PESQUISA | RESEARCH

Chronic pain, anxiety, and depressive symptoms in nursing students in pandemic times

Dor crônica, ansiedade e sintomas depressivos em estudantes de Enfermagem em tempos de pandemia

Dolor crónico, ansiedad y síntomas depresivos en estudiantes de Enfermería en tiempos de pandemia

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ABSTRACT

Objectives: To identify the manifestations of chronic pain (CP), anxiety, and depressive symptoms in nursing students at a federal public university in pandemic times, analyzing the association between these variables and to describe population characteristics. **Method:** This was a quantitative, cross-sectional, observational, and analytical study carried out from July to November 2020 with a sample of 119 nursing students enrolled in the second half of 2020. Questionnaires were used to characterize sociodemographic and lifestyle habits, the body map of the Multidimensional Pain Evaluation Scale, the State-Trait Anxiety Inventory, and the Patient Health Questionnaire-9. **Results:** Nursing students in the studied sample are mostly female, with a mean age of 23.4 years, and 37.8% live with CP. Students with CP had higher anxiety levels and more depressive symptoms. There was an association between PC, anxiety, and depressive symptoms in this sample. **Conclusion:** During the pandemic period investigated, an association was found between PC, anxiety, and depressive symptoms in the population of nursing students at the studied university, indicating that those who live with PC experience higher anxiety levels and more depressive symptoms than students without PC.

Keywords: Anxiety; Chronic Pain; Depression; Mental Health. Nursing Students.

RESUMO

Objetivos: Identificar as manifestações de dor crônica (DC), ansiedade e sintomas depressivos em estudantes de Enfermagem de uma universidade pública federal em tempos de pandemia, analisando a associação entre essas variáveis, e descrever as características sociodemográficas e de hábitos de vida na população estudada. **Método:** Estudo quantitativo, transversal, observacional e analítico, realizado de julho a novembro de 2020, com amostra de 119 estudantes de Enfermagem matriculados no segundo semestre de 2020. Foram utilizados questionários para caracterização sociodemográfica e de hábitos de vida, o mapa corporal da Escala Multidimensional de Avaliação de Dor, o Inventário de Ansiedade Traço-Estado e o Patient Health Questionnaire-9. **Resultados:** A maioria dos estudantes de Enfermagem da amostra é do sexo feminino, com idade média de 23,4 anos, e 37,8% convivem com DC. Os estudantes com DC apresentaram maiores níveis de ansiedade e mais sintomas depressivos. Verificou-se associação entre DC, ansiedade e sintomas depressivos nessa amostra. **Conclusão:** Durante o período pandêmico investigado, foi encontrada associação entre DC, ansiedade e sintomas depressivos na população de estudantes de Enfermagem da universidade investigada, indicando que os acadêmicos com DC experimentam maiores níveis de ansiedade e mais sintomas depressivos do que aqueles sem DC.

Palavras-chave: Ansiedade; Depressão; Dor Crônica; Estudantes de Enfermagem; Saúde Mental.

RESUMEN

Objetivos: Identificar las manifestaciones de dolor crónico (DC), ansiedad y síntomas depresivos en estudiantes de enfermería de una universidad pública federal en tiempos de pandemia, analizando la asociación entre estas variables; y describir las características de la población. **Método:** Estudio cuantitativo, transversal, observacional y analítico, realizado de julio a noviembre de 2020, con una muestra de 119 estudiantes de enfermería matriculados en el segundo semestre de 2020. Se utilizaron cuestionarios para caracterizar hábitos sociodemográficos y de estilo de vida: el mapa corporal de la Escala Multidimensional de Evaluación del Dolor, el Inventario de Ansiedad Rasgo-Estado y el Patient Health Questionnaire-9. **Resultados:** La mayoría de los estudiantes de enfermería de la muestra estudiada son mujeres, con una edad media de 23,4 años, y el 37,8% vive con DC. Los estudiantes con DC tenían niveles más altos de ansiedad y más síntomas depresivos. Hubo una asociación entre DC, ansiedad y síntomas depresivos en esta muestra. **Conclusión:** Durante el período pandémico investigado, se encontró asociación entre DC, ansiedad y síntomas depresivos en la población de estudiantes de Enfermería de la universidad estudiada, señalando que quienes viven con DC experimentan mayores niveles de ansiedad y más síntomas depresivos que los estudiantes sin DC.

