

Related factors for health behaviors among young students during the pandemic of COVID-19*

Fatores relacionados a comportamentos de saúde entre jovens estudantes durante a pandemia da COVID-19

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ABSTRACT

Objective: to analyze factors related to health behaviors among young students during the pandemic of COVID-19. **Methods:** cross-sectional study conducted with 282 students aged 18 to 24 years from the Federal Network of Vocational and Technological Education. An electronic form and the Adolescent Health Promotion Scale (Brazilian version) instrument were applied for statistical analysis and multiple linear regressions were used. **Results:** the overall mean of the scale was 3.29 (Standard deviation (SD)=0.56); the subscales ranged from 2.40 (SD=1.0) physical exercise to 3.76 (SD=0.80) valuing life. We identified that the subscale physical exercise and some items of the subscales social support and responsibility for health presented scores below the mean. **Conclusion:** according to the theoretical model tested, students in technical courses showed a statistically significant negative relationship in the scores of the general health promotion scale. The subscales of social support, responsibility for health and physical exercise showed statistically significant relationships in relation to the variables gender, age group, family income, level of education and health problem. **Contributions to practice:** nurses should know the factors related to health behaviors among young students to expand and guide actions, contributing to the improvement of student assistance and care for young people. **Descriptors:** Health Behavior; Healthy Lifestyle; Young Adult; Student Health; COVID-19.

RESUMO

Objetivo: analisar fatores relacionados a comportamentos de saúde entre jovens estudantes durante a pandemia da COVID-19. **Métodos:** estudo transversal realizado com 282 estudantes de 18 a 24 anos da Rede Federal de Educação Profissional e Tecnológica. Foram aplicados um formulário eletrônico e o instrumento *Adolescent Health Promotion Scale* (versão brasileira), para análise estatística e utilizadas regressões lineares múltiplas. **Resultados:** a média geral da escala foi de 3,29 (desvio-padrão (DP)=0,56); as subescalas variaram de 2,40 (DP=1,0) exercício físico a 3,76 (DP=0,80) valorização da vida. Identificou-se que a subescala exercício físico e alguns itens das subescalas suporte social e responsabilidade pela saúde apresentaram escores abaixo da média. **Conclusão:** segundo o modelo teórico testado, os alunos dos cursos técnicos apresentaram relação estatisticamente significativa negativa nos escores da escala geral de promoção da saúde. As subescalas de suporte social, responsabilidade pela saúde e exercício físico apresentaram relações estatisticamente significativas em relação às variáveis gênero, faixa etária, renda familiar, nível de ensino e problema de saúde. **Contribuições para a prática:** os enfermeiros devem conhecer os fatores relacionados a comportamentos de saúde entre jovens estudantes para ampliar e nortear ações, contribuindo para a melhoria da assistência estudantil e do cuidado com jovens.

Descritores: Comportamentos Relacionados com a Saúde; Estilo de Vida Saudável; Adulto Jovem; Saúde do Estudante; COVID-19.

Introduction

In December 2019, the disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) emerged in the city of Wuhan, China, which became known as COVID-19, having been elevated to pandemic classification by the World Health Organization (WHO) in March 2020⁽¹⁾. The economic, health and social crisis installed by the pandemic aggravated even more the problems of access to health and education of the population, directly impacting the students who correspond to more than 1.5 billion worldwide, and, according to studies, it is estimated that at least 24 million children and young people will not return to school due only to the economic impact of the pandemic⁽²⁾.

As a worldwide recommendation to reduce the spread of the new coronavirus infection, physical distance has been established. To this end, several countries have implemented measures to avoid crowding of people, including the total or partial suspension of face-to-face activities in educational institutions, including the realization of remote or hybrid education through digital platforms as well as the prohibition of cultural, sports and religious events⁽³⁾.

While considered necessary to mitigate the pandemic, physical distance and social isolation can generate negative consequences for health and well-being. However, they can also severely decrease levels of physical activity and increase levels of sedentary behavior in young students who have been cut off from classroom instruction. All of this increases the risk of weight gain, obesity, anxiety, and depression in this population⁽⁴⁾.

