Artigo Experimental

Factors associated with an active lifestyle in physical education students – a Cross-sectional study

Fatores associados com o estilo de vida ativo em estudantes de educação física – um estudo transversal

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ABSTRACT

This cross-sectional analytical study examined the associations between active lifestyle indicators, study shifts (full-time vs. evening), and academic years (early vs. later) among 56 Physical Education students from a public university in Northwestern Paraná, Brazil. The lifestyle indicators assessed were physical activity level, body mass index (BMI), screen time, active transportation, weight change initiative, and sports participation. Most students demonstrated healthy behaviors, including a normal BMI (76.8%), regular physical activity (91.1%), active behavior (69.3%), and weight-loss initiative (84.9%). However, lower frequencies were found for low screen time (19.6%), active transportation (39.3%), and sports participation during high school (14.3%), university (28.6%), and extracurricular activities (30.4%). No significant differences were observed in lifestyle indicators across study shifts or academic years. In conclusion, although students presented a generally healthy profile, risk behaviors—minimal active commuting and high screen time—remain prevalent, reinforcing the need for ongoing health promotion strategies in the academic setting.

Descriptors: lifestyle, physical activity, university students, health, sedentary behavior

RESUMO

Este estudo transversal e analítico investigou as associações entre indicadores de estilo de vida ativo, turnos de estudo (integral vs. noturno) e anos acadêmicos (iniciais vs. finais) entre 56 estudantes de Educação Física de uma universidade pública do Noroeste do Paraná, Brasil. Os indicadores avaliados incluíram nível de atividade física, índice de massa corporal (IMC), tempo de tela, deslocamento ativo, iniciativa de mudança de peso e participação esportiva. A maioria dos estudantes apresentou comportamentos saudáveis, como IMC normal (76,8%), prática regular de atividade física (91,1%), comportamento ativo (69,3%) e iniciativa de mudança de peso (84,9%). Frequências menores foram observadas para baixo tempo de tela (19,6%), deslocamento ativo (39,3%) e participação esportiva no ensino médio (14,3%), na universidade (28,6%) e em atividades extracurriculares (30,4%). Não foram encontradas diferenças significativas nos indicadores entre turnos de estudo ou anos acadêmicos. Conclui-se que, apesar do perfil geral saudável, persistem comportamentos de risco, o que destaca a necessidade de ações contínuas de promoção da saúde no ambiente acadêmico.

Descritores: estilo de vida, atividade física, estudantes universitários, saúde, comportamento sedentário

INTRODUCTION

The transition to university brings significant changes, and the lifestyle adopted during this period may have lasting effects on health and well-being[1,2]. Lifestyle habits are shaped before adulthood and are influenced by social and environmental factors[3,4]. In the university context, studies report an increase in risk behaviors, including unhealthy eating, inadequate sleep, irregular physical activity, use of psychoactive substances, unprotected sexual practices, low health monitoring, and self-medication[5-8].

Sedentary behaviors and unhealthy habits can negatively impact body composition and contribute to non-communicable chronic diseases, especially cardiovascular diseases, which are significant causes of mortality[9,10]. Most young people do not meet recommended levels of physical activity, and this decline is more pronounced between late adolescence and early adulthood[11,12]. Conversely, engaging in physical activity and sports during childhood and adolescence may influence maintaining active habits in higher education, although evidence on this relationship remains limited[13-15].

Despite this, few studies have examined how lifestyle indicators differ according to academic characteristics—such as study shift and academic year—particularly among Physical Education students, who are expected to exhibit healthier behaviors due to their training environment. Thus, this study aimed to analyze the association between active lifestyle indicators, study shifts, and academic years among Physical Education students.

METHODS

A cross-sectional, quantitative, analytical study was conducted with students from a public university in the northwest region of Paraná to evaluate health-related lifestyle habits and physical activity. The study was approved by the Research Ethics Committee of the Metropolitan College of Maringá under opinion number 3.221.997.

The total student population at the institution was 17.062 individuals enrolled across 52 undergraduate programs. The sample consisted of 56 Physical Education students selected through non-probabilistic convenience sampling, intentionally including only those present on the day of data collection and who voluntarily agreed to participate. Although convenience sampling does not ensure representativeness of the entire student body, it is commonly used

in exploratory studies of behavioral characteristics and provides practical feasibility for initial investigations.

The stratification process considered the whole structure of the Physical Education program, intentionally including students from both the bachelor's and licensure tracks, across the 1st to 5th years, and enrolled in either full-time or evening classes. This ensured proportional participation from all academic segments.

Inclusion criteria were: (a) being regularly enrolled in the Physical Education program; (b) being present in the classroom on the day of data collection; and (c) voluntarily agreeing to participate.

Exclusion criteria were: (a) returning incomplete questionnaires; (b) not providing essential variables for analysis; or (c) declining participation.

Data collection was conducted using self-administered questionnaires. Students received standardized instructions from trained collaborators, and the average completion time was 45 minutes. All questionnaires were anonymous.

