of bruxism in different populations. In addition to bruxism, the researcher also evaluated other arousal disorders, and these obtained a more expressive value. The highest value (47.5%) was cited by Murrieta J, et al. (2014), who investigated the prevalence of bruxism, dental class and the association between both in Mexican adolescents.

Perhaps the high percentage in the study by Murrieta J, et al. (2014) can be attributed to the methodological diversity used to identify bruxism, as well as to specific characteristics of the sample studied. Bruxism behavior was assessed through intra- and extraoral examination, including the analysis of clinical signs such as tooth wear and sensitivity, as well as self-reported symptoms such as facial pain and frequent headaches. When comparing studies with similar methodology and population to the research in question, it is observed that the prevalence found was equivalent. Sousa HCS, et al. (2018) also developed their research in Northeastern Brazil and followed the same methodology as the other referenced studies, having obtained 22.2% of bruxists in their sample.

Approximately 1/5 of the sample studied presented possible awake bruxism, which, in the literature, is shown to be a less frequent condition in the adolescent population, being more prevalent in children (ALONSO LS, et al., 2022). This finding suggests that bruxism awake may be more related to behavioral and emotional factors present in childhood, but which tend to decrease with advancing age. Even so, the results found differ from those identified by Wetselaar P, et al. (2020), who conducted a study with German adolescents and found a percentage of 4.1%. The author suggests that the wide variation in prevalence is due to the difference in the instruments used for diagnosis.

Regarding gender, it was also not possible to observe a statistically significant difference, which indicates that bruxism may affect men and women in a similar way, at least in this population studied. This finding is in agreement with Emodi Perlman A, et al. (2016), who identified a prevalence of 19.2% in both genders for awake bruxism, and with Winocur E, et al. (2019), who found a prevalence of 30.1% in males and 32.1% in females.

Possible sleep bruxism was more prevalent in females, with the result being significant to sex ($p = 0.014$). Sousa HCS, et al. (2018) described a higher prevalence in males and justified the finding by assuming that boys are more agitated and motivated to contain their emotions, thus, the practice of involuntary movements would be an emotional escape. In contrast, other studies have concluded that there is no difference between the sexes (ARMAN K, et al., 2016; EMODI PERLMAN A,et al., 2016; MONG JAand CUSMANO DM, 2016).

Van Selms MK, et al. (2013) detected a higher prevalence of sleep bruxism in females; however, the authors did not point to an explanation for this fact. Winocur E, et al. (2019) also found a higher prevalence of sleep bruxism in females ($p <0.001$) and the authors reported that there is no consensus on this topic, requiring further analysis. A possible explanation may have been pointed out by Mong JAand Cusmano DM, (2016), who identified that changes in the pattern of ovarian steroid secretion common to the puberty period are associated with worse sleep quality.

The variable “grade” showed a statistically significant association with possible sleeping bruxism (p-value 0.012). This can be justified by the profile of the population under study, where many students are in a grade below the one addressed to their age and need to develop work activities to provide extra income, in addition to being close to the university entrance exam period; in a place where this study was carried out, it is common for adolescents to take entrance exams since the first year of high school. Thus, it could be assumed that these individuals carry more responsibilities than other adolescents and are possibly under a greater emotional burden (EMODI PERLMAN A,et al., 2016; SOUSA HCS,et al., 2018; TÜRKOĞLU S,et al., 2014; VAN SELMS MK, et al., 2013).

Regarding physical activity in adolescence, according to the manual of the Pan American Health Organization (PAHO), a minimum of 60 minutes of physical activity should be daily practiced, which provides several benefits to physical and mental health (WORLD HEALTH ORGANIZATION, 2020). A review study showed that physical exercise has a strong effect on the release of β-endorphin, responsible for the feeling of well-being, being greater in dynamic and anaerobic exercises (DINASPC, et al. 2011). In the present study, the results obtained revealed that the levels of physical activity are below those recommended by WHO (WORLD HEALTH ORGANIZATION, 2020).

A cross-sectional study involving 300 schoolchildren who practiced physical activity regularly presented lower levels of stress and anxiety, which are known risk factors for bruxism (GURUNATHAN D, 2021). Thus, this study demonstrated that increased physical activity was associated with a lower prevalence of bruxism, highlighting the potential protective role of exercise (GURUNATHAN D, 2021).

Al Subhi LK, et al.(2015), in a cross-sectional study, showed that the overall prevalence of physical inactivity was 81% in 10 countries in the eastern Mediterranean, which is close to the results found in this research. Caleyachetty R, et al.(2015), in a meta-analysis study conducted in 65 low- and middle-income countries, showed that low levels of physical activity were present in 71.4% of adolescents. In contrast, Moura PQ, et al. (2020) identified that 55.7% of adolescents were physically active (300 min per week) and emphasized the importance of providing suitable spaces for adolescents to meet, and their consequent practice of physical activity justifies the hypotheses for the divergence of results presented and the non-standardization of physical inactivity assessment methods, the fact that studies were carried out in different regions, the fact that some schools offer sports modalities and that studies include different variables for the analysis of physical activity.

In this study, 80.4% of adolescents practiced physical activity below recommended levels. The regular practice of physical activity in adolescence is associated with a series of health benefits, including a reduction of anxiety and depression levels (CONDESSA LA, et al. 2019). However, in this study, a

statistically significant association between possible bruxism and physical activity was not observed, results that corroborate De Albuquerque Silva BIS, et al.(2022). Although Silva SED, et al. (2022) found an association between possible awake bruxism and the practice of sports among children. In the point, has a difference between physical activity and the practice of sports, sports, principally competitive sports, can occasion situations of anxiety (Silva SED, et al. 2022) which may not occur in non-competitive physical activity.

Another explanation for this fact is that in this study, it was only possible to assess physical activity in the seven days prior to the application of the questionnaire, and it was not possible to assess how long the adolescents had been practicing, nor the intensity of the physical activity, which could provide additional context. Physical activity may be a mediating factor for bruxism, as it acts on the secretion of hormones that promote well-being; however, it may also be a risk factor for awake bruxism (PRASAD S, et al. 2021). Therefore, it is suggested that this complex relationship be further investigated in future studies to obtain a more comprehensive understanding.

Regarding the limitations of this study, the fact that it was conducted only in public schools, where the interviewees had similar incomes, did not allow comparisons regarding socioeconomic data between different economic strata. However, this epidemiological research was conducted with a representative sample of adolescents, and its results provide valuable information on socioeconomic and behavioral variables that can act as predictors of risk behaviors in adolescents. Understanding these predictors is crucial for the development of targeted interventions. Another important factor was the way in which the variables were analyzed, and future studies should categorize physical activity as light, moderate, and vigorous, as it can significantly influence this relationship. Furthermore, the incorporation of qualitative methods can enrich the findings, providing deeper insights into adolescents' experiences and perceptions related to bruxism and physical activity.

CONCLUSION

However, this research concluded that there is a significant association between possible bruxism during sleep and the adolescent's gender, being more prevalent in girls. There was also a significant association between bruxism during sleep and wakefulness and feelings of sadness. However, it was not possible to observe an association between possible bruxism and physical activity. Highlighting the need for other studies, this time interventional, randomized clinical trials, with the purpose of specifically understanding the relationship between these variables.

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