Consequently, changes in young students' engagement in health risk behaviors such as drug use and sedentary lifestyle were observed during the COVID-19 pandemic as well as increased levels of stress, anxiety, and depression⁽⁵⁻⁶⁾. Measures of social isolation may also contribute to the occurrence of violence or hostile behavior in the home context⁽¹⁾.

Because of this, it is essential to invest in ac-

tions to protect and promote the health of adolescents and young people, encouraging healthy behaviors and their personal and professional development. The educational system is considered an efficient place to offer health promotion programs that can encourage healthy behaviors among children and young people⁽⁷⁾. The Health Promotion Model proposes a framework with factors that predict health behaviors and guides how to explore biopsychosocial processes that motivate people to perform behaviors that promote health and well-being⁽⁸⁾.

When analyzing the current scientific literature on health promotion behaviors among young students, a significant positive relationship is observed with self-efficacy, self-esteem, health awareness, health perception, health literacy and socioeconomic background⁽⁹⁻¹²⁾. However, most of these studies were conducted in high-income countries, without focusing on the relationship of health behaviors with educational aspects and the changes caused by the COVID-19 pandemic.

In this sense, this article addresses, in an expanded way, the components of the Health Promotion Model, such as socio-demographic characteristics, health and education aspects of the students, which are related to health promotion behaviors, and how they are being affected by the pandemic. Understanding these relationships will make it possible to identify more vulnerable groups and define coping strategies and health promotion in the school context at such a challenging time in world history. Thus, we aimed to analyze factors related to health behaviors among young students during the pandemic of COVID-19.

Methods

Cross-sectional, analytical study, reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines and conducted at the Federal Institute of Education, Science and Technology of Ceará (IFCE), Northeast Brazil. This educational institution is part of the Fede-

ral Network of Professional, Scientific and Technological Education and serves more than 29,000 students in technical courses integrated to high school, concomitant, subsequent, higher education with undergraduate and graduate courses, as well as initial and continuing education courses⁽¹³⁻¹⁴⁾. It is noteworthy that due to the COVID-19 pandemic, in-person classes were suspended in all IFCE campuses in March 2020 and remained suspended during the data collection of the research that took place from November to December 2020.

The state of Ceará has 184 municipalities and an estimated population in 2020 of 9,187,103 inhabitants⁽¹⁵⁾. In the state, 324,648 cases were confirmed, of which, 9,971 deaths from COVID-19 until 12/19/2020 (period of data collection), 21,036 cases occurred in the 10-19 age group (6.5%) and 59,482 cases in the 20-29 age group (18.4%)⁽¹⁶⁾.

To compose the study sample, we chose to survey the campuses of each administrative macro-region of the IFCE with the largest number of enrolled students and two campuses of smaller municipalities totaling seven units of the institution. Inclusion criteria were being within the age range of 18 to 24 years of age for both genders; being regularly enrolled during the period of data collection in technical and/or undergraduate courses. Excluded were students who locked their enrollment during data collection or did not answer the form in the requested period.

According to data from the q-academic system of IFCE, the total number of students enrolled within this age group in the selected campuses was 5,409 students in October 2020 and corresponded to approximately 60% of the total number of enrolled students⁽¹⁴⁾. To estimate the sample size, the calculation was performed for infinite population, in which the population (N) was 5,409, Z 2 5% (critical value that corresponds to the desired degree of confidence) = 1.96; p (proportion of 18- to 24-year-olds in the student population) = 60%; q (proportion of students who were not 18 to 24-year-olds) = 40% and (margin of error) = 6%; (er=10%), obtaining as a result = 257.

Initially, a stratified sample of the # of students per campus was calculated, and then they were sent electronically to the students' e-mails provided by the Academic Control Coordinators by the main researcher and nurse of one of the campuses. The students were randomly selected and increased by a rate of 20%, considering possible failures in the delivery and response of the e-mail, however, as a very small number of responses was obtained (around 10%), even sending two reminders with a seven-day interval between them, it was decided to extend the invitation to participate in the survey to all students on the selected campuses, thus, a final sample of 282 students was obtained. In the e-mail were attached the Informed Consent Form and the data collection form through the Google Forms tool. This form contained short answer, multiple choice, and checkbox questions about the following sociodemographic characteristics; aspects about self-perception of health, referred health problem(s), and infection by COVID-19; campus of origin, level of education, and receipt of student aid. The form was available at the link: <https://forms.gle/mrHRbac2Qz39GsqT6>.

