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Social isolation and loneliness in nursing students in the context of the COVID-19 pandemic

Isolamento social e solidão em estudantes de enfermagem no contexto da pandemia Covid-19

Aislamiento social y soledad entre estudiantes de enfermería en el contexto de la pandemia COVID-19

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ABSTRACT

Objective: to identify the occurrence of social isolation and loneliness and their relationship with sociodemographic and health factors in nursing undergraduates in the context of the COVID-19 pandemic. **Method:** in this cross-sectional, descriptive, correlational study, 147 nursing students answered an electronic form comprising a characterization questionnaire, the University of California Loneliness Scale and the Depression, Anxiety and Stress Scale. **Results:** perceived social isolation was found to occur in 42.2% of the students, and 8.8% experienced social isolation according to the discussion network indicator, and 6.8%, according to the social support indicator. Loneliness was observed in 49.7% of students. Both were associated with depression, anxiety and stress, and other variables. **Conclusion:** this study found isolation and loneliness and their relationship with other variables during the COVID-19 pandemic, requiring interventions by educational institutions and health policymakers.

Descriptors: Mental Health; Loneliness; Social Isolation; Students, Nursing; COVID-19.

RESUMO

Objetivo: identificar a ocorrência de isolamento social e solidão e sua relação com fatores sociodemográficos e de saúde em graduandos de enfermagem no contexto da pandemia de COVID-19. **Método**: estudo transversal, descritivo e correlacional, desenvolvido com 147 estudantes de enfermagem que responderam um formulário eletrônico, contendo Questionário de caracterização, Escala de Solidão da Universidade de Califórnia e Escala de Depressão, Ansiedade e Estresse**. Resultados:** evidenciou-se a ocorrência de isolamento social percebido em 42,2% dos estudantes, e que, 8,8% dos estudantes apresentaram isolamento social conforme indicador rede de discussão, e 6,8% de acordo com o indicador de apoio social. Observou-se a solidão em 49,7% dos estudantes. Ambos foram associados com depressão, ansiedade e estresse, além de outras variáveis. **Conclusão:** identificou-se isolamento social e solidão e a relação destes com outras variáveis durante a pandemia de COVID-19, demandando intervenções por parte das instituições de ensino e dos formuladores de políticas de saúde.

Descritores: Saúde Mental; Solidão; Isolamento Social; Estudantes de Enfermagem; COVID-19.

RESUMEN

Objetivo: identificar cómo ocurre el aislamiento social y la soledad y su relación con factores sociodemográficos y de salud en estudiantes de enfermería en el contexto de la pandemia de COVID-19. **Método:** estudio transversal, descriptivo y correlacional, desarrollado junto a 147 estudiantes de enfermería que respondieron un formulario electrónico, que contenía un cuestionario de caracterización, la Escala de Soledad de la Universidad de California y la Escala de Depresión, Ansiedad y Estrés. **Resultados:** resaltó la incidencia de aislamiento social percibido en el 42,2% de los estudiantes, y que el 8,8% de los estudiantes presentó aislamiento social según el indicador de red de discusión, y el 6,8% según el indicador de apoyo social. La soledad se verificó en el 49,7% de los estudiantes. Ambos fueron asociados con depresión, ansiedad y estrés, además de otras variables. **Conclusión:** se identificaron el aislamiento social y la soledad y su relación con otras variables durante la pandemia de COVID-19, requiriendo intervenciones por parte de las instituciones de enseñanza y de los formuladores de políticas de salud.

Descriptores: Salud Mental; Soledad; Aislamiento Social; Estudiantes de Enfermería; COVID-19.

INTRODUCTION

Social isolation stands out as an epidemic on the rise and represents an important risk to public health, as it negatively impacts people's health[1]. Likewise, loneliness is a serious problem. Estimates are that 8% of the adult population in Western countries experience intense loneliness, and another 20% experience mild to moderate loneliness[2].

