



## Evaluation of the degree of anxiety and use of calming medicinal plants by nursing students

## Avaliação do grau de ansiedade e utilização de plantas medicinais calmantes por estudantes de enfermagem

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### ABSTRACT

**Objective:** To evaluate the degree of anxiety and the consumption of medicinal plants with calming properties in nursing students of a Federal Institution during the Covid-19 pandemic. **Methodological procedures:** This is a quantitative, cross-sectional research of descriptive and exploratory character, carried out through the application of a questionnaire by Google Forms. Anxiety was assessed using the General Anxiety Disorder questionnaire. Data collection took place from September to November 2021 and the analysis was done using the Microsoft Office Excel program. **Results:** The prevalence of symptoms related to mild anxiety was evidenced in 53 (38%) of the students, 34 (25%) had severe anxiety, 25 (18%) had moderate anxiety and 27 (19%) did not show any symptoms related to the disease. Regarding the use of medicinal plants with soothing properties, it was found that the most used species were *Matricaria chamomilla* (chamomile), *Melissa officianalis* (lemon balm), *Foeniculum vulgare* (fennel), *Mentha x piperita* (mint), *Rosmarinus officianalis* (rosemary) and *Cymbopogon citratus* (lemongrass). **Conclusion:** The pandemic has highlighted the emotional fragility of the population, especially students, the results of this research reinforce the need for spaces that promote mental health for students. The use of medicinal plants with calming and anxiolytic properties was observed by most of the participants.

### RESUMO

**Objetivo:** Avaliar o grau de ansiedade e o consumo de plantas medicinais com propriedades calmantes em estudantes de enfermagem de uma Instituição Federal durante a pandemia de Covid-19. **Procedimentos metodológicos:** Trata-se de uma pesquisa quantitativa, transversal de caráter descritivo exploratório, realizada mediante aplicação de questionário pelo Google Forms. A avaliação da ansiedade se deu por meio do questionário General Anxiety Disorder. A coleta de dados ocorreu no período de setembro a novembro de 2021 e a análise foi feita através do programa Microsoft Office Excel. **Resultados:** Evidencia-se a prevalência de sintomatologias relacionadas à ansiedade leve em 53 (38%) dos alunos, 34 (25%) apresentaram ansiedade severa, 25 (18%) apresentaram ansiedade moderada e 27 (19%) não demonstraram nenhum sintoma relacionado a doença. Quanto ao uso de plantas medicinais com propriedade calmante, verificou-se que as espécies mais utilizadas foram a *Matricaria chamomilla* (camomila), *Melissa officianalis* (erva cidreira), *Foeniculum vulgare* (erva doce), *Mentha x piperita* (hortelã), *Rosmarinus officianalis* (alecrim) e *Cymbopogon citratus* (capim limão). **Conclusão:** A pandemia evidenciou as fragilidades emocionais da população, especialmente dos estudantes, os resultados desta pesquisa reforçam a necessidade de espaços que promovam saúde mental para os discentes. Observou-se a utilização de plantas medicinais com propriedades calmantes e ansiolíticas pela maioria dos participantes.

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## Introduction

Anxiety is characterized as an excess of the future and usually causes physical and psychological discomfort and symptoms associated with the cardiovascular, respiratory and gastrointestinal systems. It is considered one of the most common psychiatric diagnoses, generating high costs for the maintenance of the health of affected individuals (Sousa et al., 2018).

In Brazil, epidemiological indicators related to the disease have a high prevalence, the country occupies the 4<sup>th</sup> place in the world ranking of the highest rates. Cultural and socioeconomic aspects, education, gender, age, ethnicity, having grown up in large urban centers, and previous exposure to traumatic events can interfere with the development of anxiety (Mangolini et al., 2019).

With the impacts brought about by the Covid-19 pandemic, the rates of the disease showed a significant increase due to social isolation, fear, anguish and the excess of information as situations that cause changes in the mental health of the population (Rolim & Oliveira, 2020). Regarding the mental health of students in the pandemic context, there are studies that indicate negative consequences, taking into account the need to implement Emergency Remote Teaching (*Ensino Remoto Emergencial* - ERE), withdrawal from the academic environment, changes in the schedule of activities and decreased productivity (Barros et al., 2021).

In view of the increase in anxiety during the pandemic, discussions about ways to prevent and treat the disease gained prominence. Treatment can be done through the use of medications and/or non-pharmacological approaches. Among the non-pharmacological interventions, Integrative and Complementary Practices (*Práticas Integrativas e Complementares* - ICPs) stand out (Lima et al., 2020).

The Unified Health System (*Sistema Único de Saúde* - SUS) encourages the use of ICPs. Among the practices, the use of medicinal plants as an alternative for the treatment of anxiety stands out. There is evidence in the literature regarding the prevalence of anxiety in health students, who make use of the species to reduce psychosomatic manifestations. The use of *Passiflora incarnata* (passion fruit), *Salix alba* (white willow), *Matricaria recutita* (camomile) and *Valeriana officinalis* (valerian) (Silva et al., 2020). Medicinal plants have pharmacological activities with fewer adverse effects and toxicity when compared to drugs (Fagotti and Ribeiro, 2021). The present study aimed to evaluate the degree of anxiety and the consumption of medicinal plants with calming properties in nursing students of a Federal Institution during the Covid-19 pandemic.

## **Methodological procedure**

### ***Type of study***

This is a quantitative, cross-sectional descriptive and exploratory research.

### ***Place of study***

The research was carried out at the Federal Institute of Education, Science and Technology of Pernambuco (*Instituto Federal de Pernambuco - IFPE*), Campus Pesqueira. The institution is located in the *Agreste* region of Pernambuco, a micro-region of the Vale do Ipojuca.