The study outcomes were health promotion behaviors, identified by the Adolescent Health Promotion Scale (AHPS) instrument validated in Brazil⁽¹⁷⁾. This was chosen because it is based on the Health Promotion Model⁽⁸⁾ and has been translated into several languages and used in different cultures, besides having been used to monitor the effects of health education programs and school health services. The Brazilian version of the AHPS consists of 34 items designed to detect self-reported healthy practices on a five-point Likert scale (1 = Never; 2 = Few times; 3 = Sometimes; 4 = Many times; 5 = Always). Following the scores assigned to each item, it becomes possible to identify, size, and order six subscales associated with health promotion: (a) nutrition; (b) social support; (c) responsibility for health; (d) valuing life; (e) physical exercise; and (f) stress management. The AHPS translated and adapted for the Brazilian context reached a good psychometric performance in the second study,

obtaining a factor structure like the original version. Factorial validity and reliability were confirmed by adequate factor loadings and desirable dimensions of composite reliability (>0.7) and average variance extracted (>0.5)⁽¹⁷⁾. Data were compiled in the statistical program SPSS version 22.0 and descriptive statistical analysis was performed in which the related factors are presented by means of absolute and relative frequencies and by calculating the measures of central tendency (simple arithmetic mean) and dispersion (standard deviation). To test the normality of the data, the Shapiro-Wilk test was used for the values of the scores of the general scale and the subscales, obtaining a p-value of 0.45 in the general scale, showing that the data are normal. After the comparison of means between the groups, multiple linear regressions were performed with the objective of identifying the factors related to the outcome in both the general scale and the subscales.

Thus, the dependent variables were the simple arithmetic means, calculated by adding the scores of each item of the AHPS and/or subscales divided by the number of items, and the independent variables were sociodemographic (gender, age, and family income), educational (education modality) and health (having health problems, history of COVID-19) aspects. According to the age range, students were divided into two groups: adolescents who were up to 19 years old and young people who were 20 to 24 years old according to the WHO classification⁽¹⁸⁾.

Since there is no categorization or ordering for these scores in the literature, linear regressions were performed in which the unstandardized regression coefficients show the relationship between the groups of independent variables with the outcome.

First, the statistical analysis of variance (ANOVA) was performed considering the statistics of the sums of squares of the regression and of the residuals, p-value, and F. Then, the analysis of the values of R, R², Coefficient of the Constant and p-value of the Constant was performed. The regression results were expressed in non-standardized regression coefficients, their respective 95% confidence intervals, and the p-value

of the relationship between the independent variable and the outcome, considering $p < 0.05$ statistically significant. Furthermore, it was found that the analysis of the regression residues showed normal distribution and constant variation, in addition to not presenting multicollinearity between the variables.

The study was approved by the Research Ethics Committee of the State University of Ceará through Opinion No. 4,328,244/2020 and Certificate of Ethical Appreciation Presentation No. 35756720.9.3001.5534, also considering that the research was conducted according to the required ethical standards.

Results

Regarding the sociodemographic characteristics of the young students at IFCE, the mean age of the research participants was 21.3 years with Standard Deviation (SD) = 1.8. 158 students (56.0%) identified themselves as cisgender women, 113 (40.1%) as cisgender men, and 11 (3.9%), other gender identities. Regarding skin color: 159 students (56.4%) declared themselves as brown; 81 (28.7%) as white; 38 (13.5%) as black; 3 (1.1%) as indigenous; and 1 (0.4%) as Asian. Regarding marital status: 263 (93.3%) were single; 10 (3.5%) were in a stable union; 8 (2.8%) were married; and 1 (0.4%) was widowed.

About sexual orientation: 202 (71.6%) said they were heterosexual, 30 (10.6%) bisexual, 22 (7.8%) homosexual, 6 (2.1%) pansexual, and 1 (0.4%) asexual. It is noteworthy that 21 students (7.4%) did not know or did not want to provide this information. 14 students (5%) had child(ren), and, of these, nine had only one child. The family monthly gross income ranged from R\$80.00 to R\$20,000.00; the average was R\$1,549.00 (SD = 2,175.00), and 33.3% had an income of R\$1,001.00 to 2,000.00. In addition, 88 students (31.2%) reported having paid activity, and, of these, 50% had a formal job.

