



RELATIONSHIP BETWEEN LIFESTYLE AND ACADEMIC PERFORMANCE

Relação entre estilo de vida e desempenho acadêmico

Relación entre el estilo de vida y el rendimiento académico

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ABSTRACT

Objective: To investigate the association of lifestyle with the academic performance of Physical Education students. **Methods:** it is a cross-sectional study consisting of 186 Physical Education students from a university in Santa Catarina, Brazil. Data were collected between August and November 2018 with the "Fantastic Lifestyle" questionnaire, consisting of 25 questions in nine domains (family and friends / physical activity/nutrition/ smoking and drugs/alcohol/ sleep, safety belt, stress, and safe sex/ behavior type/introspection/ work). We used the analysis of variance and Pearson's correlation coefficient to compare lifestyle and academic performance, represented by the semester average. **Results:** The mean age was 22.3 years (± 4.87). Students' lifestyles were generally good (34.1%) and very good (48.6%), and associated positively weak ($r = 0.232$) but significant ($p = 0.003$), with academic performance. Semiannual averages of academic performance differed to lifestyle classification ($p = 0.012$). The domains family and friends, cigarettes and drugs, and alcohol scored satisfactorily for a healthy lifestyle. **Conclusion:** The lifestyle of the evaluated Physical Education students is good / very good in the studied domains and is associated with academic performance.

Descriptors: Life Style; Students; Academic Performance; Physical Education and Training; Health Promotion.

RESUMO

Objetivo: Investigar a associação do estilo de vida com o desempenho acadêmico de estudantes de Educação Física. **Métodos:** Estudo transversal envolvendo 186 estudantes de Educação Física de uma universidade de Santa Catarina, Brasil. Realizou-se a coleta de dados, entre agosto e novembro de 2018, com o questionário "Estilo de Vida Fantástico", composto por 25 questões em nove domínios (família e amigos/ atividade física/ nutrição/ cigarro e drogas/ álcool/ sono, cinto de segurança, estresse e sexo seguro/ tipo de comportamento/ introspecção/ trabalho). Para comparação entre estilo de vida e o desempenho acadêmico, representado pela média semestral, utilizou-se a análise de variância e o coeficiente de correlação de Pearson. **Resultados:** Verificou-se a média de idade de 22,3 anos ($\pm 4,87$). O estilo de vida dos estudantes se apresentou, de forma geral, bom (34,1%) e muito bom (48,6%), e associado de forma positiva fraca ($r=0,232$), mas significativa ($p=0,003$), com o desempenho acadêmico. As médias semestrais de desempenho acadêmico diferenciaram-se em relação à classificação do estilo de vida ($p=0,012$). Os domínios família e amigos, cigarros e drogas, e álcool obtiveram pontuação satisfatória para um estilo de vida saudável. **Conclusão:** O estilo de vida dos acadêmicos de Educação Física avaliados é bom/muito bom nos domínios estudados e associa-se ao desempenho acadêmico.

Descritores: Estilo de Vida; Estudantes; Desempenho Acadêmico; Educação Física e Treinamento; Promoção da Saúde.



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RESUMEN

Objetivo: Investigar la asociación entre el estilo de vida y el rendimiento académico de estudiantes de Educación Física. **Métodos:** Estudio transversal con 186 estudiantes de Educación Física de una universidad de Santa Catarina, Brasil. La recogida de datos se dio entre agosto y noviembre de 2018 con el cuestionario "Estilo de Vida Fantástico" con 25 preguntas de nueve dominios (familia y amigos/ actividad física/ nutrición/ cigarro y drogas/ alcohol/ sueño, cinturón de seguridad, estrés y sexo seguro/ tipo de conducta/ introspección/ trabajo). Se utilizó el análisis de la varianza y el coeficiente de correlación de Pearson para la comparación entre el estilo de vida y el rendimiento académico representado por la media de cada semestre. **Resultados:** Se verificó la media de edad de 22,3 años ($\pm 4,87$). En general, el estilo de vida de los estudiantes ha sido bueno (34,1%) y muy bueno (48,6%) con asociación débil positiva ($r=0,232$) aunque significativa ($p=0,003$) con el rendimiento académico. Las medias semestrales de rendimiento académico se han diferenciado de la clasificación del estilo de vida ($p=0,012$). Los dominios familia y amigos, cigarrillos y drogas, y alcohol tuvieron puntuación satisfactoria para un estilo de vida saludable. **Conclusión:** El estilo de vida de los académicos de Educación Física evaluados es bueno/muy bueno para los dominios estudiados y se asocia con el rendimiento académico.