Palabras clave: Ansiedad; Depresión; Dolor Crónico; Estudiantes de Enfermería; Salud Mental.

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INTRODUCTION

About four decades after the International Association for the Study of Pain (IASP) developed its definition for pain, efforts by researchers around the world made it possible to revise this concept,[1] which was criticized for not considering the relationship between the mind and body in its multiplicity and for neglecting those unable to communicate, among other reasons. This new concept has provided a broader scope of what pain means to those who can feel it.[2,3]

Thus, pain is currently conceptualized as an unpleasant sensory and emotional experience, which can be associated or similar to the one associated with actual or potential tissue injury.[1] Nevertheless, complementary notes on the definition point to the need to assess pain holistically, understanding that each life experience can influence the biopsychosocial sphere and, in turn, the perception of pain.[1,2] Moreover, it is emphasized that personal accounts must always be respected and that other pain behaviors must be considered, in addition to verbal description, since the inability to communicate does not invalidate the individual from experiencing pain.[1,2]

Given this scenario, chronic pain (CP) stands out as a condition that involves suffering and interferes with daily activities, usually accompanied by anguish,[4] among other feelings, signs, and symptoms. Chronic pain can be linked to a primary or secondary condition. The chronic primary pain syndrome is understood as pain persistent for three months or more and associated with significant emotional distress in which symptoms are no longer well related to other diagnoses. Chronic secondary pain syndrome is compatible with more specific diseases in which pain can be one of the initial symptoms.[4]

In developing countries in Latin America, Asia, and Africa, an adjusted proportion of CP is estimated to affect 18% of the general population.[5] A study among 18- to 25-year-olds in the United Kingdom showed CP rates of 14.3%.[6] In Norway and Spain, the prevalence of CP is 54%[7] and 30%,[8] respectively, among university students aged 18 and older; in Norway, the prevalence is even higher among female university students, reaching 59.9%.[7] In Sweden, nursing students have a higher prevalence of musculoskeletal symptoms (63.8%), especially pain. Among these symptoms, it is possible to identify that they negatively impacted physical activities in 63.3% of the cases and that these students may be prone to chronification of musculoskeletal symptoms.[9]

During the data survey, no studies on the prevalence of CP were found to accurately estimate numbers in Brazil during the COVID-19 pandemic. Hence, there is a lack of research on the subject with a representative sample of the Brazilian population in general or even of Brazilian university students. Nevertheless, young people are a layer of the population to which pain researchers must invest more attention as the current life processes generate more and more health problems with the possibility, if not treated early, of causing future issues. This fact was justified in a French study that verified the possibility that students with back pain have a worse quality of life compared to those without back pain.[10] Upon entering higher education, college students may face situations that demand effective cognitive and emotional resources, albeit the difficulty in facing such situations may amplify anxiety levels and worsen the quality of life in such an important moment.[11] Health education students, in particular, may also experience mental disorders such as depression and anxiety, associated with other manifestations that involve distress, restlessness, affliction, muscle tension, difficulty concentrating, fatigue, irritability, sleep disorders, and concern.[12]

Anxiety is conceptualized as the presence of unpleasant and vague feelings, such as fear and apprehension, and may be characterized by tension or discomfort due to the anticipated sensation of danger or something unknown or strange. This anxiety and the fear that comes from it are considered pathological when they are disproportionate to their stimulus and interfere with individual's quality of life.[13] In turn, depression is an illness characterized by various symptoms, including changes in mood, behavior, and patterns of thought and perception. It also involves physical complaints and is considered a high-risk factor for suicide, in addition to having as its cause a heterogeneous interaction between biopsychosocial, environmental, and spiritual factors and being involved in several aspects that can occur at any time in life, regardless of what the triggering factors are.[14]