Regarding the level of education: 210 (74.5%) were enrolled in an undergraduate course; 49 (17.4%), in a subsequent technical course; 16 (5.7%), in a technical course integrated to high school; and 7 (2.5%),

in a technical course concomitant to high school. Regarding their place of residence, 165 (58.5%) of the students did not live in the same city as the campus where they were enrolled. In addition, 98 students (34.8%) received some scholarship or financial aid from IFCE.

Regarding health aspects, 113 students (40.1%) perceived their health status as good; 99 (35.1%), regular; 41 (14.5%), excellent; 24 (8.5%), bad; and 5 (1.8%), terrible; 77 (27.3%) of the students reported having some health problem and, of these, 36 (46.7%), two or more. The most frequent health problems reported by the students were: anxiety (12.9%); asthma (8.9%); scoliosis (7.3%); gastritis (7.3%); depression (4.0%); and migraine (4.0%). Notably, 69 students (24.5%) have become infected and/or live with someone who became infected with the new coronavirus by December 2020.

According to the results of the AHPS applied to young students at IFCE, the overall mean of the scale was 3.29 (SD=0.56). The mean of the subscales ranged from 2.40 to 3.76 with the lowest mean in the physical exercise subscale and the highest mean in the appreciation of life subscale. The mean of the items ranged from 1.70 in the item about weekly participation in physical education classes to 4.31 about eating at least three meals daily (breakfast, lunch, and dinner). It is noteworthy that nine items of the scale (26.5%) had a mean lower than 3; the four items of the physical exercise subscale; 3 items of the social support subscale that deal with sharing/talking about your feelings, problems, and concerns to other people; and two items of the responsibility for health subscale about talking to health professionals about your health concerns and trying to choose foods without preservatives according to Table 1.

Table 1 – Health promotion behaviors of students at the Instituto Federal do Ceará (n=282). Fortaleza, CE, Brazil, 2020

Item	Minimum	Maximum	Average	Median	Standard Deviation
Nutrition subscale					
1. I eat three meals a day (breakfast, lunch, and dinner)	1.0	5.0	4.31	5.0	1.0
2. I prefer to eat foods without a lot of fat	1.0	5.0	3.26	3.0	0.93
3. I include foods rich in fiber in my diet	1.0	5.0	3.30	3.0	1.01
4. I drink at least 1.5 liters of water a day	1.0	5.0	3.81	4.0	1.07
5. I include five food groups in my meals	1.0	5.0	3.49	3.0	1.04
Total	1.0	5.0	3.62	3.60	0.64
Social support subscale					
6. I share and talk about my feelings with other people	1.0	5.0	2.62	2.0	1.16
7. I care about other people	2.0	5.0	4.23	4.0	0.82
8. I talk about my worries with other people	1.0	5.0	2.64	2.0	1.11
9. I like to relate to my family members	1.0	5.0	3.42	3.0	1.08
10. I talk about my problems to other people	1.0	5.0	2.36	2.0	1.01
Total	1.4	5.0	3.05	3.0	0.76
Responsibility for health subscale					
11. When I buy food, I read the labels on the packages	1.0	5.0	3.10	3.0	1.20
12. I care about maintaining my body weight	1.0	5.0	3.38	4.0	1.23
13. I talk about health concerns with health professionals	1.0	5.0	2.24	2.0	1.11
14. I observe and analyze my body at least once a month	1.0	5.0	3.39	3.0	1.31
15. I read health information	1.0	5.0	3.37	3.0	1.03
16. I try to choose foods without preservatives	1.0	5.0	2.88	3.0	1.06
Total	1.50	4.83	3.05	3.16	0.76

(the Table 1 continue in the next page...)