Before the data collection phase, the research team underwent a 30-day training period. The independent variables analyzed included: level of physical activity, sex, year of study, study shift, screen time, type of transportation, initiative for weight change, BMI, age range, high school sports participation, extracurricular sports participation, and university sports participation. For analytical purposes, categorical variables were dichotomized (1 = yes; 2 = no).

Body mass (kg) and height (cm) were used to calculate BMI (kg/m²). The WHO classification for overweight and obesity was applied[16]. Screen time (ST) was measured by evaluating total device usage, separating sedentary screen time (television and video games) from interactive time (computers, tablets, smartphones, and laptops) to avoid overlapping measures. Values below four hours were considered low screen time[17].

Physical activity level was assessed using the International Physical Activity Questionnaire (IPAQ-8, short version), validated for Brazil[18], which classifies individuals as active, irregularly active, or sedentary based on weekly minutes of moderate-to-vigorous physical activity.

Regarding statistical procedures, the database was checked for errors, and the Kolmogorov-Smirnov test was used to assess normality, which guided the choice of inferential methods. For comparing continuous variables between two groups, the independent t-test was selected due to its robustness to normality assumptions. For categorical variables, the Chi-square test with Yates' correction for continuity was used because it is most appropriate for dichotomous

categories and medium-sized samples. A 95% confidence level ($p < 0.05$) was adopted. Analyses were performed using SPSS version 23.0.

RESULTS

The study included 56 Physical Education students (27 men and 29 women). As shown in Table 1, men and women differed significantly only in weight and height, while other anthropometric and behavioral indicators were similar between sexes.

Table 1. "Comparison between sexes of Physical Education university students from a university in Northwestern Paraná.

Variables	Male (n=27)	Female (n=29)	p
Age (years)	22.1±4.4	21.0±2.6	0.099
Weight (kg)	73.7±10.6	63.9±13.9	0.004*
Height (cm)	177.9±6.7	164.1±6.0	<0.001*
BMI (kg/m²)	23.3±3.1	23.6±4.4	0.513
Screen time (hours)	2.0±1.7	2,7±1.8	0.386

*BMI: Body Mass Index; *Significance level greater than 95%.

In Table 2, lifestyle indicators did not differ between full-time and evening students. Overall, the sample showed predominantly healthy patterns for BMI classification, active behavior, regular physical activity, and weight-change initiative. In contrast, lower engagement was observed in active commuting, low screen time, and sports participation across different life stages.

Table 2. Active lifestyle indicators by class shifts among Physical Education university students from a university in Northwestern Paraná.

Variables	Full-time (n=26)	Evening (n=30)	Total (n=56)
Normal BMI	21 (80.8)	22 (73.3)	43 (76.8)
Low screen time	5 (19.2)	6 (20.0)	11 (19.6)
Active behavior	20 (76.9)	19 (63.3)	39 (69.6)
Active transportation	9 (34.6)	13 (43.3)	22 (39.3)
PA practice	23 (88.5)	28 (93.3)	51 (91.1)
SPH	5 (19.2)	3 (10.0)	8 (14.3)
US	8 (30.8)	8 (26.7)	16 (28.6)
OCS	8 (30.8)	9 (30.0)	17 (30.4)
WCI	21 (87.5)	24 (82.8)	45 (84.9)

PA: physical activity; OCS: off-campus sports; US: university sports; BMI: body mass index; WCI: weight change initiative; SPH: Sports participation in high school.

Table 3 shows that no lifestyle indicators differed significantly between students in early and later academic years. These findings suggest a relatively homogeneous lifestyle profile across the program, regardless of educational progression.

Tabela 3. Associação de indicadores de estilo de vida ativo e anos iniciais/finais de universitários do curso de Educação Física de uma universidade do Noroeste do Paraná.

	Early years	Final years	P
Normal BMI	24 (80.0)	19 (73.1)	0.752
Low screen time	7 (23.3)	4 (15.4)	0.517
Active behavior	12 (85.7)	8 (61.5)	0.384
Active transportation	13 (44.8)	9 (34.6)	0.589
PA practice	28 (93.3)	23 (88.5)	0.655
SPH	6 (20.0)	2 (7.7)	0.263
US	11 (36.7)	5 (19.2)	0.236
OCS	10 (33.3)	7 (26.9)	0.772
WCI	25 (89.3)	20 (80.0)	0.453

PA: physical activity; OCS: off-campus sports; US: university sports; BMI: body mass index; WCI: weight change initiative; SPH: Sports participation in high school.

DISCUSSION

The objective of this study was to examine the association between active lifestyle indicators, study shifts, and academic years among Physical Education students from a public university in Northwestern Paraná. The findings revealed a relatively homogeneous lifestyle profile across the sample, with a high prevalence of positive indicators—such as regular physical activity, active behavior, and normal BMI—contrasted with low engagement in active commuting, limited participation in sports across life stages, and elevated screen time. Notably, none of the indicators differed significantly between study shifts or academic years.

