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Lifestyle among college students: a challenge for future health professionals

Estilo de vida entre universitários: um desafio para os futuros profissionais da saúde

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ABSTRACT

Introduction: Health science students play a crucial role in educating the public about the importance of leading a healthy lifestyle. Nevertheless, the transformations brought about by university life can pose a challenge in maintaining healthy habits. Therefore, it becomes imperative to understand the lifestyle of university students to assess the care for their own health and academic development.

Objective: This work aims to comprehensively analyze the Lifestyle and associated factors among health science students.

Method: This is a cross-sectional, analytical and quantitative study, with a sample of 618 students from a public university in Brazil. The FANTASTIC Lifestyle instrument was used to analyze Lifestyle. Depressive symptoms were assessed using the Patient Health Questionnaire 9 (PHQ-9) and anxiety and stress symptoms were assessed by the Depression, Anxiety and Stress Scale (DASS-21). Sociodemographic data and suicidal ideation, among others, were also evaluated. Descriptive data analysis was performed, as well as Poisson Regression for crude and adjusted analysis. Lifestyle was considered the dependent variable and its inadequate level the analysis category.

Results: There was a prevalence of inadequate lifestyle among a quarter of university students. In the multivariate model, there was a significant positive correlation between the prevalence of inadequate lifestyle and the variables depression, suicidal ideation, anxiety, dissatisfaction with body image and overweight; and a negative correlation with well-being was observed.

Conclusion: These findings allowed us to identify that health behaviors are interrelated with the physical, psychological and social dimensions of the assessed individuals.

Keywords: Life Style. Epidemiology. Students, Health Occupations. Universities.

RESUMO

Introdução: *Os acadêmicos da área da saúde são os futuros profissionais responsáveis por orientar a população quanto à importância do estilo de vida saudável. Entretanto, as mudanças promovidas pela vida universitária podem representar um desafio para a manutenção de hábitos saudáveis, o que torna fundamental conhecer o estilo de vida desses universitários de forma a refletir sobre a qualidade da atenção à sua própria saúde e formação acadêmica.*

Objetivo: *Este estudo teve como objetivo analisar de forma abrangente o estilo de vida e fatores associados entre acadêmicos da área da saúde.*

Método: *Trata-se de estudo transversal, analítico e quantitativo, com amostra de 618 estudantes de uma universidade pública do Brasil. Para análise do estilo de vida, utilizou-se o instrumento Estilo de Vida Fantástico. Sintomas depressivos foram avaliados por meio do Patient Health Questionnaire 9 (PHQ-9), e sintomas de estresse e de ansiedade, por meio da Escala de Depressão, Ansiedade e Estresse (DASS-21). Avaliaram-se, ainda, dados sociodemográficos, ideação suicida, entre outros. Realizou-se análise descritiva dos dados, assim como regressão de Poisson para análise bruta e ajustada. O estilo de vida foi considerado a variável dependente, e seu nível inadequado, a categoria de análise.*

Resultado: *Observou-se prevalência de estilo de vida inadequado entre um quarto dos universitários. No modelo multivariado, verificou-se correlação significativa positiva entre a prevalência de estilo de vida inadequado e as variáveis depressão, pensamento de suicídio, ansiedade, insatisfação com a imagem corporal e sobrepeso; e correlação negativa com a variável bem-estar.*

Conclusão: *Esses achados permitiram identificar que os comportamentos de saúde têm inter-relação com as dimensões física, psicológica e social dos estudantes.*

Palavras-chave: *Estilo de Vida; Epidemiologia; Estudantes de Ciências da Saúde; Universidades.*

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INTRODUCTION

The National Curriculum Guidelines (DCNs, *Diretrizes Curriculares Nacionais*) for undergraduate courses in the health area determine that health professionals should be trained to act in the health-disease process at its different levels of care, acting as promoters of human being's comprehensive health. Among the competencies to be developed, the ability to promote healthy lifestyles (LS) and to take care of one's own physical and mental health was highlighted[1]. Health care training is transversal to the understanding of the Social Determinants of Health (SDH) and should encourage self-care and the incorporation of new healthy habits and practices[2].