Item	Minimum	Maximum	Average	Median	Standard Deviation
Appreciation of life subscale					
17. I try to like myself	1.0	5.0	3.87	4.0	1.13
18. I try to feel happy and satisfied	1.0	5.0	4.0	4.0	0.98
19. I usually think positively	1.0	5.0	3.53	4.0	1.08
20. I try to understand my strengths and weaknesses and accept them	1.0	5.0	3.60	4.0	1.01
21. I try to correct my shortcomings	2.0	5.0	3.86	4.0	0.86
22. I try to know what is important to me.	2.0	5.0	4.02	4.0	0.93
23. I try to feel interested and challenged every day	1.0	5.0	3.49	3.0	1.08
24. I try to believe that my life has a purpose	1.0	5.0	3.85	4.0	1.22
Total	1.75	5.0	3.76	3.87	0.80
Physical exercise subscale					
25. I do stretch exercises every day	1.0	5.0	2.52	2.0	1.23
26. I do vigorous exercise for 30 min. at least three times a week	1.0	5.0	2.62	2.0	1.42
27. I attend weekly Physical Education classes at IFCE*	1.0	5.0	1.70	1.0	1.26
28. I warm up before vigorous exercises	1.0	5.0	2.83	3.0	1.48
Total	1.0	4.75	2.40	2.25	1.00
Stress management subscale					
29. I try to dedicate some time daily to relax	1.0	5.0	3.33	3.0	1.28
30. I try to determine the cause of my stress	1.0	5.0	3.35	3.0	1.19
31. I try to pay attention to my mood swings	1.0	5.0	3.40	3.0	1.12
32. I sleep 6 to 8 hours every night	1.0	5.0	3.51	4.0	1.18
33. I make plans for my activities and set priorities	1.0	5.0	3.38	3.0	1.11
34. I try not to lose control when unfair things happen	1.0	5.0	3.50	4.0	1.09
Total	1.33	5.0	3.40	3.33	0.77
Total of the General Scale	1.58	4.70	3.29	3.29	0.56

*IFCE: Federal Institute of Education, Science and Technology of Ceará

Next, multivariate linear regressions were performed. In this sense, the first theoretical model was composed of variables previously selected in the theoretical pole and the general health promotion behavior of young students. This model was able to explain 8.68% ($R^2 = 0.0868$), F test=2.70 and $p < 5\%$, that is, the multiple linear regression equation showed statistical significance. From the same predictor variables that composed the general theoretical model, it was evident that only the subscales: social support ($R^2 = 0.15$; $F=5.33$; $p < 0.001$); responsibility for health ($R^2 = 0.06$; $F=2.07$; $p=0.040$); and physical exercise

($R^2 = 0.10$; $F=3.46$; $p < 0.001$) showed statistically significant model adjustment in relation to the previously selected variables. Thus, the regressions of the subscales: nutrition ($R^2 = 0.04$; $F=1.32$; $p=0.230$); appreciation of life ($R^2 = 0.04$; $F=1.29$; $p=0.250$); and stress control ($R^2 = 0.06$; $F=1.78$; $p=0.080$) were not able to predict the relationship between the variables previously selected and the theoretical model built. Furthermore, it is noteworthy that the subscales with a larger number of related variables, such as social support and physical exercise, showed greater explanatory power.

Table 2 – Unstandardized regression coefficients with their respective 95% confidence intervals of factors related to the Adolescent Health Promotion Scale and subscales (n=282). Fortaleza, CE, Brazil, 2020, 2020

Variables	AHPS	Social support	Responsibility for health	Physical exercise
Cis Female (n=148)	1*	1	1	1
Cis Male (n=107)	-0.12 (-0.26;0.01)	-0.29 [†] (-0.48; -0.11)	-0.25 [†] (-0.45;-0.06)	0.01 (-0.24;0.26)
20-24 years old (n=217)	1	1	1	1
18-19 years old (n=48)	-0.06 (-0.25;0.11)	-0.38 [†] (-0.62; -0.13)	-0.12 (-0.37;0.13)	-0.10 (-0.44;0.23)
Family income >1 Minimum Salary (n=108)	1	1	1	1
Family income up to 1 minimum wage (n=155)	-0.10 (-0.25; 0.03)	-0.20 [†] (-0.39; -0.01)	-0.09 (-0.29; 0.10)	-0.35 [†] (-0.62;-0.08)
Without child(ren)	1	1	1	1
With child(ren)	-0.09 (-0.42; 0.23)	-0.25 (-0.68; 0.18)	0.08 (-0.37; 0.53)	-0.27 (-0.87; 0.32)
Graduation (n=198)	1	1	1	1
Technical Course (n=67)	-0.20 [†] (-0.36;-0.44)	-0.33 [†] (-0.54; -0.11)	-0.18 (-0.40; 0.04)	-0.41 (-0.71; -0.12)
No health problem (n=71)	1	1	1	1
With health problem (n=179)	-0.12 (-0.27; 0.02)	-0.12 (-0.33; 0.07)	0.14 (-0.07; 0.35)	-0.28 [†] (-0.56;-0.01)
No history of COVID-19 (n=197)	1	1	1	1
With history of COVID-19 (n=65)	0.14 (-0.01; 0.30)	0.17 (-0.03; 0.38)	0.05 (-0.16; 0.27)	-0.01 (-0.28; 0.28)