Descriptores: Estilo de Vida; Estudiantes; Rendimiento Académico; Educación y Entrenamiento Físico; Promoción de la Salud.

INTRODUCTION

The World Health Organization defines lifestyle as the result of patterns of behaviour that the individual develops, determined by several factors, being personal, economic and environmental, which have a considerable effect on people's health^(1,2). These factors are modifiable and can contribute negatively or positively to health. Some positive factors for health are healthy eating, sufficient physical activity level, stress management, sleep time, leisure activities and satisfaction with work and study⁽³⁾. Despite all the information and evidence on the topic, there is an increase in the rates of habits considered at risk among university students⁽²⁾.

Part of the lifestyle is established in youth and may influence adult life. Youth is related to academic life and represents a phase of changing habits in the lives of individuals. It is also in this phase that one can observe bad eating habits, physical inactivity, as well as nighttime habits (with frequent parties and bars) and a higher frequency of alcohol consumption, causing damage to health and academic performance⁽³⁾.

Academic performance is understood as the degree of skills of an individual at a given educational level. To say that a student has a good academic performance means to certify that he/she has progressed in terms of knowledge, skills and personal and social attitudes for a given educational level, aspects necessary for satisfactory progression in academic, social and professional life⁽⁴⁾. Different measures of academic performance have been presented. The period average (annual, half-yearly, bimonthly) can also be used as a performance measure. It results from the use of the subject scores divided by the number of subjects taken, which results in an indicator at the end of the period and is a reflection of the academic's performance in all subjects taken in that period^(5,6).

Physical Education students are expected to have a healthy lifestyle due to the relationship between the course and sports and health-related disciplines, but the studies found are contradictory, not only in the Physical Education course but in the health area courses generally^(7,8).

A study carried out with Physical Education students from Sergipe showed an inadequate level of lifestyle, when more than half of the interviewees did not meet the recommendations for physical activity. The most inadequate lifestyle components include lack of sleep, not wearing a seat belt, stress and unsafe sex⁽⁷⁾. Another survey, with Physical Education academics in Paraná, showed as a general result an adequate lifestyle, but with more inadequate domains, such as the type of behaviour, nutrition and the practice of physical activity⁽²⁾. A study conducted with nursing students in Amazonas found a satisfactory level of global lifestyle. The level of physical activity was an important factor for the development of a healthy lifestyle and good academic performance⁽⁶⁾.

University students may show a range of health risk behaviours. Therefore, the university environment seems to be an appropriate place for health promotion, since the improvement of the lifestyle of these individuals through health promotion and disease prevention actions influence living conditions, social factors and health of young people, now and in the future. In addition to the health and quality of life benefits, healthy lifestyle can influence productivity and university life, which can impact the future lives of workers, to be healthier, more productive, with greater decision-making capacity, less frequency of diseases related to unhealthy lifestyle and less use of the health system⁽⁹⁻¹²⁾.

In this sense, the present study sought to investigate the association of lifestyle with the academic performance of Physical Education students.

METHODS

This is a cross-sectional study with a sample of students from the Physical Education course at the Regional University of Blumenau (FURB). FURB is a municipal public institution of higher education located in the city of Blumenau, in Santa Catarina. Blumenau is located in the Vale do Itajaí region and has an estimated population of 357,199 people for 2019. It is the third most populous city in the state, constituting one of its main industrial, technological and university centres. Its municipal human development index is 0.806 (considered very high), occupying the 25th position among Brazilian municipalities⁽¹³⁾.