SDH can be understood as the social, economic, cultural, and environmental factors that influence the health of individuals[3,4]. Lifestyle, considered one of the most important SDH, is characterized by the World Health Organization (WHO) as the set of practices that are influenced by the continuous socialization process, which includes dietary habits, sleep, physical activity, among others[5]. Some habits can cause harm, such as smoking, excessive alcohol consumption, and sedentary lifestyle, being considered modifiable risk factors for Chronic Non-Communicable Diseases[6,7]. On the other hand, there are positive behaviors that contribute to health and well-being and act to prevent diseases, among which a balanced diet and physical activity stand out[6].

University students are considered a vulnerable group regarding the adoption of risk behaviors, since entering university can be associated with distancing from one's family nucleus and an increased sense of freedom and autonomy[8]. These, among other changes in this phase, contribute to the consolidation of new habits, mainly those associated with substance abuse, sedentary lifestyle, and inadequate diet, which can be perpetuated throughout life or remain for a considerable period of time to negatively affect health[9,10].

The vulnerability of this population is a matter of concern, since they are future health professionals, responsible for health care at different levels of care. In view of this scenario, LS should be comprehensively investigated, considering its multiple domains and the several factors that may be associated with LS in this population. However, according to a recent systematic review[11], most studies on this topic have evaluated only specific domains of LS, such as physical activity, alcohol and drug consumption[12,13,14]; or the relationship between LS and a specific variable, such as self-regulation[15], dietary behaviors, weight gain[16], and nomophobia[17]. Thus, there is a gap in studies that simultaneously evaluate LS in a global and comprehensive way and its association with a wide range of factors in the university population.

From this perspective, this study aims to analyze the lifestyle in an integral way and the associated factors among health students at a public university, aiming to motivate a reflection on the LS of this population and to promote a review of the institutional policies adopted to face this problem in universities.

METHOD

This is a cross-sectional, analytical and quantitative study, in which the LS of university students attending a Center for Biological and Health Sciences (CCBS, *Centro de Ciências Biológicas e da Saúde*) of a public university in Minas Gerais was investigated.

The target population consisted of 1912 students enrolled in the courses of Biological Sciences (406), Physical Education (639), Nursing (204), Medicine (426), and Dentistry (237). The sample was defined by means of sample calculation for finite populations, considering the prevalence of the event of interest at 30%, 95% confidence level, 3% margin of error, Deff=2. Thus, it was found it was necessary to include students distributed in the five courses, considering the aforementioned parameters to ensure the sample representativeness. Thus, the calculated sample size was 611 students. The study sample consisted of 618 students, which was higher than the minimum required in the sample calculation.

The participants received the Free and Informed Consent Form (FICF). The inclusion criteria for the study comprised being enrolled, regularly participating in the course, and being 18 years of age or older. The exclusion criteria included the student's disagreement with the terms of the FICF or the non-agreement to participate in the research.

Data collection was carried out between September 10, 2020 and January 4, 2021, through a self-applicable form, linked to the Google Forms® platform. The link to the form was sent to the emails of the classes and disseminated during lectures and on social networks, aiming at greater awareness and sensitization about the participation of students from all classes of the CCBS courses in the research.

To investigate the LS, the Fantastic Lifestyle (FLS) instrument was used[18]. This questionnaire consists of 25 items, scored from 0 to 4 points, which are divided into nine domains: family and friends; physical activity; nutrition; cigarettes and illicit drugs; alcohol; sleep, risky behavior (use of seat belts, stress and safe sex); type of behavior; introspection and work. By adding all the items, the final score of the instrument is calculated, so that the person's LS can be classified as: excellent (85 to 100 points), very good (70 to 84 points), good (55 to 69 points), regular (35 to 54 points) and needs improvement (0 to 34 points)[18]. In this study, the LS variable was created, considered adequate (score

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compatible with excellent, very good or good LS) or inadequate (regular LS or one that needs improvement).