It should be considered that pain, anxiety, and depression are sometimes coexisting health conditions as they are interrelated.[15] Furthermore, it is necessary to recognize pain, anxiety, and depression symptoms during students' undergraduate education, especially among future nursing professionals, to initiate intervention measures (e.g., teaching self-care and mental health protection actions). In this context, studies with the present proposal can help substantiate the development of prevention mechanisms, which undergraduate courses can implement, and encourage students to exercise health promotion measures.[16]

It is noteworthy that the present article was developed amid the COVID-19 pandemic, a disease caused by the SARS-CoV-2 virus, and that no studies were found that analyzed the association between the variables CP, anxiety, and depressive symptoms in university students. This further justifies the importance of this study, considering that its results will contribute to shedding more light on the situation that these students are experiencing in the current context.

This study aimed to identify the manifestations of CP, anxiety, and depressive symptoms in nursing students at a Brazilian federal public university during the COVID-19 pandemic by analyzing the association between these variables and describing the sociodemographic and lifestyle characteristics of the population studied.

METHOD

This quantitative, cross-sectional, observational, and analytical study is guided by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) tool. Data were collected via a virtual environment between July and November 2020. Due to social distancing measures and safety

protocols aimed at reducing the spread of COVID-19, students were recruited using the social media Facebook, Instagram, and WhatsApp groups and by e-mails, individually and with a hidden list, forwarded with support from the secretariat of the university's nursing department. A link was provided to access the electronic form (Google Forms), which contained the informed consent form.

Therefore, 167 students enrolled in the second semester of 2020 in the Nursing course of a federal public university were invited; a 119-student sample was obtained, corresponding to 71.3% of the invited population. The exclusion criteria included students under 18 and dropping out of the course. The research protocol consisted of data collection via questionnaires of sociodemographic characterization and lifestyle habits. One of the questionnaires used was the 11-point Visual Numerical Scale (VNS)[17,18] for quantitative analysis of pain intensity, which corresponds to a horizontal line with scores from 0 (zero) to 10 (ten), from which the individual positions himself according to the average pain intensity in the last week before the interview: 0 (zero) corresponds to no pain, 1 to 3 to mild pain, 4 to 7 to moderate pain, and 8 to 10 to severe pain. A body map was also used, which is part of the Multidimensional Pain Assessment Scale (EMADOR),[19] to identify the sites of pain and inquire about the frequency of episodes and use of medication to treat it; this instrument was scored as "almost every day," "once or twice a week," "once every 15 days," and "once a month." Pain present for six months or more, as recommended by the IASP for scientific research, was considered CP.[20]

Identification of depressive symptoms in the last two weeks before the application of the study was performed using the Patient Health Questionnaire-9 (PHQ-9),[21] which is a self-administered questionnaire composed of 9 Likert-type questions with scores ranging from 0 to 3, being 0 for "not at all," 1 for "several days," 2 for "more than half the days," and 3 for "almost every day." This questionnaire was developed and validated for the Portuguese language,[22] and, as recommended,[21] the severity score was determined in 5 intervals, being: from 0 to 4 being "no depression," 5 to 9 being "mild depression," 10 to 14 being "moderate depression," 15 to 19 being "moderately severe depression," and 20 to 27 being "severe depression." A cutoff point ≥5 was used to positively track the presence of depressive symptoms.[22]

As for anxiety, the State-Trait Anxiety Inventory (STAI) was used.[23] The scale was developed and validated for the Portuguese[24,25] language and assesses anxiety considering two concepts: anxiety state (A-state) and anxiety trait (A-trait). The A-state is considered a transient emotional or human body condition in which there are unpleasant feelings of tension and apprehension consciously noticed in which there is increased activity in the autonomic nervous system. In contrast, A-trait is considered the presence of latent anxiety that can be triggered some experienced situation. The STAI is a self-administered questionnaire used to assess A-trait in 20 questions and A-state signs in 20 questions. Each question is answered on a 4-point Likert scale, where: 1 is "absolutely not," 2 is "a little," 3 is "quite a bit," and 4 is "very much." The STAI scores range from 20 to 80 points (sum of responses) on each questionnaire with no cut-off score.[23]