The minimum representative sample size involved 169 academics from the Physical Education course at FURB. For the present research, the population of 298 students was considered, being 48.6% (n = 87) female and 51.4% (n = 92) male, and also 50% of the bachelor's and undergraduate course, hypothetical frequency of the outcome factor in the population of 50% (+/- 5), precision of 5% and 95% confidence interval, ending the sample with 186 students (62% of the population).

The sample comprised students duly enrolled in the undergraduate and Bachelor's degrees in Physical Education at FURB, in the second semester of 2018, who agreed to participate in this research by signing the Free and Informed Consent Form (TCLE). Seven study participants were excluded due to incorrect questionnaire filling (incorrect or incomplete).

Data collection took place from August to November 2018, with the application of the Fantastic Lifestyle questionnaire⁽⁹⁾, in addition to additional questions regarding age, sex, current semester, period (morning or evening) and course (undergraduate or bachelor's degree). During classes, with the consent of the responsible professor, the questionnaire was applied to students and the semester average of students was collected at the Academic Registration Division of FURB, which served as an index of academic performance.

The questionnaire, translated and validated⁽⁹⁾ in the year 2008, is self-administered and aims to measure the main elements that characterize the adequate lifestyle for health. It is an auxiliary tool used by health professionals to evaluate the lifestyle of students, workers, family clinic patients, hypertensive patients, patients with type 2 diabetes and people in primary care⁽⁹⁾. It consists of 25 questions distributed in nine domains, being them: 1) family and friends; 2) physical activity; 3) nutrition; 4) cigarettes and drugs; 5) alcohol; 6) sleep, seat belt, stress and safe sex; 7) type of behaviour; 8) introspection and 9) work. Each question has five alternatives, distributed on a Likert scale, which determines the score that relates to a healthy lifestyle. The questionnaire has a total score of zero to 100. The individual can be categorized with an excellent lifestyle (score of 85 to 100), very good (score of 70 to 84), good (score of 55 to 69), regular (score 35 to 54) or that needs improvement (score from 0 to 34)⁽⁹⁾.

For quantitative variables, means and standard deviations were used, and for qualitative variables, frequencies and percentages. To compare the lifestyle classification and the academic performance represented by the semester average, the analysis of variance was used (ANOVA). To analyze the bivariate association between lifestyle and academic performance, Pearson's correlation coefficient was used, considering statistically significant values of $p < 0.05$.

This study was approved by the FURB Human Research Ethics Committee, with Opinion No. 2,788,258 / 2018.

RESULTS

Of the 186 students evaluated in the Physical Education course, excluding the seven who had completed the questionnaire inappropriately, 179 made up the final sample, of which 48.6% (n = 87) were female and 51.4% (n = 92) male, with a mean age of 22.3 (\pm 4.87) years. Bachelor's degree students represent 54.2% (n = 97) of the sample and 45.8% (n = 82) are from the undergraduate course. Regarding the study period, 44.1% (n = 79) are morning students and 55.9% (n = 100) are evening students.

It is observed that 41.3% (n = 74) of the students are between the first and the fourth phase of the course, and 58.7% (n = 105) of the fifth to the eighth phase. This can be explained by the fact that there was no opening of classes in the course in the semesters before the research. These results can be seen in Table I.

The female gender had an average lifestyle score of 74.1 points and the male gender had 71.6 points, on a scale between zero and 100. The overall average, among all participants, involved 72.7 points, which classifies the lifestyle as very good in 48.6% of the students, as shown in Table II. Only seven academics (3.9%) had a regular classified lifestyle score. The minimum value of 38 points (n = 1; 1.8%) was found for a student and 43 points (n = 1; 1.8%) for a male student. No student scored "needs to improve" (0 to 34 points).

Table I - Physical Education students' characteristics. Blumenau, Santa Catarina, Brasil, 2018.

Characteristics	n	%
Sex		
Feminine	87	48,6
Masculine	92	51,4
Total	179	100,0
University graduate		
Graduation	82	45,8
Bachelor degree	97	54,2
Total	179	100,0
Period		
Morning	79	44,1
Evening	100	55,9
Total	179	100,0
Phase		
1 to 4	74	41,3
5 to 8	105	58,7
Total	179	100,0

n: number; %: percentage

Table II - Classification of the lifestyle of Physical Education students. Blumenau, Santa Catarina, Brasil, 2018.