Social isolation is defined as the absence of social relationships or significant social bonds[3]. Hence, socially isolated individuals have smaller relationship networks[2]. Loneliness, in turn, is one's perception of social isolation, that is, a subjective experience and a feeling of being alone[4].

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In a university context, students are faced with the need to adapt, deal with demands and make choices, which make this phase susceptible to loneliness and social isolation[5]. Nursing students often experience loneliness, stress, anxiety, and depression[6].

Because of the COVID-19 pandemic, teaching institutions interrupted face-to-face classes in more than 194 countries, affecting more than 91% of students globally[7,8]. Consequently, students, especially nursing students, whose academic activities were directly affected due to their theoretical-practical nature, faced, among other problems, psychological[9] problems and moral distress caused by the lack of social contact[10].

Therefore, based on the context imposed by the COVID-19 pandemic, social isolation and loneliness cases have increased among college students, harming the health of these individuals. Nonetheless, some gaps are identified in the Brazilian context as few studies address loneliness among Brazilian college students[5,11,12], and none of the existing studies address social isolation in the Brazilian academic context.

Given the previous discussion and considering that social isolation and loneliness are associated with poor health outcomes[13], this study's objective was to identify social isolation and loneliness and their relationship with socio-demographic and health factors among nursing students in the COVID-19 pandemic.

METHOD

Cross-sectional, descriptive, and correlational study. Data were collected between September 14th and November 27th, 2020. Inclusion criteria were being 18+ years old and regularly enrolled in the undergraduate nursing program at the university hosting this study. In addition, the exclusion criterion was not having access to the Internet because data collection was conducted online. Note that the university hosting this study has an inclusion program that provides students with Internet services free of charge.

We used a sample size formula for finite populations for cross-sectional studies[14]. According to the institution's report, there were 278 enrolled students; hence, the formula resulted in n=162. All the students regularly enrolled in the program were invited, but only 147 participated, representing 9.2% of sample loss.

The study's variables include: loneliness, subjective social isolation (feeling socially accepted), objective social isolation (indicator of discussion network and social support), Depression, Anxiety, and Stress (measured with Depression, Anxiety, and Stress Scale – Short Form (DASS-21), socio-demographic variables (sex, area of origin, age group, sexual orientation, race, religion, income, and marital status), lifestyle (eating habits, alcohol consumption, tobacco consumption, illegal drugs, multiple drugs), history and health status (preexisting diseases, psychiatric diagnosis, suicidal ideation, insomnia, self-injury, panic attacks, stress due to information overload, less frequent exercise, life satisfaction, and mental health assessment), and social connection variables (whether the individual shared his/her most intimate thoughts and feelings with someone, had someone to count on in any situation, the quality of the relationship established with those with whom the student lives, and community participation).

The following instruments were used to collect data:

A) Characterization Questionnaire: developed by the authors, comprising 87 items distributed into four parts: socio-demographic characteristics, social connection, health and wellbeing, and the impact of the pandemic. The "social connection" part required the participants to rate their level of agreement to the statement "I feel socially accepted". This statement was adapted from Zamora-Kapoor et. al.[15] Additionally, social isolation was objectively assessed using three indicators: (a) infrequent contact with friends, relatives, and neighbors (an indicator of social contact); b) absence of a discussion network (an indicator of discussion network); c) absence of social support (an indicator of support) Zavaleta et. al.[16]

B) University of California, Loneliness Scale (UCLA-BR): instrument validated in Brazil[11], with 20 items rated on a four-point Likert scale, ranging from 1 (never) to 4 (often). The total score reaches up to 60 points: scores 0 to 22 indicate minimum loneliness; from 23 to 35, mild loneliness; from 36 to 47 moderate loneliness, and scores from 48 to 60 represent intense loneliness.

C) Depression, Anxiety, and Stress – Short Form (DASS-21): self-report scale comprising three subscales with seven items, totaling 21 items addressing depression, anxiety, and stress. The statements are rated on a four-point Likert scale (0 to 3) where 0 – Did not apply to me at all and 3 – Applied to me very much or most of the time[17,18]. This instrument was validated in Brazil by Vignola and Tucci[18], and presented adequate validity and reliability[19].