The data were analyzed using descriptive statistics, absolute percentage frequencies (qualitative variables), and measures such as mean, standard deviation, minimum, median, and maximum (quantitative variables). For the comparison of CP (yes/no) as to A-trait and A-status, the Student t-test was proposed. The prevalence ratio (PR) of depressive symptoms between patients with and without CP was estimated using the log-binomial regression model. All graphs presented were made using the R software (version 4.0.0), and the analyses were performed using the SAS 9.4 software. A 5% significance level was adopted for all comparisons.

This study was approved by the Research Ethics Committee with Human Beings of the São Carlos Federal University (UFSCar) and approved under CAAE no. 20566319.0.0000.5504, opinion no. 3.626.136, and amendment no. 4.166.359. All participants virtually agreed to the informed consent form and could save, on their computers, the copy signed by the responsible researcher.

RESULTS

The students were mostly female (84.87% of the sample; n=101), aged between 18 and 58 years (mean of 23.4 years). Sociodemographic and lifestyle data are listed in Table 1.

Regarding pain, 47.9% (n=57) reported feeling pain; however, 37.8% (n=45) have CP, being female students the most affected, with 39.6% (n=40). From these 45 students, regarding how long they have been living with pain, 22.2% (n=10) indicated a period of six months to one year, 46.7% (n=21) between one and five years, and 31.1% (n=14) have been living with pain for five years or more. The data related to the characterization of CP as to intensity is shown in Table 2.

Out of the students with CP, 46.7% (n=21) feel pain almost every day, 42.2% (n=19) once or twice a week, 6.7% (n=3) once every 15 days, and 4.4% (n=2) once a month. As for the intensity of pain, a significant percentage of the students declared to feel moderate pain when asked about the last 24 hours and the last week, reaching 57.8% (n=26) in both cases.

Approximately 68.9% (n=31) of students with CP report not taking medications for pain, while 31.1% (n=14) confirm use. Among those who do medicate, 35.7% (n=5) do so nearly every day, 57.1% (n=8) once or twice a week, and 7.14% (n=1) once a month. The use of non-drug treatments for pain was reported by 46.7% (n=21) of students with CP.

Regarding the location of CP, 11.1% (n=5) of the students felt pain in one place, 15.6% (n=7) in two places, and 73.3% (n=33) in three places or more. Moreover, 60% (n=27) of the students with CP have pain in the frontal region of the skull, 46.7% (n=21) in the lumbar region, 42.2% (n=19) in the cervical region, 37.8% (n=17) in the right and left scapular regions, and 35.6% (n=16) in the right and left gluteal regions. Other 30 anatomical regions were also pointed out by students with CP, albeit in lower prevalence ranging from 2.2 to 20%.

Table 1. Sociodemographic and lifestyle characteristics of the nursing students (n=119), São Carlos, São Paulo, Brazil, 2020.

Variable	n*	Percentage
Sex		
Female	101	84.87
Male	18	15.13
Gender Identity		
Cis gender (identifies with their biological sex)	111	99.11
Non-binary	1	0.89
Marital status		
Married or living with a partner	10	8.4
Divorced/separated/divorced	1	0.84
Single	108	90.76
Currently works		
No	106	91.38
Yes	10	8.62
Skin Color		
Yellow	2	1.68
White	71	59.66
Indigenous	5	4.2
Brown	25	21.01
Black	16	13.45
Religion		
Religious	81	75
Not religion	27	25
Practices religion		
No	53	50.48
Yes	52	49.52
Alcoholic beverage		
Does not ingest	32	26.89
Yes, only on special occasions (parties, birthdays, events)	65	54.62
Yes, daily	0	0
Yes, weekly	22	18.49
Tobacco		
Does not use	101	84.87
Yes, only on special occasions (parties, birthdays, events)	9	7.56
Yes, daily	5	4.2
Yes, weekly	4	3.36
Illicit drugs		
Does not use	93	78.15
Yes, only on special occasions (parties, birthdays, events)	21	17.65
Yes, daily	2	1.68
Yes, weekly	3	2.52

Source: The authors (2020).
Note: *Differences in n correspond to questions that participants did not answer and were disregarded.