Classification	n	%
Excelent	24	13,4
Very good	87	48,6
Good	61	34,1
Regular	7	3,9
Total	179	100,0

n: número; %: porcentagem

Table III shows the means (scores between 0 and 4) by domain between the male and female sexes, as well as the standard deviation (sd) between them. As the domains that presented the best score are: family and friends (average = 3.4) cigarettes and drugs (average = 3.4), alcohol (average = 3.3), sleep, seat belt, stress and safe sex (average = 3.0). The best score for males compare to females comprised only the activity domain (2.7 and 2.4) and, for females, it involved cigarettes and drugs (3.5 and 3.2), alcohol (3.5 and 3.1) and work/study (3.0 and 2.6).

Table III - Mean and standard deviation of lifestyle areas of academics Physical Education. Blumenau, Santa Catarina, Brasil, 2018.

Domains	Sex feminine		Sex masculine	
	mean	sd	mean	sd
Family and friends	3,4	0,866	3,3	0,930
Activity	2,4	1,368	2,7	1,273
Nutrition	2,5	1,303	2,6	1,246
Cigarettes and drugs	3,5	0,979	3,2	1,196
Alcohol	3,5	1,047	3,1	1,356
Sleep, seat belt, stress and safe sex	3,0	1,077	2,9	1,150
Type of behavior	2,2	1,194	2,1	1,162
Introspection	2,7	0,999	2,7	0,967
Work, study	3,0	0,988	2,6	1,210

sd: standard deviation

The analysis of variance (ANOVA) showed that there was a difference between the semiannual averages of academic performance according to the classification of lifestyle, demonstrating that the better the lifestyle, the better the academic performance.

The highest score on the lifestyle questionnaire comprised 95 points and the lowest, 38 points. The highest half-yearly average involved 9.42 and the lowest, at 6.17. Figure 1 shows that the semester average of academic performance is different from the lifestyle classification ($p = 0.012$) and that, as the lifestyle level increased, the semester average increased.

Figure 2 shows the significant positive correlation between lifestyle and academic performance estimated by the semester average ($r=0.232$; $p=0.003$).

Although the correlation was considered weak, it was considered significant and different from zero. Continuously, it is possible to affirm that, as the lifestyle improves, the semester average of Physical Education students, increases.

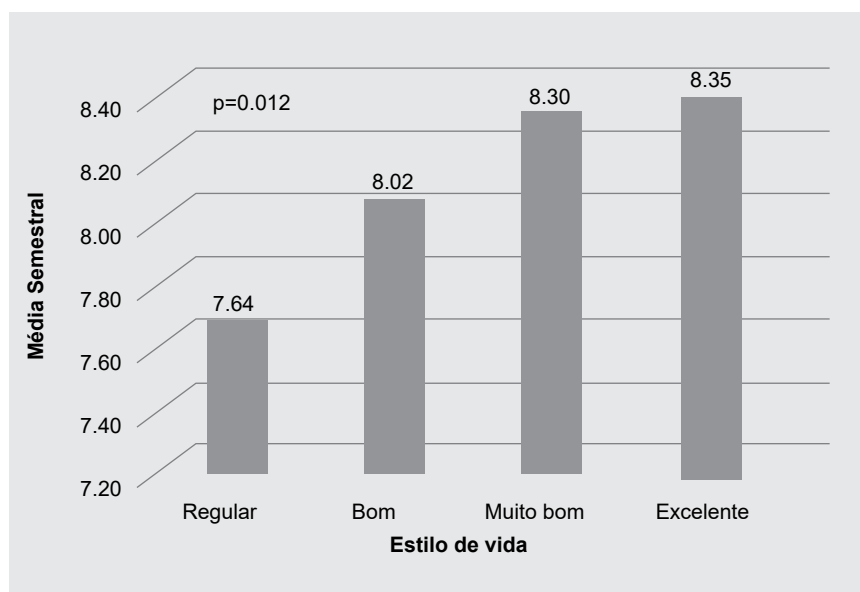


Figure 1 - Lifestyle and academic performance (semester average) of Physical Education students. Blumenau, Santa Catarina, Brasil, 2018.