The instruments were applied online using an electronic form (Google Forms) forwarded to each student's email and class (provided by the program's coordinator). Additionally, the survey was disseminated on social media and the

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official website of the University's School of Nursing. The participants signed free and informed consent forms when they complemented the form.

The answers were stored in one of the authors' Google accounts. First, data were tabulated in a spreadsheet, Microsoft® Excel (2013), and inconsistencies were verified. Next, data were transferred to the Statistical Package for the Social Sciences (SPSS), version 21.0. The quantitative analysis included: (1) descriptive statistics, presenting absolute and relative frequencies for the categorical variables, and central tendency measures (mean) and dispersion measures (standard deviation – SD) for the numerical variables; and (2) inferential statistical analysis, via statistical tests, to verify associations between the variables.

The Cronbach's alpha found in this study for the UCLA Loneliness Scale was α=0.95; α=0.97 for MOSS-SSS, and α=0.95 for DASS-21. All the scales presented good internal consistency, above the ideal parameter (α=0.70)[20].

Fischer's exact test was used to verify the association between the subcategories of the variable I feel socially accepted (yes/no) and categorical variables sex, field, income, marital status, alcohol consumption, tobacco consumption, illegal drugs, multiple drugs, preexisting diseases, psychiatric diagnosis, suicidal ideation, insomnia, self-injury, panic attacks, stress due to information overload, and less frequent exercise.

The Chi-square test was performed to verify associations between the subcategories of the variable I feel socially accepted (yes/no) and the categorical variables sexual orientation, area of origin, income, age group, race, religion, eating habits, life satisfaction, and mental health assessment.

The Kolmogorov-Smirnov test was applied to verify the normality of numerical data, i.e., whether data followed a normal distribution. Hence, for the variables that did not meet the criteria for the Chi-square test, non-parametric tests were used to compare the medians like the Mann-Whitney test (dichotomy variables: sex, income, marital status, alcohol consumption, tobacco consumption, illegal drugs, multiple drugs, preexisting diseases, psychiatric diagnostic, suicidal ideation, insomnia, self-injury, panic attacks, stress due to information overload, less frequent exercise, I feel socially accepted, sharing most intimate thoughts and feelings with someone, having someone to count on in any situation) and the Kruskal-Wallis test (categorical variables with three or more categories: sexual orientation, area of origin, income, age group, race, religion, eating habits, life satisfaction, preexisting diseases, mental health assessment, the relationship established between the students and those with whom they live, and community participation).

Spearman's Correlation Coefficient was used to verify the correlation between numerical variables (total score of the UCLA loneliness scale and DASS-21 subscales stress, anxiety, and depression, number of family members and friends with whom nursing undergraduate students feel like talking to and can talk about almost everything). A $p<0.05$ was set as statistically significant for all the tests.

The Institutional Review Board approved this study, and all ethical aspects concerning research involving human subjects were complied with according to Resolution No. 510/201621.

RESULTS

Socio-demographic characterization, social isolation, and loneliness

A total of 147 nursing students participated in the study. Of these, 85 (57.8%) felt socially accepted, while 62 (42.2%) did not feel socially accepted, i.e., they perceived social isolation. The socio-demographic characteristics concerning perceived social acceptance are described in Table 1. A significant statistical association was found between income, income assessment, and race with the variable "I feel socially accepted".

Regarding the indicator of social isolation, i.e., social contact, nine participants reported (6.1%) living by themselves. Of the 147 students, 103 (70.1%) constantly contacted their families and friends during the pandemic, and 95 (64.6%) shared their feelings about the pandemic.

Regarding the indicator of social isolation, discussion social network, 8.8% reported they had no one with whom they felt at ease to talk about everything and were considered socially isolated from the perspective of the discussion network indicator. Regarding community participation, 78 (53.1%) reported good participation, 57 (38.8%), regular, and 12 (8.2%) reported poor community participation.