Table 2. Chronic pain intensity among nursing students (n=45), São Carlos, São Paulo, Brazil, 2020.

Variable	n	Percentage
Pain at the time of the interview		
Absence of pain	5	11.1
Mild pain	21	46.7
Moderate pain	19	42.2
Severe pain	0	0
Pain in the last 24 hours		
Absence of pain	3	6.7
Mild pain	14	31.1
Moderate pain	26	57.8
Severe pain	2	4.4
Pain in the last week		
Absence of pain	0	0
Mild pain	11	24.4
Moderate pain	26	57.8
Severe pain	8	17.8

Source: The authors (2020).

The comparative data between students with and without CP and their levels of anxiety, according to the scores obtained in the STAI questionnaires, show higher rates of A-state and A-trait among those with CP (Table 3).

Regarding anxiety, students with CP had on average 7.42 more A-state and 7.21 more A-trait scores compared to those without CP, which also evidences more concentrated scores, as shown in Table 4.

Among the investigated students, 78.99% (n=94) reported symptoms of depression at some level of intensity, from mild to severe depression. In contrast, those without CP (n=74) manifested depressive symptoms in 70.27% (n=52) of cases, and students with CP (n=45) showed an alarming rate of 93.3% (n=42), estimating a PR of 1.33 of depressive symptoms among students with CP (Table 5).

Students with CP achieve rates equivalent to 33.33% (n=15) of mild depression, 26.67% (n=12) of moderate depression, 15.56% (n=7) of moderately severe depression, and 17.7% (n=8) of severe depression, while the rates of students without CP consist of 24.32% (n=18), 16.22% (n=12), 22.97% (n=17), and 6.76% (n=5), respectively.

DISCUSSION

The university's nursing students in question presented characteristics similar to those investigated in previous studies,[26,27] being mostly women, young, and with healthy lifestyle habits. Nonetheless, it should be noted that data collection occurred after the start of Emergency Non-Presential Education at the institution due to the COVID-19 pandemic.

Table 3. STAI scores among nursing students with and without chronic pain (n=119), São Carlos, São Paulo, 2020.

Chronic pain	Variable	n	Mean	Standard deviation	Minimum	Median	Maximum
No	A-state	74	47.65	12.32	21	48	79
	A-trait	74	47.05	13.21	20	46	80
Yes	A-state	45	55.07	9.44	33	58	70
	A-trait	45	54.27	11.80	28	54	76

Source: The authors (2020).

Table 4. Comparison of STAI scores between nursing students with and without chronic pain (n=119), São Carlos, São Paulo, 2020.

Comparison	Variable	Estimated difference	Confidence interval (CI)		*p*-value
Chronic pain (yes vs no)	A-state	7.42	3.18	11.66	<0.01
	A-trait	7.21	2.46	11.97	<0.01

Source: The authors (2020).

Table 5. Comparison of the prevalence of depressive symptoms among nursing students with and without chronic pain (n=119), São Carlos, São Paulo, 2020.

Comparison	Prevalence ratio (PR)	95% Confidence interval (CI)		*p*-value
Chronic pain (yes vs no)	1.33	1.12	1.57	<0.01

Source: The authors (2020).

The uncertainties about the new teaching strategy and personal situations experienced caused by the pandemic may have influenced the anxiety and depression rates in this study, since the pandemic impacted the mental health of university students, as demonstrated in a study developed in Portugal.[28] The indices of anxiety and depressive symptoms found in our study are consistent with the situation of Brazilians at the time when Brazil led a list[29] of 11 countries with the highest prevalence of anxiety and depression during the pandemic, approaching 63 and 58%, respectively.