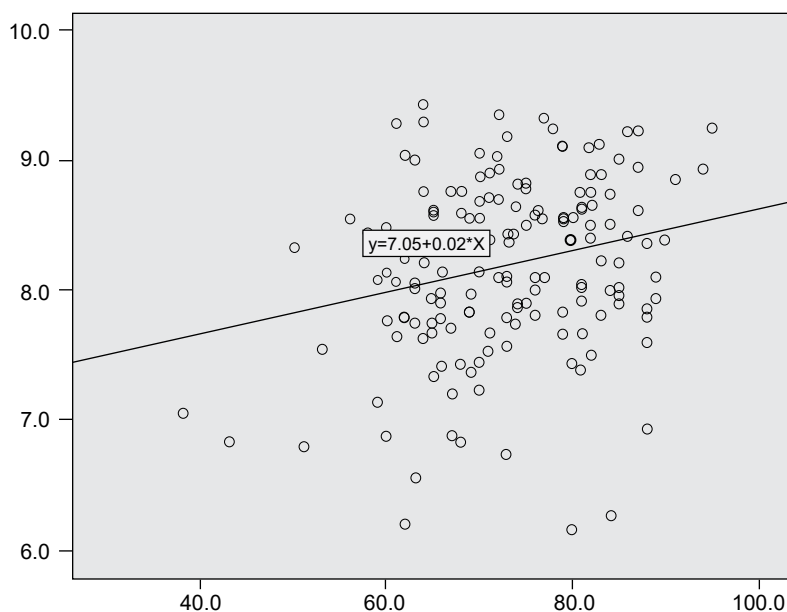


Figure 2 - Correlation between lifestyle and academic performance (semester average) of Physical Education students. Blumenau, Santa Catarina, Brasil, 2018.

DISCUSSION

The university environment is an appropriate place to promote health. It refers to the period of transition from adolescence to adulthood, fulfilment and searches for a sense of individuality and construction of social relationships. Exposure to behavioural risk factors, such as smoking, excessive alcohol consumption, inadequate diet and physical inactivity, often starts in adolescence and consolidates into adulthood. In this sense, collective health actions should promote healthy behaviour among young people⁽¹⁰⁻¹²⁾.

Improving the lifestyle of university students through health promotion and disease prevention actions influences living conditions, social factors and the health of young people, now and in the future. In addition to the health and quality of life benefits, a healthy lifestyle can influence productivity and university life, which can consolidate into a happy lifestyle^(11,12).

The measurement of the lifestyle is complex due to the multiple factors that constitute it and the results can be influenced by a subjective character in the responses⁽⁹⁾. Studies that associate lifestyle with academic performance in university students are still scarce⁽⁶⁾.

A study carried out with nursing students from a federal institution in the interior of Amazonas found a level of physical activity considered healthy and a satisfactory global lifestyle. The level of physical activity impacted on the development of a healthy lifestyle and good academic performance among university students⁽⁶⁾.

Another study, with university students from the Physical Education course at a public university in Sergipe, showed an inadequate level of physical activity and lifestyle. Most students, 57.4% (95% CI: 50.7-64.0), did not meet the recommendations for physical activity. Undergraduate students were more inadequate than those of the bachelor's degree as a whole in the global lifestyle and on sleep, seat belts, stress, and safe sex conducts⁽⁷⁾. Another survey, with Physical Education students from a distance learning course, presented an adequate lifestyle as a general result, however, the most inappropriate domains involved type of behaviour, nutrition and physical activity⁽²⁾.

In a study carried out in a private institution in the state of Paraná with students from different undergraduate courses, the lifestyle scores ranged between 63 and 74 points, which classified the students evaluated between the categories good and very good. The authors highlighted the importance of guiding university students for a healthy lifestyle and the provision of physical activity programs in the academic environment aiming at weight control until the last years of study, as the graduates are the group most likely to be overweight⁽¹¹⁾.