Sociodemographic data were also collected, through questions that addressed aspects such as gender, age, skin color, sexual orientation, having some special need (such as dyslexia, dysgraphia, autism or global developmental disorder, as well as visual, hearing or physical impairments) or some disease/chronic health condition, marital status, course and period enrolled, admission to the university through the quota system, participation in any extracurricular activity (such as monitoring, undergraduate research, extension project or academic leagues), if they live alone, work in the job market (informal or formal), family income, as well as changes in income during the pandemic and if they are followers of any religion. Self-perception regarding general health status (very good, good, regular, poor), body mass index (BMI), through the estimated weight and height reported by the student, and satisfaction with body self-image (satisfied, dissatisfied or indifferent) were also investigated. The World Health Organization (WHO)[19] classification for BMI was adopted: for values between 18.5 and 24.9 kg/m^2, it is considered normal; between 25 and 29.9 kg/m^2, overweight; and equal to or greater than 30 kg/m^2, obesity.

Additionally, depressive symptoms were assessed using the Patient Health Questionnaire 9 (PHQ-9) and symptoms of stress and anxiety using the Depression, Anxiety and Stress Scale (DASS-21). The PHQ-9[20] consists of 10 items, the first nine of which assess the presence of depressive symptoms in the previous two weeks and are scored from 0 ("no day") to 3 ("almost every day") points. The last item assesses the degree of functional impairment caused by the symptoms. The severity of the depressive symptoms present is classified by the sum of the first nine items, thus, 0 to 4 points indicate no depression or minimal depression (0 to 4 points); 5 to 9 points, mild depression; 10 to 14 points, moderate depression; 15 to 19 points, moderately severe depression; while 20 to 27 points would indicate severe depression. In turn, the DASS-21[21] consists of 3 subscales, each with 7 items, and separately evaluates the presence of symptoms of depression, anxiety and stress in the previous week. The score of each subscale is calculated from the sum of its component items, scored between 0 (fully disagree) and 3 (fully agree). For the classification of each subscale, the final score is multiplied by two; thus, in relation to anxiety, normal levels were considered between 0-7 points; mild between 8-9 points; moderate between 10-14 points; severe between 15-19 points and extremely severe levels between 20 or more points. As for stress, normal levels were considered for 0-14 points; mild, 15-18 points; moderate, 19-25 points; severe, 26-33 points; and extremely severe from 34 points[21].

It was also verified the perception of overload due to academic activities carried out during the pandemic, as well as suicidal ideation in the previous 12 months, symptoms of internet addiction, exposure to situations of violence and experiences of well-being in the previous six months. The symptoms of internet addiction were analyzed using the Internet Addiction Test (IAT)[22]. The IAT is an instrument consisting of 20 questions, whose answers vary from 1 (rarely) to 5 (always) points and verify the behavior of internet use and its signs of dependence. "Not applicable" was added as an answer option to the items and, subsequently, each item with this answer was canceled, constituting data lost in the calculation of the final score. More intense levels of signs and symptoms of internet addiction receive higher scores in the final score. That said, mild dependence occurs when 20 to 49 points are obtained, moderate between 50 and 79 points, and severe between 80 and 100 points.

For statistical analysis of the data, the Statistical Package for Social Sciences (SPSS®) version 28.0 was used. LS was considered the dependent variable and its inadequate level (regular /needs improvement LS) the category of analysis. Therefore, the factors associated with a higher or lower prevalence of inadequate LS were estimated. Descriptive statistics were performed on the data, with simple frequencies and prevalence analysis in relation to the independent variables regarding LS. Poisson regression test with robust variance was used to estimate correlations, in which bivariate analysis was performed between LS and associated factors, estimating crude Prevalence Ratio (PR), 95% Confidence Interval (95%CI) and p-value (Wald test), with a statistical significance level of 5%. All variables with a p-value ≤ 0.20 were selected to constitute the multiple model, in which they were removed one by one until the final model was reached, with adjusted PR, 95%CI and $p \leq 0.05$. The quality of the model was verified using the Deviance test.