Notably, in this study, indices of CP were found that can be considered high for a young population. When symptoms of anxiety and depression accompany this pain, as is the case of the students surveyed herein (higher rates of anxiety and depressive symptoms were found in students with CP), it is an alert for researchers to identify possible causes of these symptoms. Knowledge of such causes enables the development of measures to assist in managing these conditions.

In this sense, with prevalence rates ranging from 18 to 51% in developing countries,[5] CP is a health condition that affects the quality of life of those affected and is aggravated by anxiety and depressive symptoms.[30] It is likely that anxiety and depressive symptoms among those living with CP are triggered by the lack of laughter, joy, pleasure, and humor caused by a painful feeling, and it is pivotal to value these points in the search for intervention measures.[31]

It is noteworthy that this study indicates that 10.1% of the sample studied had been living with pain for up to six months. This time does not characterize CP according to the IASP criteria for conducting research,[20] although it is an important piece of data that must be better investigated in the future due to the possibility of the condition worsening in the absence of adequate treatment. Moreover, we must also consider the pandemic context in which these data were collected, and our findings forewarn the need for and importance of investigating this issue in such a context and the urgency of designing support measures for this population.

Researchers have reported that after the start of quarantine in the United Kingdom, the CP population had increased self-reported pain intensity, and the rates of catastrophizing pain and pain intensity were found to be correlated. Thus, as pain intensity increased during the pandemic among those already living with CP, catastrophizing pain rates also increased, suggesting that this is one of the critical issues to consider in pain management interventions.[32]

By comparing the prevalence of CP among nursing students in this study (37.8%) with those of a public university in Goiás State (59.7%), a much lower percentage is observed.[26] Nevertheless, it is not possible to hypothesize or make comparisons between the groups as there is a significant time interval between sample analyses.

The prevalence of CP in our study was higher among female students (39.6%), which is similar to other studies produced in Brazil[33,34] and the world,[7,9,10] thus highlighting that women are more prone to CP. This fact may be related to female genetics and/or psychosocial factors, and the neuroimmune modulation of pain

is the most consolidated evidence so far regarding the existence of differences in the way pain affects the sexes, albeit there is still a lack of data to affirm that it is sexual dimorphism.[35] Despite the similarities of the results, the rate of CP in women demonstrated here in is lower than the values found in other studies conducted in Brazil, which reach 97.6% of pain prevalence among nursing students in Goiás State.[26]

As for pain intensity, nursing students in this study had moderate pain in 42.2 to 57.8% of the cases, from the last week before the interview to the moment of the interview, as well as severe pain in 4.4 to 17.8% of the cases, from the last week before the interview to 24 hours before it. In Goiás State, nursing students presented similar conditions, with a prevalence of moderate pain in 49% of the cases,[26] while a rate of 15.2% of undergraduate students with moderate to severe pain was found in Norway.[7]

The sites of higher incidence of CP reported by the students included the frontal regions of the skull (60%), lumbar region (46.7%), cervical region (42.2%), scapular and thoracic spine region (37.8%), and gluteal region (35.6%).[7] Notably, students with back pain may have a worse quality of life compared to those without back pain.[10] Furthermore, among adults, back pain may be influenced by financial concerns,[36] be related to limitations in daily biopsychosocial activities, and anxiety-depression disorders, and CP may even be linked to poorer family functioning.[37]

Similar data found in the United States highlight the need to develop research on CP in the pandemic period.[38] The respective study points to the increase in pain intensity and interference and the influence of social distancing measures during the pandemic on this increase.[38] Additionally, variables such as being female and psychological factors such as anxiety and depression are associated with greater pain severity and interference during the pandemic.[38] In China, on the other hand, young people and health workers were shown to have a high risk of psychological problems in the same context.[39]

Most students with CP in the present study (73.3%) reported feeling pain in three or more places, a percentage slightly above a study with undergraduate students from a municipality in Maranhão State (67%)[40] and substantially higher than undergraduate students from Norway (19.1%).[7] Given these findings, we suggest investigating the relationship between these pain sites and their possible causes with the students' daily activities while considering variables such as time dedicated to studying, study location, and ergonomic posture during activities. It is inferred that the pandemic period can also intensify CP, as social isolation and the need to perform teaching remotely, consequently requiring students to remain sedentary and/or sitting for long periods in front of the computer and/or other electronic devices (cell phones or tablets).