For the present study, lifestyle scores also ranked students between good and very good categories more frequently, while other domains showed more often healthy habits. For example, the relationship with alcohol (89% of students answered never driving after drinking) and smoking (86.6% of students said they had never smoked in the last five years). Even with a satisfactory lifestyle classification, questionnaire domains were found with unsatisfactory scores. For sleep, 32.4% of academics answered that they only sometimes sleep well or feel rested.

In questions related to family and friends, most of the participants in this study obtained healthy practices. More than half of the academics reported frequently or almost always have someone to talk to about the important things, in the same proportion that they receive and offer affection. Living with new people at the university level may have contributed to the high rate of academics who have someone to talk to, give and receive affection with. The academic who has family members, or other people also considered important, with whom he can share his feelings, is more likely to present an adequate lifestyle⁽²⁾.

In the present study, the result found in the activity domain showed that more than half of the participants practice about four, five or more times a week some vigorous activity for thirty minutes. In another study, with nursing students, an association was found between lifestyle, physical activity and academic performance. Regular practice of physical activity and a good lifestyle reflected positively in the students' grades⁽⁶⁾.

The present study found that more than half of Physical Education students rarely or up to three times a week engage in moderate physical activity. This low level of physical activity can involve some personal and social barriers encountered by academics, and the most common one mentioned is the lack of time⁽⁷⁾. The practice of physical activity can be effective in preventing and treating various diseases, such as hypertension and obesity. When the individual is not very active, these health benefits are reduced⁽¹²⁾.

Physical activity influences cardiovascular health, physical condition and aspects such as socialization, self-concept and well-being. Besides, more and more research points to exercise as a determining factor in cognitive processes⁽¹⁴⁾. Evidence suggests that the acute effect of physical exercise causes an increase in neurotransmitter activity. Chronically, exercise can promote adaptations in brain structures and synaptic plasticity that would culminate in cognitive improvements⁽¹⁵⁾. Feeling pleasure by physical and sports activity and knowing its health benefits can be what motivates young people to join a Physical Education course⁽²⁾.

In the nutrition domain, most of the students in the present study reported eating a balanced diet a few times a week. Also reporting, in the same proportion, that they overeat sugar and ultra-processed foods. Even with this unhealthy habit, more than half of the students believe that they are close to their ideal weight. Similar results were found in other studies, in which almost half of the students had an inadequate diet^(7,11).

In general, academics have practical and quick eating habits due to the university routine, tending to be more concerned with their academic performance or with their social relationships and leisure on social networks, and forget the importance of eating well. Irregular eating makes possible the development of obesity, diabetes, high blood pressure and other chronic diseases^(12,16).

There is evidence that balanced breakfast consumption in children and adolescents can influence cognitive performance during hunger relief or through long-term effects of nutrient intake that can positively affect cognition⁽¹⁷⁾. Cognitive and academic performance in children and adolescents is linked to several indicators of socioeconomic statuses such as family income and parental education. In this sense, it is important to consider these variables in studies of cognitive or academic performance⁽¹⁷⁾.

In the domains of alcohol, cigarettes and drugs, most of the academics in the present study scored high, reporting that they never used cigarettes or drugs and that they do not abuse alcohol consumption and approximately 2% of the participants answered that they smoke at least one cigarette per day. Academics who responded using marijuana or cocaine are sometimes almost one-fifth of the sample, considered high in terms of healthy lifestyle. In the question about alcohol, 36.9% of the students in the study said that they drink more than four doses on a single occasion and, almost in the same proportion, answered that they drive after drinking.

Studies found 1.8% of students consuming tobacco and/or other substances, and 90.4% of Physical Education students reported having used alcohol once in their lives, while 1.1% of Physical Education students consumed alcohol daily. There was also a high consumption of anabolic steroids (7.9%) and marijuana (25.2%) by Physical Education students^(7,18,19).