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TABLE 1: Description of the participants according to socio-demographic variables and perceived social acceptance. Rio Grande, RS, Brazil 2020.

Variable	I feel socially accepted		Total n=147	p-value
	Yes n=85	No n=62		
Sex				0.420*
Female	80 (58.4%)	57 (41.6%)	137 (93.2%)	
Male	5 (50.0%)	5 (50.0%)	10 (6.8%)	
Sexual orientation				0.673**
Heterosexual	72 (59.5%)	49 (40.5%)	121 (82.3%)	
Homosexual	4 (44.4%)	5 (55.6%)	9 (6.1%)	
Bisexual	8 (57.1%)	6 (42.9%)	14 (9.5%)	
Other	1 (33.3%)	2 (66.7%)	3 (2.1%)	
Origin				0.489**
Rio Grande – RS	57 (55.3%)	46 (44.7%)	103 (70.1%)	
Other cities in RS	19 (67.9%)	9 (32.1%)	28 (19.0%)	
Another Brazilian state	9 (56.2%)	7 (43.8%)	16 (10.9%)	
Area of origin				0.323*
Urban	81 (59.1%)	56 (40.9%)	137 (93.2%)	
Rural	4 (40.0%)	6 (60.0%)	10 (6.8%)	
Income				0.048**
< 1 times the minimum wage (MW)	8 (57.1%)	6 (42.9%)	14 (9.5%)	
Between 1 and 2 times the MW.	28 (45.2%)	34 (54.8%)	62 (42.2%)	
3 times the MW	24 (66.7%)	12 (33.3%)	36 (24.5%)	
More than 3 times the MW	25 (71.4%)	10 (28.5%)	35 (23.8%)	
Income Assessment				<0.001*
Sufficient	68 (70.1%)	29 (29.9%)	97 (66.0%)	
Insufficient	17 (34.0%)	33 (66.0%)	50 (44.0%)	
Age group				0.937**
<20	4 (50.0%)	4 (50.0%)	8 (5.4%)	
20-29	58 (56.9%)	44 (43.1%)	102 (69.4%)	
30-39	12 (60.0%)	8 (40.0%)	20 (13.6%)	
40-49	10 (66.7%)	5 (33.3%)	15 (10.2%)	
50+	1 (50.0%)	1 (50.0%)	2 (1.4)	
Marital Status				0.280**
Does not live with/ does not have a partner	55 (54.5%)	46 (45.5%)	101 (68.7%)	
Live with a partner	30 (65.2%)	16 (34.8%)	46 (31.3%)	
Race				<0.001**
Caucasian	77 (67.5%)	37 (32.5%)	114 (77.6%)	
Afro-descendent	4 (26.7%)	11 (73.3%)	15 (10.2%)	
Mixed-race	4 (22.2%)	14 (77.8%)	18 (12.2)	
Religion				0.815**
None	29 (53.7%)	25 (46.3%)	54 (36.7%)	
Catholic	16 (69.6%)	7(30.4%)	23 (15.6%)	
Evangelical	14 (51.9%)	13 (48.1%)	27 (18.3%)	
Spiritist	13 (59.1%)	9 (40.9%)	22 (15.1%)	
Afro-Brazilian	10 (62.5%)	6 (37.5%)	16 (10.9%)	
Other	3 (60.0%)	2 (40.0%)	5 (3.4%)	

* Fischer's exact test **Chi-square test

Regarding the UCLA loneliness scale, 74 (50.3%) presented minimum loneliness, 44 (29.9%) presented mild loneliness, 23 (15.6%) reported moderate loneliness, and six (4.1%) intense loneliness. Mild, moderate, and intense loneliness were the levels considered for the prevalence of loneliness; a prevalence of 49.7% was found.