*1: Reference variable to calculate the regression coefficient in the multivariate analysis; †Statistically significant result (p≤0.05); AHPS: Adolescent Health Promotion Scale

The multivariate linear regression presented the factors related to health promotion behaviors through the unstandardized regression coefficients. It was observed that on the overall scale, only the teaching modality variable obtained a statistically significant association. Thus, the negative regression coefficient shows that there is an inversely proportional relationship between technical course students compared to undergraduate students in the scores of the health promotion scale.

The subscale with the most related factors was Social Support, with the variables gender, age group, family income, and type of education showing a statistically significant association. Thus, there is an inversely proportional relationship between social support behaviors and male gender, younger youth, family income of up to one minimum wage, and technical courses.

In the subscale of Responsibility for Health, the gender variable also showed an inversely proportional association in males. The subscale of Physical Exercise showed two related factors: family income and history of health problems. In this sense, students with family income of up to one minimum wage and with health problems showed lower scores.

Discussion

The results presented converge with other studies conducted internationally, in which it was observed that gender, age, income and education affect healthy lifestyle behaviors. Moreover, young students showed unfavorable behaviors, especially regarding physical activity, social support, and responsibility for health^(9,11,19).

The inverse relationship between technical le-

vel students and the general scale of health promotion is noteworthy. Thus, it is necessary to consider the profile of technical level students of the Federal Network of Vocational and Technological Education and how it has been democratizing quality public education to provide opportunities for human emancipation⁽²⁰⁾.

The physical exercise behaviors of young students at IFCE showed the lowest mean scores on the scale. We highlight the item about the participation in physical education classes in the school environment that showed the lowest mean of the scale, which was expected due to the suspension of classroom classes caused by the COVID-19 pandemic. In addition, physical education classes in the institution are mandatory only for integrated technical high school, because at other levels it is offered as an optional subject or through extension projects.

In a study conducted with young adults in Brazil, during the social isolation caused by the pandemic of COVID-19, composed mainly of college students, it was observed that they spent more time in sedentary activities during the day, did not practice physical activity and consumed foods with lower nutritional content, negatively impacting the healthy habits of this population group⁽²¹⁾. However, it was observed that the amounts of physical activity increased in both men and women after the easing of campus access restrictions, which were occasioned by the COVID-19 pandemic, thus contributing to improved quality of life⁽²²⁾.

In the validation study of the AHPS, before the pandemic of COVID-19, the sample of 1949 adolescents of both sexes, aged between 12 and 18 years, enrolled in elementary and high schools in Londrina, Paraná, presented a general average of 3.63 for the scale. The mean values of the scale items ranged from 2.48 to 4.44, with associated standard deviations between 0.63 and 1.57⁽¹⁷⁾. It is noteworthy that, except for the nutrition subscale, all other subscales and the general scale showed higher means when compared to young students at IFCE. In both studies, the subscale valuing

life presented the highest mean. In this sense, the behaviors that seek to increase the value and meaning of life are quite present in this age group, contributing to mental health and suicide prevention.

The male gender was negatively related to the subscales of social support and responsibility for health. In this sense, culturally imposed standards of masculinity end up interfering with self-care and health behaviors. Research conducted with Brazilian men during the pandemic of COVID-19 indicated a high prevalence of common mental disorders, especially among younger men with less education and who received little social support from those close to them or from the government⁽²³⁾.