A study reports that most smokers start this habit when entering university⁽⁷⁾. In Brazil, the regular use of alcoholic beverages begins at age 17, that is, very close to university admission⁽²⁾. Health students are a group that deserves attention since in the future they will be able to work with this theme and are the ones most involved in alcohol abuse⁽²⁰⁾, the most consumed drug among young people and one of the most important risk factors for the adoption of other health risk behaviours^(2,20). Several factors can influence the consumption of alcoholic beverages, such as family and social context, purchasing power and ease of access⁽²⁾.

Physical, psychological and social problems are the consequences of drug and alcohol consumption among university students. Among them are: car accidents, violence, risky sexual behaviour, academic losses, decreased perception and stress. The consumption of these substances leads to psychological and behavioural problems,

including cognitive impairment. Poor academic performance can be the main consequence of this cognitive impairment, which can occur due to absences, delays and loss of attention or drowsiness in the classroom⁽²¹⁾.

The sleep, seat belt and safe sex domain had the highest average score in the present study, which contributed as a positive factor for healthy lifestyle. A topic that deserves attention is sleep. More than half of the academics replied that they rarely or sometimes sleep well or feel rested. For another study, 51% of health students, in addition to poor sleep quality, have daytime sleepiness. These students may have a greater workload in the classroom and be involved in extracurricular activities, which may cause changes in sleep patterns⁽²²⁾. It is believed that sleep deprivation may be directly associated with its decrease and influence the learning process⁽²³⁾.

In another study, it was found that college students tend to have an irregular sleep pattern due to delayed onset and end of sleep for short sleep duration on weekdays and long sleep duration on weekends. As a result of this irregularity, students had poor sleep quality and poor academic performance⁽²⁴⁾. Seat belt use (10%) and safe sex (55.7%) are neglected⁽⁷⁾.

In this study, a controversial result was found regarding the high rate of academics who always wear seat belts and more than half always practice sexual intercourse with condom use. Students with high academic performance are concerned with the prevention, claiming to have safe sex and wearing a seat belt. Besides, they are less likely to develop the habit of smoking, demonstrating that preventive behaviours can also be related to high academic performance⁽⁶⁾.

In the present study, for the type of behaviour and introspection, more than a third of the students reported being in a hurry, feeling angry or feeling hostile sometimes or relatively often, almost in the same proportion as they feel tense or sad.

In a follow-up study of the lifestyle of academics at a university in Recôncavo Baiano, the results showed that rushing and angry feelings are part of the students' daily lives. These feelings may exist due to anxiety and anguish due to constant demands for good academic performance. Regarding introspection, academics who entered the university with these low levels were more likely to keep them after two years of graduation⁽²⁵⁾.

Thinking positively and optimistically, as well as not feeling angry, sad or depressed, has a strong relationship with proper lifestyle. In the university phase, there is an increase in interest in new knowledge and experiences, and it is normal to explore personal skills in search of autonomy, love and friendship⁽²⁾.

The present study found that more than half of the students consider that they are relatively or almost always satisfied with the work/study they perform. In this case, there is satisfaction with the Physical Education course, with the internships and with work in the area. Result different from another study⁽⁷⁾, in which almost one-sixth of the participants declared dissatisfaction with their work, which could impact academic performance.

Data were obtained through a self-administered questionnaire, liable to memory bias, which can be considered a limitation of the current study.

CONCLUSION

The lifestyle of the investigated students was associated with academic performance, and their lifestyle was more often classified as good and very good. Observing the domains in isolation, it is clear that family and friends; cigarettes and drugs; alcohol, sleep, seat belts, stress and safe sex; and work/study showed satisfactory scores for a healthy lifestyle.

CONFLICTS OF INTEREST

The authors inform that there are no conflicts of interest.

CONTRIBUTIONS

Cristiani Devalieri and **Clóvis Arlindo de Sousa** contributed to the preparation and design of the study; the analysis and interpretation of data; and the writing and / or revision of the manuscript. **Quelen Schutz Carvalho Bernardes Malafaia** and **Maiara Vargas Schmitt** contributed to the writing and / or revision of the manuscript.

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