All applicable ethical premises were duly followed, ensuring voluntary participation, the participants' anonymity and the confidentiality of the collected data. The students received the Free and Informed Consent Form made available digitally and were instructed to sign it, as well as being informed about the established methodological procedure and the study objectives. The research was approved by the Research Ethics Committee under Certificate of Presentation for Ethical Appreciation (CAAE) number 25716019.1.0000.5146 and Approval Opinion number 3,724,553 of November 25, 2019.

RESULTS

The questionnaire was answered by 618 students enrolled in the courses of the Center for Biological and Health

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Sciences (CCBS) of a public university. Among them, there was a higher proportion of women (78.1%) compared to men (28.1%). Most of them belonged to the Physical Education course (28.8%), followed by Medicine (25.4%), Dentistry (18.1%), Biological Sciences (15.2%) and Nursing (12.5%). Regarding age, 53.2% of the respondents were between 21 and 25 years old; 34.6% were between 18 and 21 years old and only 12.1% were 26 years old or older.

Table 1 shows the results of the descriptive and bivariate analysis between adequate LS (score compatible with excellent/very good/good LS) or inadequate (regular/needs improvement LS) and the independent variables. The variables sex, age (in years), sexual orientation, having special needs, presence of chronic disease, marital status, university course, academic period, change in income during the pandemic, having a religion, self-perception of health, BMI, satisfaction with body image, depression, anxiety, stress, academic overload during the pandemic, suicidal ideation, dependence on internet use, exposure to violence, and well-being showed sufficient p-value ($p<0.2$) to constitute the multivariate analysis. The prevalence found for inadequate LS was 25.6%, corresponding to 158 students among the 618 interviewees.

Table 1. Lifestyle of university students of biological and health sciences and crude association with independent variables (n = 618).

Variables	Lifestyle		Bivariate Analysis	
	Adequate	Inadequate		
	n (%)	*n* (%)	$_{Crude}$ PR (95%CI)	p-value
Sex[a]				0.101
Male (cis)	137 (79.2)	36 (20.8)	1	
Female (cis)	321 (72.6)	121 (27.4)	1.31 (0.94;1.82)	
Age (years)				0.087
18 to 20	148 (69.2)	66 (30.8)	1	
21 to 25	254 (77.2)	75 (22.8)	0.73 (0.55;0.98)	
26 or older	58 (77.3)	17 (22.7)	0.73 (0.46;1.16)	
Sexual Orientation				< 0.001
Heterosexual	413 (77.5)	120 (22.5)	1	
Other orientation	47 (55.3)	38 (44.7)	1.98 (1.49;2.63)	
Have special needs				0.001
No	445 (75.6)	144 (24.4)	1	
Yes	15 (51.7)	14 (48.3)	1.97 (1.32;2.95)	
Presence of chronic disease				< 0.001
No	344 (80.2)	85 (19.8)	1	
Yes	116 (61.4)	73 (38.6)	1.94 (1.50;2.53)	
Marital status				0.094
Single	419 (73.5)	151 (26.5)	1	
Other	41 (85.4)	7 (14.8)	0.55 (0.27;1.10)	
University course				< 0.001
Biological Sciences	58 (61.7)	36 (38.3)	1	
Physical education	137 (77)	41 (23)	0.60 (0.41;0.87)	
Nursing	48 (62.3)	29 (37.7)	0.98 (0.66;1.44)	
Medicine	130 (82.8)	27 (17.2)	0.44 (0.29;0.68)	
Dentistry	87 (77.7)	25 (22.3)	0.58 (0.37;0.89)	
Semester				0.054
1st to 4th	274 (71.7)	108 (28.3)	1	
5th semester or posterior	186 (78.8)	50 (21.2)	0.74 (0.55;1.00)	
Income change DP				0.031
Remained the same/increased	197 (79.1)	52 (20.9)	1	
Decreased	263 (71.3)	106 (28.7)	1.37 (1.02;1.83)	

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Tabela 1. Continuation.