Regarding socio-demographic variables, only the variables: area of origin and income assessment appeared statistically significant in the Mann-Whitney test, which compared the median scores obtained in the UCLA loneliness scale. Regarding the area of origin, the median score of those living in the urban area was 22 (minimum loneliness), and the score of those in the rural area was 31.5 (mild loneliness) with p=0.048. Regarding income assessment, those who considered their income sufficient to meet their needs obtained a median score equal to 19 (minimum loneliness), and those who considered their income insufficient obtained a median score equal to 33 (mild loneliness) with a p <0.001.

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Relationship between loneliness and social isolation

A statistically significant difference was found when the median scores obtained in the loneliness scale were compared to the variables: I feel socially accepted, the relationship established with whom the student lives, most intimate thoughts and feelings were shared with someone, having someone to count on in any situation, and community participation (Table 2).

TABLE 2: Median scores obtained in the UCLA Loneliness Scale for the variables concerning social isolation. Rio Grande, RS, Brazil 2020.

Variables	Median score UCLA Loneliness Scale	P-value
I feel socially accepted		<0.001*
Yes	16	
No	34.5	
Relationship between the students and other residents		0.003**
Good	20	
Regular	36	
Poor	41	
Shared intimate thoughts and feelings with someone		<0.001*
Yes	20	
No	35	
Count on someone in any situation		<0.001*
Yes	21	
No	38.5	
Community participation		<0.001**
Good	19	
Regular	31	
Poor	36	

* Mann-Whitney test ** Kruskal-Wallis test

Regarding the discussion network, a negative and statistically significant correlation was found in the Spearman's test between the total score obtained in the UCLA loneliness scale and the number of family members (ρ=-448 and p<0.001) and friends (ρ=-362 and p<0.001) with whom the undergraduate student felt at ease to talk about almost anything. The larger the number of family members and friends, the lower the score obtained in the loneliness scale, i.e., the more friends and relatives, the lower the loneliness.

Health characteristics, habits, and relationship with social isolation and the COVID-19 pandemic

Eighty of the participants (54.4%) consumed alcohol, 9 (6.1%) were smokers, 43 (29.3%) had used or still used illegal drugs, and 20 (13.6%) had used or still used multiple drugs. Twenty-nine (53.7%) individuals of those consuming alcohol increased their consumption during the pandemic, as did 6 (66.7%) smokers and 5 (11.6%) individuals who used illegal drugs. Regarding eating habits, most reported their regular habits (42.2%), while 107 (72.8%) sought to eat healthier during the pandemic.

Ninety-three of the 147 (63.2%) participants were satisfied with their lives, 44 (29.9%) were moderately satisfied, and 10 (6.8%) were dissatisfied. Of the 147 participants, 37 (25.2%) presented a preexisting disease. Twenty-seven (73%) of these 37 individuals presented a psychiatric diagnosis. Among the study's participants, 32 (21.8%) were receiving a psychological treatment, 19 (12.9%) received psychiatric treatment before the pandemic, 14 (9.5%) started a psychological treatment, and 9 (6.1%) initiated a psychiatric treatment because of the pandemic.

Regarding mental health self-assessment, 9 (6.1%) reported very good mental health, 45 (30.6%) reported good mental health, 68 (46.3%) regular, 19 (12.9%) reported poor mental health, and 6 (4.1%) reported very poor mental health. Of the 147 participants, 60 (40.8%) faced sleep problems during the pandemic. Regarding suicide, 58 (39.5%) already thought about committing suicide at some point before the pandemic, 16 (10.9%) thought about suicide again because of the difficulties faced during the pandemic. Note that 29 (19.7%) participants reported self-injuries at some point before the pandemic, while 3 (2%) committed self-injuries during the pandemic, and 38 (25,9%) experienced panic attacks during the pandemic.

Of the 147 participants, 108 (73.5) experienced stress due to an overload of information concerning the coronavirus/COVID-19 during the pandemic, 82 (61.3%) reported physical exercises, and 56 (38.1%) exercised less frequently during the pandemic. No statistically significant association was found (p<0.05) between the consumption of alcohol or tobacco, drug use, multiple drugs, eating habits, psychiatric diagnosis, insomnia, self-injury, panic attacks,

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stress due to information overload, or less frequent exercise, with the variable "I feel socially accepted"; only the variables: life satisfaction (p<0.001), mental health self-assessment (p<0.001), and suicidal ideation (p<0.004) were associated with the "I feel socially accepted" variable.