The present study points to a strong relationship between CP, anxiety, and depressive symptoms. Nursing students with CP showed higher anxiety scores (A-state 55.07% and A-trait 54.27%), scoring a higher difference of 7.42 and 7.21 in A-state and A-trait, respectively, compared to students without CP (Table 4).

Anxiety and depressive symptoms interfere with pain symptoms[41] and may be caused by the concern and mental rumination experienced by undergraduate students, which, it seems, are related to pain intensity, depression, and social anxiety,[12] in addition to the negative effects caused by the COVID-19 pandemic.[28] Hence, it becomes vital to recognize data about these conditions to identify damage to the quality of life of students. These facts also require the university to implement mental health programs with strategies to promote mental health and therapeutic actions, articulating the psychosocial care network of the municipality, as well as intersectoral services.

The pandemic led to increased anxiety and depression among university students,[28] promoting negative effects on their mental health.[42] Anxiety may be related to pain intensity and alcohol abuse among undergraduate students,[43] alerting to another risk factor among nursing students. As for depressive symptoms, 78.99% of students in the sample presented these symptoms, which is considered a relevant index that becomes even more significant among nursing students with CP, reaching a concerning prevalence of 93.33%.

Students with CP in this population still present higher levels of mild (33.33%), moderate (26.67%), and severe (17.78%) depression compared to those without CP. Moreover, we noted that CP is related to depressive symptoms in a PR of 33% (Table 5), thus deserving distinction among the health conditions experienced by nursing students who live with depression. These results corroborate a study carried out in a nursing higher education institution in the Federal District State.[44]

In Rio Grande do Sul and the Federal District States, a prevalence of 25.3[45] and 19.2%,[44] respectively, were found for moderate to severe depressive symptoms among nursing students, while 34.7% of the students participating in a study at a federal institute in Rio Grande do Sul State presented such symptoms during the COVID-19 pandemic.[14]

Developing this discussion was hampered, in part, by the lack of more recent literature regarding the prevalence of CP among students, especially nursing students, in times of a pandemic. Hence, this paper, which was written at the beginning of a post-pandemic period, underlines the need for new research that identifies the current scenario of CP, anxiety, and depressive symptoms in university students. Such data will help course coordinators plan measures for these students' care when they return to classroom activities.

Studies have suggested that intervention measures to manage CP,[12] anxiety,[12,28,43] and depressive symptoms[12,14,28,44,45] must be encouraged. Therefore, our findings may help higher education institutions subsidize the development of interventions to stimulate improving these physical and mental health conditions, as evidenced by other authors and the quality of life of students.[11,46,47]

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE

This study was conducted during the 2020 COVID-19 pandemic and thus provides highly relevant information about the health of nursing students in a Brazilian federal university at that time. These

students presented a high rate of acute pain and a significant prevalence of chronic pain. In most cases, this condition had been occurring between one and five years before, with intensity levels ranging from mild to severe pain, thereby highlighting the presence of moderate pain in the last week before data collection. The sites of pain most reported by those who live with CP were the frontal cranial, posterior thoracic, lumbar, and gluteal regions. The students who had pain for less than six months, on the other hand, are part of a population that can experience CP if this pain is not properly managed.

High levels of anxiety and depressive symptoms were evidenced in this population during the pandemic. The indices of anxiety and depressive symptoms among students with CP stand out, which, compared to the indices of students without CP, were higher, making it possible to identify an association between these conditions and revealing, therefore, the indispensability of a more focused look at the mental health of these students.

As a limitation of this study, we identified the non-adherence of students as research participants, generating sample loss, so the totality of the target population was not reached. The results also point to the need for greater attention to the health of nursing students during the pandemic period and may support the development of intervention measures to improve their quality of life and reduce harm both during pandemics and throughout their academic and professional lives.

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