Variables	Lifestyle		Bivariate Analysis	
	Adequate	Inadequate		
	n (%)	*n* (%)	$_{Crude}$ PR (95%CI)	p-value
Follow a religion				0.001
Yes	395 (77)	118 (23)	1	
No	65 (23)	40 (38.1)	1.65 (1.23;2.21)	
Self-perception of health				< 0.001
Good/Very good	354 (85.1)	62 (14.9)	1	
Regular/Poor	106 (52.5)	96 (47.5)	3.35 (2.51;4.47)	
BMI[a]				< 0.001
Normal	363 (79.1)	96 (20.9)	1	
Overweight	69 (61.6)	43 (38.4)	1.83 (1.36;2.46)	
Obesity	27 (61.4)	17 (38.6)	1.84 (1.22;2.79)	
Body image satisfaction				< 0.001
Satisfied	192 (94.1)	12 (5.9)	1	
Not satisfied (dissatisfied/indifferent)	268 (64.7)	146 (35.3)	5.99 (3.41;10.54)	
Depression				< 0.001
No depressive symptoms/mild depression	203 (97.6)	5 (2.4)	1	
Moderate/moderately severe depression	228 (77.6)	66 (22.4)	9.33 (3.82;22.7)	
Severe depression	29 (25)	87 (75)	31.2 (13.0;74.64)	
Anxiety				< 0.001
Normal/mild anxiety	261 (91.3)	25 (8.7)	1	
Minimal/moderate anxiety	111 (81)	26 (19)	2.17 (1.30;3.61)	
Severe/very severe anxiety	88 (45.1)	107 (54.9)	6.27 (4.22;9.32)	
Stress				< 0.001
Normal/mild stress	255 (93.1)	19 (6.9)	1	
Minimal/moderate stress	120 (78.4)	33 (21.6)	3.11 (1.83;5.27)	
Severe/very severe stress	85 (44.5)	106 (55.5)	8.00 (5.09;12.57)	
Academic Overload DP				0.001
No	76 (91.6)	7 (8.4)	1	
Yes	384 (71.8)	151 (28.2)	3.34 (1.62;6.88)	
Suicidal ideation				< 0.001
No	410 (80.4)	100 (19.6)	1	
Yes	50 (46.3)	58 (53.7)	2.73 (2.13;3.51)	
Addiction to internet use				< 0.001
Normal use to mild dependence	111 (81.6)	25 (18.4)	1	
Moderate to severe dependence	20 (45.5)	24 (54.5)	2.96 (1.90;4.63)	
Exposure to violence				< 0.001
No	273 (81)	64 (19)	1	
Yes	187 (66.5)	94 (33.5)	1.76 (1.33;2.32)	
Well-being (LP)				< 0.001
Not once	14 (43.8)	18 (56.2)	1	
1-3 times	153 (64)	86 (36)	0.64 (0.45;0.90)	
4-5 times	180 (81.8)	40 (18.2)	0.32 (0.21;0.48)	
6 or more times	113 (89)	14 (11)	0.19 (0.11;0.35)	

Abbreviations: PR: Prevalence Ratio; 95%CI: 95% Confidence Interval; DP: During the pandemic; LP: last period = last 6 months; PTSD: Post-Traumatic Stress Disorder; BMI: Body Mass Index; p-value: Wald test. [a]: Variation in n due to data loss.
Source: prepared by the authors.

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Table 2 shows the results of the multivariate model, in which the following variables maintained a significant association (p<0.05) with the prevalence of inadequate LS: depression, suicidal thoughts, anxiety, satisfaction with body image, BMI, and well-being. The well-being variable was the only one that proved to be a protective factor in terms of the prevalence of inadequate LS, while the others were presented as risk factors. That is, higher levels of well-being correlated with a lower prevalence of inadequate LS, while the others were significantly associated with a higher prevalence of inadequate LS.

DISCUSSION

The present study used the FLS questionnaire to analyze the prevalence of inadequate LS among university students and its association with several factors (sociodemographic data, BMI, self-perception of health, depression, anxiety and stress, internet dependence). All domains of the LS were analyzed, which is a useful, current and important resource for the evaluation of LS in the university population[11]. However, most studies in this population evaluated only specific domains of the FLS[12,13,14]; or the relationship between LS and a specific variable[15,16,17]. Thus, the relevance of the analysis conducted in this work is evidenced.