Health characteristics, habits, and relationship with loneliness

No statistical significance (p<0.05) was found in the test comparing the median scores obtained in the loneliness scale and the variables alcohol consumption, tobacco consumption, drug use, multiple drugs, and eating habits. Table 4 presents the variables for which a significant difference was found with the median scores obtained in the UCLA loneliness scale.

TABLE 3: Median scores obtained in the UCLA Loneliness Scale for the participants' health and habits. Rio Grande, RS, Brazil 2020.

Variables	Median	P-value
Life satisfaction		<0.001**
Satisfied	16	
Regular	31.5	
Dissatisfied	37	
Mental Health self-assessment		<0.001**
Good	12	
Regular	25.5	
Poor	34	
Psychiatric Diagnosis		0.004*
Yes	29	
No	20.5	
Insomnia		0.011*
Yes	27	
No	18	
Suicidal Ideation		<0.001*
Yes	33	
No	15	
Self-injury		<0.001*
Yes	35	
No	19	
Panic Attacks		<0.001*
Yes	29	
No	18	
Stress due to information overload		0.004*
Yes	25	
No	18	
Less frequent exercise		0.043*
Yes	24.5	
No	19.5	

* Mann-Whitney test ** Kruskal-Wallis Test

Regarding mental health, 42.9% of the students presented some level of stress, 42.3% presented some level of anxiety, and 54.2% reported some level of depression, according to DAAS-21. The Spearman's test revealed a negative and statistically significant correlation between feeling socially accepted and anxiety (ρ= -0.256 and p<0.002), depression (ρ= -0.322 and p<0.001), and stress (ρ=-0.281 and p<0.001) levels. The participants who felt socially accepted presented lower stress, anxiety, and depression levels. A positive statistically significant correlation was found between the total score obtained in the UCLA loneliness scale and scores obtained in anxiety (ρ= +575 and p<0.001), depression (ρ= +682 and p<0.001), and stress (ρ=558 and p<0.001) subscales. The higher the score obtained in the stress, anxiety, and depression subscales, the higher the score obtained in the loneliness scale, i.e., the higher one's stress, anxiety, or depression, the more intense the perception of loneliness.

Impact of the COVID-19 on social isolation and loneliness

Of the 147 participants, 107 (72.8%) felt lonelier during the pandemic. The Mann-Whitney test revealed a statistically significant difference (p<0.001) between the median scores obtained in the loneliness scale of those who felt lonelier during the pandemic and those who did not (median scores: 26 –mild loneliness; and did not present

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loneliness = 10.5 – minimum loneliness). Of the 147 participants, 124 (84.4%) felt more socially isolated during the pandemic. However, no statistically significant difference (p=0.915) was found in the Mann-Whitney test between the median scores obtained in the loneliness scale and feeling more isolated and not feeling isolated.

DISCUSSION

Social isolation was subjectively assessed based on the students' reports about whether they felt socially accepted or not, according to Zamora-Kapoor et. al[15]. A high percentage of the students (42.2%) perceived themselves as socially isolated. This result is similar to that reported by an American study, in which 40.7% of the nursing students reported social isolation, a percentage even higher than that found among college students in general and health professionals (19.4%)[22].

This is the first study to analyze social isolation among college students considering the indicators of social isolation described by Zavaleta et. al[16]. These indicators suggest the presence of objective social isolation among the students addressed here, evidencing socially isolated students according to the network discussion indicator (8.8%) and social support indicator (6.8%). The pandemic impeded a more reliable assessment of social isolation based on social contact, considering that it may have changed how social contact is established in general.