The lack of significant differences between full-time and evening students, as well as between early and later academic years, suggests that lifestyle behaviors may be shaped more by shared environmental and institutional factors than by academic segmentation. In Physical Education programs, curricular exposure to topics such as anatomy, exercise physiology, training methods, and health promotion occurs throughout the entire course structure, which may partly standardize students' knowledge and attitudes toward physical activity. Additionally, cohesion between peer groups and cultural norms within the field—such as valuing exercise, body awareness, and sports participation—may contribute to a relatively uniform health behavior profile, regardless of year or shift.

These findings align with previous national studies indicating that students in health-related fields often exhibit higher physical activity levels than students from other programs[19,20]. International literature also supports this trend: research conducted in Europe, North America, and Asia consistently shows that Exercise Science and Physical Education students tend to engage in more active behaviors than the general university population, both due to their academic training and the practical nature of their coursework[21,22]. However, the current study reinforces that greater knowledge does not guarantee comprehensive adoption of healthy

lifestyle habits, as risk behaviors—such as excessive screen exposure, insufficient active commuting, and low ongoing sports participation—persist despite their training[23].

The limited engagement in sports during high school, university life, and extracurricular contexts deserves attention. Studies show that sports participation during adolescence is a strong predictor of lifelong physical activity[24]. Yet, the low rates observed here suggest that many students enter university without a consolidated sports trajectory. This pattern is also reported in international surveys, where declines in sports participation during late adolescence are associated with academic pressures, reduced availability of structured programs, and environmental constraints. Thus, universities may need to reinforce structured and accessible sports opportunities to counteract this decline.

Environmental and institutional factors likely contributed to the patterns observed. In Brazil, barriers to active transportation—such as safety concerns, inadequate sidewalks or bike lanes, and long urban distances—are well documented[25-27] and may explain the low rate of active commuting observed here. At the institutional level, Physical Education programs often involve practical classes held in dispersed locations (gyms, labs, sports fields), which may inadvertently promote motorized commuting rather than walking or cycling. Moreover, the university environment itself may not systematically encourage active mobility through infrastructure or policy initiatives. These contextual elements help explain why certain healthy behaviors are present (e.g., regular physical activity), while others remain limited (e.g., active transportation and sports involvement).

The elevated screen time observed, particularly among women, is consistent with global trends indicating a rapid increase in digital consumption among young adults. Although screen exposure is widely recognized as a sedentary behavior associated with cardiometabolic and psychosocial risks[28,29], it has also become embedded in academic routines, social interaction, and leisure practices. Thus, interventions aimed at reducing sedentary behavior may require more nuanced approaches that address not only individual choices but also educational and technological demands.

The absence of differences between early and later academic years may also reflect a lack of progressive curricular influence on lifestyle habits. Although Physical Education programs offer extensive content on exercise and health, these concepts may not translate into behavior change without intentional pedagogical strategies. International research suggests that health knowledge alone has a limited impact on behavior unless accompanied by experiential learning, motivational components, and environmental support. This finding signals an opportunity for programs to incorporate structured health promotion initiatives targeting their own students.

This study has limitations, including a small, non-probabilistic sample restricted to a single institution, which limits generalizability. Additionally, the use of self-administered questionnaires may introduce recall and social desirability bias, potentially influencing estimates of physical activity and other behaviors. Nonetheless, the study provides relevant data on an underexplored area, highlighting the need for comprehensive approaches to lifestyle promotion in university contexts.

Future research should include multisite samples, objective measures of physical activity, and evaluations of environmental and curricular influences to better understand the complex determinants of health behaviors among university students.

CONCLUSION

Contrary to what is typically reported for the general young adult population, this study found a higher prevalence of positive lifestyle behaviors among Physical Education students, particularly in terms of adequate BMI, regular physical activity, active behavior, and engagement in weight management initiatives. These patterns suggest that being part of an academic environment centered on physical activity may positively influence certain health-related behaviors.

Nonetheless, high screen time, low adherence to active transportation, and limited participation in sports across high school, university, and extracurricular settings persist as concerning behaviors in this population. Additionally, the absence of significant differences between study shifts and academic years indicates a relatively consistent lifestyle profile throughout the program, highlighting the need for health promotion strategies that encompass the entire student body.

From a practical perspective, the findings reinforce the importance of institutional policies to reduce sedentary behaviors—especially screen time—and to promote active transportation as part of daily routines. Universities could benefit from implementing structural and educational initiatives that facilitate safe and accessible active commuting and encourage continued engagement in physical activity.

Future research should expand the sample size, include students from different institutions and regions, and adopt objective measures of physical activity and sedentary behavior to strengthen the validity and generalizability of the findings. Longitudinal studies may also help clarify how lifestyle habits evolve from university training into professional life.

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CONTATO

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