Approximately a quarter (25.6%) of the interviewed students had a LS considered inadequate (regular/needs improvement). Previous studies that used this same tool for LS analysis among Brazilian health sciences university students found prevalence rates of inadequate LS of 10.8%[23], 15%[24] and 43.8%[25], suggesting that the prevalence found for the present sample is within the range of values observed in the literature.

Moderate or severe depressive symptoms were associated with a higher prevalence of inadequate LS in the investigated population. These data are similar to those found in studies among Chinese university students[26,27] and those in the Brazilian Midwest[28], in which an association was observed between inadequate lifestyle habits and higher levels of depressive symptoms. Such relationship is probably bidirectional, since certain health risk behaviors can affect neurobiological pathways related to the emergence of depressive symptoms; while depression also includes changes in appetite, motivation, and anhedonia, factors that have the potential to negatively modify the LS[29, 30]. On the other hand, there is growing evidence that improvements in lifestyle habits can contribute to the attenuation of depressive conditions, and should be integrated into treatment and prevention plans for the disease[31].

Suicidal ideation was significantly associated with a higher prevalence of inadequate LS in this study. This result is similar to that found in North American studies, in which a negative correlation was also observed between healthy lifestyle habits and thoughts of death[32]. Health risk behaviors, such as substance abuse and physical inactivity, are associated with cardiometabolic alterations, higher risk of psychiatric disorders, and social isolation, which may explain the increase in suicidal thoughts[33]. In turn, the adoption of a healthy lifestyle model is one of the most efficient methods to promote full well-being and is considered by the WHO as a protective factor[34], and it is vital to implement this strategy in public health interventions and educational institutions[33].

Table 2. Adjusted analysis of independent variables with the lifestyle of biological and health sciences students during the pandemic (n= 618).

Variables	Multivariate Analysis	p-value
	$PR_{Adjusted}$ (95%CI)	
Depression		< 0.001
No depressive symptoms/ mild depression	1	
Moderate/moderately severe depression	4.98 (1.96;12.68)	
Severe depression	10.09 (3.85;26.42)	
Anxiety		0.001
Normal/mild anxiety	1	
Minimal/moderate anxiety	1.14 (0.71;1.81)	
Severe/very severe anxiety	1.92 (1.28;2.89)	
BMI[a]		< 0.001
Normal	1	
Overweight	1.68 (1.34;2.11)	
Obesity	1.29 (0.90;1.83)	
Body image satisfaction		0.001
Satisfied	1	
Not satisfied (dissatisfied/ indifferent)	2.46 (1.42;4.26)	
Suicidal ideation		0.008
No	1	
Yes	1.33 (1.07;1.64)	
Well-being (LP)		0.025
Not once	1	
1-3 times	1.00 (0.76;1.31)	
4-5 times	0.71 (0.51;0.99)	
6 or more times	0.63 (0.40;0.97)	
Deviance: 0,404 // p-valor: 0,683		

Abbreviations: PR: Prevalence Ratio; 95%CI: 95% Confidence Interval; LP: last period = last 6 months; BMI: Body Mass Index; p-value: Wald test. a: Variation in n due to data loss.
Source: prepared by the authors.

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Another finding of this study was that severe and very severe anxiety symptoms were significantly associated with a higher prevalence of inadequate LS. The literature has few studies evaluating the relationship between the severity of anxiety symptoms and LS as a whole; most of them evaluate the individual association between anxiety symptoms and certain lifestyle habits. In this sense, studies with university students point to the association between anxiety and physical inactivity, changes in daily sleep and substance use[35,36]. These results are corroborated by intervention studies, in which positive changes in LS are associated with a reduction in anxiety symptoms[37,38]. This evidence suggests that an inadequate LS can be a critical factor for the development and maintenance of anxious symptoms, and changes in lifestyle habits should be integrated into the prevention and treatment of anxiety[39].