The Brazilian and international literature indicates results similar to those found in this study regarding the prevalence of loneliness[11,12,23]. Furthermore, an association was found between loneliness and the variables: feeling socially accepted, the relationship between the students and those living in the same residence, sharing intimate thoughts and feelings with someone, counting on someone in any situation, and community participation. Additionally, the total score obtained in the UCLA loneliness scale was related to the number of family members and friends with whom the undergraduate nursing students felt at ease and could talk about anything. Hence, note that the relationship between social isolation, loneliness, and social support is widely acknowledged in the literature, in which social support is considered a protective factor[2,24].

Not feeling socially accepted was associated with self-assessment of income and race. Likewise, the variables such as area of origin and income self-assessment were associated with the median scores obtained in the UCLA loneliness scale. In general, students presenting differences from most of the remaining students, such as minority race or ethnicity, low socioeconomic level, or having lived in a rural area before entering the university, and migration itself, account for the greater prevalence of loneliness among college students[23,25]. There was an association between financial tension, psychological symptoms, and academic and social integration among college students, highlighting that perceived stress is an important mechanism in this process[26].

An association was found between feeling socially accepted, life satisfaction, mental health self-assessment, and suicidal ideation. Likewise, loneliness was associated with life satisfaction, mental health self-assessment, psychiatric diagnosis, insomnia, suicidal ideation, self-injury, panic attacks, stress due to information overload, and less frequent exercise. The relationship between feeling socially accepted and anxiety, depression, and stress levels in the subscales was also verified. A positive and statistically significant correlation was found between the total score obtained in the UCLA loneliness scale and the scores obtained in the anxiety, depression, and stress subscales.

Social isolation and loneliness result in multiple consequences for the individuals and society as a whole, as they are associated with an extensive range of negative psychological and physical conditions[1,3]. Associations between social isolation, loneliness, and depression[27] have been found in the general population, as well as between loneliness, social isolation, suicidal ideation, and suicidal behavior[15,28]; loneliness and anxiety[28]; and between loneliness and panic attacks[28].

Specifically, among college students, social isolation and loneliness were associated with depression6, anxiety,[29] and negative emotions[6]. In addition, loneliness, regardless of social isolation, was associated with mental health problems[30], depression[23,31], anxiety[23], insomnia[31], lower life satisfaction[32], self-mutilation[32], and physical inactivity[33].

Some of the variables tested here did not present significant associations, though the results of previous studies support associations between loneliness and alcohol consumption[33] and tobacco consumption,[34] for instance. The pandemic might explain this divergent result, considering it may have triggered other factors that influence the variables addressed here.

Regarding the impact of the pandemic, an association was found between the loneliness scale and whether the participants felt lonelier during the pandemic. Note that global concerns with mental health emerged because of the COVID-19 pandemic[9]. The wellbeing of students decreased, and psychological distress increased during the pandemic, while a lack of social contact such as social isolation and loneliness are likely accountable, at least in part, for such distress[10].

This study's contribution lies in unprecedented data concerning social isolation, loneliness, and related factors among undergraduate nursing students during the COVID-19 pandemic. These health problems represent a challenge within nursing programs, and knowing about these supports the implementation of interventions directed to the students' mental health.

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Study Limitations

This study's limitations include sample loss due to the difficulty in contacting students and having them participate online. Hence, further studies are needed in other settings addressing larger samples to identify the dimension of these problems, considering the Brazilian context, where there are important gaps in this field.

CONCLUSION

The results show that 42.2% of the students perceived social isolation, 8.8% experienced social isolation according to the indicator network discussion, and 6.8% experienced social isolation according to the social support indicator. Loneliness was presented by 49.7% of the students. Social isolation and loneliness were associated with depression, anxiety, stress, and other variables.

This study's results contribute to advancement in the field. Therefore, teaching institutions, public policymakers, and health managers, in addition to health workers and professionals in the educational field, should devise interventions. Furthermore, such strategies should support students experiencing social isolation within the program or outside the program, including professors, health workers, families, and friends, considering that a social support network impacts all these problems.

Finally, social isolation and loneliness already represented a significant challenge before the COVID-19 pandemic, but this global emergency made it even more challenging to understand these phenomena.

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