Another relevant finding was the inverse relationship observed between income and social support and physical exercise behaviors, in which students with lower income had lower scores. The socio-economic context can have a direct or indirect impact on the health promotion behavior of adolescents/youth by influencing their lifestyles and access to goods and services, causing vulnerabilities⁽¹¹⁾.

It was also observed in the study with young students of IFCE an inversely proportional relationship between social support behaviors and younger young people, with family income of up to one minimum wage and technical courses. Social support is considered a reciprocal process and an interactive resource that provides comfort, assistance, encouragement, and information⁽⁸⁾. It is a possibility to cross adversities, conflicts, and insecurities inherent to the youth development process, promoting health and well-being. However, technical education students, mostly adolescents from low-income families, have difficulty sharing their feelings and concerns with others, requiring, for this, to enhance the social support networks.

During the COVID-19 pandemic, the lack of social support was identified as the main risk factor for mental disorders with young students⁽²⁴⁾. In this sense, the higher the self-esteem of adolescents, the

better their health promotion behavior will be, consequently, the greater their sense of interpersonal skills, the more they will be able to implement social support behavior⁽¹¹⁾.

Given this scenario, attention to the psychosocial needs of young students is essential, especially in this period of transition and resignification after the pandemic of COVID-19. The technical competence associated with the sensitivity of health professionals as well as the strengthening of the social support network and the involvement of different sectors of the community are fundamental for the promotion of mental health⁽²⁵⁾.

Thus, health messages should not be limited to ways to protect against the virus, but rather highlight the need to increase individual and social resilience by favoring the incorporation of healthy habits in the lives of students during and after the pandemic. It is necessary to plan specific actions and interventions for each educational level to meet the students' needs and promote their health.

In this context, the implementation of partnerships and collaborative efforts between the health and education sectors show an important potential to face the pandemic, so that nurses trained in school health and/or public health can, in addition to acting in the prevention and promotion of health, in the care and treatment of diseases, help the return of classroom activities in schools safely for everyone: students, teachers, employees, and family members, also addressing the psychosocial care⁽²⁶⁾.

In this regard, the usual educational strategies developed by educational institutions need to be expanded to include health, nutrition, and mental health literacy. Programs that better support children and youth's cognitive and behavioral skills such as self-reliance, decision making, anxiety control, communication, and assertiveness will allow them to grow up healthier and safer. A good example is the Health Promoting Schools strategy developed by WHO that values schools as social communities that include students, staff, and families⁽²⁾.

Study limitations

A limitation of this study is the fact that the sample consisted of young people from a single educational institution in Ceará, despite its capillarity in several municipalities, which interferes with the power of generalization of the results for other populations of young students. In addition, data collection occurred exclusively through virtual means, which may have excluded young people with difficulties in accessing digital technologies and the internet.

Contributions to practice

By exploring the personal, biological, psychological, and sociocultural factors of young IFCE students through the AHPS and Health Promotion Model, insight was gained into how health promotion behaviors were influenced by the COVID-19 pandemic. The study provides a means to understand how students can be motivated to achieve health by identifying and monitoring healthy behaviors. In this sense, nurses should consider these factors to expand and guide actions, thus contributing to the improvement of student care and youth care.

Conclusion

The health promotion behaviors of young students at IFCE during the pandemic of COVID-19 showed median scores on the overall scale and subscales of nutrition, social support, responsibility for health, valuing life, and stress management. The only exception was the subscale of physical exercise in which all items showed below average scores and some items of the subscales of social support and responsibility for health.

Regarding the factors related to health promotion behaviors, it was obtained that on the general scale, only the variable education modality obtained a statistically significant association, showing an inversely proportional relationship with the students

in technical courses. The subscales of social support, responsibility for health and physical exercise showed statistically significant relationships with the variables gender, age group, family income, level of education and history of health problem.

Authors' contribution

Conception of the object and research design: Muniz EA, Queiroz MVO, Barbosa Filho VC. Writing of the article or relevant critical review of the intellectual content: Muniz EA, Queiroz MVO, Barbosa IM, Macial GP, Barbosa Filho VC.

Approval of the final version to be published, analysis and interpretation of the data, and agreement to be responsible for all aspects of the manuscript related to the accuracy or completeness of any part of the work to be properly investigated and resolved: Muniz EA, Queiroz MVO, Barbosa IM, Macial GP, Barbosa Filho VC.

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