The construct "body image" refers to the way individuals think, feel and act in relation to their own physical attributes, and its evaluation can result in satisfaction or dissatisfaction[40]. In the present study, dissatisfaction with body image showed a significant positive correlation with the prevalence of inadequate LS, both in the bivariate and multivariate analyses. This result differs from that found in a study with university students in southern Brazil[41], in which the association between body image dissatisfaction and the prevalence of multiple risk behaviors was observed only in the crude analysis but was not maintained in the adjusted analysis. Such divergence may have occurred due to the different instruments used in the study and the sociocultural differences among the evaluated students.

However, previous studies indicate that being dissatisfied with body image can negatively influence eating habits, mental health, alcohol and tobacco use[42,43], whereas a positive evaluation is associated with a better perception of quality of life (physical and psychological)[44]. Such evidence demonstrates that the individual's perception of their body has an important relationship with lifestyle, and further studies are needed to better understand this association.

In this study, the overweight variable (defined as BMI between 25.0 kg/m^2 AND 29.9 kg/m^2) was significantly associated with the prevalence of inadequate LS, whereas the association between obesity (BMI > 30 kg/m^2) and LS was not statistically significant. These data are partially corroborated by another study, in which a correlation was observed between excess weight in general (BMI ≥ 25.0 kg/m^2) and simultaneity of health risk behaviors[45]. It is recognized that weight gain results from a combination of inadequate diet and sedentary behavior, which may explain the relationship found between overweight and LS[46]. On the other hand, it can be hypothesized that part of the obese individuals in this study adhered to LS changes as a way to control weight, since behavioral change is considered the most effective strategy to ensure the desired weight loss, which would explain the non-significant association between obesity and LS[47]. However, more studies are needed to better elucidate the spiral of obesity, health problems, and health risk behaviors[48].

The present study also demonstrated that greater experience of well-being (for 4 days or more a week) was significantly associated with lower prevalence of inadequate LS. This result is corroborated by studies carried out among Portuguese[49] and Iranian[50] university students, in which a positive correlation was observed between psychological well-being and higher prevalence of healthy LS. The literature indicates that the relationship between these variables is complex and can be bidirectional. On the one hand, individuals with a higher perception of well-being may be more willing and optimistic to adopt healthy behaviors[51], which would explain the associations found. On the other hand, an intervention study indicates that LS modifications can have a therapeutic effect on mental health and increase the sense of self-efficacy, contributing to the improvement of the perception of psychological well-being[52].

The strengths of this study are the methodological rigor, the significant number of students evaluated (n = 618) and the distribution of students among five undergraduate courses in the health area, but some limitations should be considered. The cross-sectional design of the study makes it impossible to establish causal relationships between the prevalence of inadequate LS and the independent variables. Data collection was carried out through an electronic questionnaire, with the possibility of selection bias of students more sensitized to the topic, as well as memory bias in answers based on self-report.

FINAL CONSIDERATIONS

LS is one of the most important determinants of the health-disease process of the university population, as well as of the population in general, and the present study found that LS is interrelated with the individuals' physical, psychological and social dimensions. Considering its importance as an SDH, it is believed that broad knowledge of the factors associated with the prevalence of inadequate LS can be used to support the formulation of interventions that improve health-related behaviors, contributing to disease prevention and health promotion in its integral sense. Furthermore, it should be considered that this study investigated a population vulnerable to risk behaviors and in training to stimulate an adequate LS in the general population, having responsibility for the prevention and treatment of diseases. This attention and care are essential to improve the expectations of future health professionals, since interventions in the physical, psychological and social domains

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can improve the lifestyle habits adopted and, consequently, improve their competence to sensitize the population about the importance of adopting a healthy LS.

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AUTHOR CONTRIBUTIONS

Gabriel Oliveira Mota participated in the analysis and interpretation of data, writing the manuscript and approval of the final version to be published. Danilo Duarte Costa, Lucas Almeida de Carvalho, Ana Clara Leite, Barbara Guimarães Sapori Lage participated in the study conception and design, analysis and interpretation of data, relevant critical review of the intellectual content and approval of the final version to be published. Maria Tereza Carvalho Almeida participated in the study project, analysis and interpretation of data, writing of the manuscript, relevant critical review of the intellectual content and approval of the final version to be published. She is responsible for all aspects of the study in ensuring the accuracy and entirety of all parts of the research.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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