### ***Study participants***

The population was composed of students over 18 years of age enrolled in the nursing course at IFPE Campus Pesqueira.

### ***Exclusion criteria***

Students who are enrolled in the institution, on leave for any type of leave, under 18 years of age and who could not be located by contact via e-mail or messaging application were excluded.

### ***Data collection***

Data collection took place from September to November 2021. An electronic questionnaire was used to collect data and send the Free and Informed Consent Form (ICF) (*Termo de Consentimento Livre e Esclarecido - TCLE*). The contact with the participants took place via invitation sent by the institutional email and WhatsApp messaging application.

The study was carried out through the application of the questionnaire through the Google Forms platform, consisting of: Sociodemographic data, impact of the pandemic on mental health, administration of psychotropic medications and use of medicinal plants. A pre-test was carried out by sending the form to six class representative students, enrolled between the first and tenth module, in order to assess the clarity of the questions in the questionnaire. After the application of the pre-test and adjustment of some points, the link was sent to each student.

Anxiety was assessed using the validated General Anxiety Disorder (GAD-7) questionnaire, which has seven questions to assess symptoms related to generalized anxiety disorder (Spitzer et al., 2006; Kroenke et al., 2007).

### **Data analysis procedure**

The analysis was done using the Microsoft Office Excel program, presenting the information in the form of tables and graphs.

### **Ethical aspects**

The research was approved by the Human Research Ethics Committee (*Comitê de Ética e Pesquisa com Humanos*) through the CAAE 47048621.6.0000.5189.

### **Results and discussion**

A total of 142 responses were obtained, and 3 questionnaires were excluded because the participants were under 18 years of age. A total of 139 valid responses were obtained. The participants' ages ranged from 20 to 49, with 34 (24.5%) being over 18 and under 20 years old, 98 (70.5%) between 20 and 29, 6 (4.3%) between 30 and 39 and only 1 (0.7%) between 40 and 49.

Among the participants, 107 (77%) were female and 32 (23%) were male. The majority declared themselves brown: 61 (43.9%), 45 (32.4%) white, 17 (12.2%) black, 12 (8.6%) indigenous and 4 (2.9%) yellow. Regarding family income, it was possible to identify that 76 (54.7%) receive up to 1 minimum wage, 51 (36.7%) receive between 1 and 2 minimum wages, and 12 (8.6%) receive more than 3 minimum wages. Regarding the place of residence, 119 (85.6%) lived in an urban area and 20 (14.4%) in a rural area.

Regarding the effects of the Covid-19 pandemic on the well-being of individuals, the presence of anxiety, lack of disposition, difficulty sleeping and/or difficulty staying awake, and depression were observed. Only a small portion of the interviewees reported no alterations (Table 1).

**Table 1.** Prevalence of symptoms during the Covid-19 pandemic.

<b>Variables</b>	<b>No. (%)</b>
Anxiety	104 (74.8%)
Lack of willingness	91 (65.5%)
Difficulty sleeping and/or staying awake	88 (63.3%)
Depression	25 (18%)
There were no psychological changes	17 (12.2%)

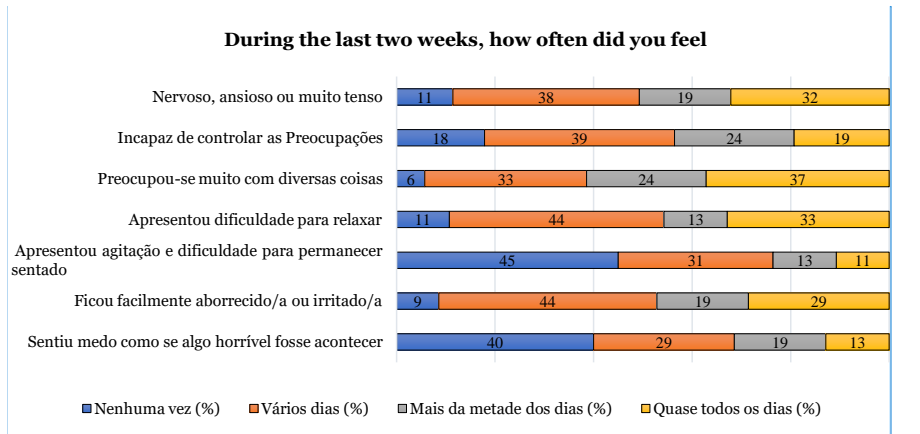
Source: The authors.

When asked about the feeling related to the advance of the pandemic, 63.3% reported anxiety to return to normal, 20.9% mentioned being afraid, 14.4% were confident and only

1.4% said they had not experienced a change in their routine. A study with 45,161 Brazilians identified that during the Covid-19 pandemic, anxiety and nervousness were present in about 50% of respondents, being more frequent in adults, women and patients with a previous diagnosis of depression (M. BARROS et al., 2020).

Regarding anxiety disorder, Figure 1 shows the results of the application of the GAD-7 questionnaire among the participants of this research. The questions in the questionnaire are related to sensations during the last two weeks.

**Figure 1.** Generalized Anxiety Disorder Scale (GAD – 7) applied to nursing students from the IFPE - Campus Pesqueira (n = 139).



Source: The authors.

It was observed that the answer “several days” presented more citations in the questions about the state of nervousness, anxiety and tension, inability to control worries, difficulty to relax and ease of irritation.

The GAD-7 questionnaire is an instrument used to detect significant symptoms of anxiety. It is easily administered and has a good clinical evaluation by American and international bodies. With a validated record in Brazil, it presents seven evaluation items, on a four-point scale, with a minimum of 0 (not once) and a maximum of 3 points (almost every day). The total score can range from 0 to 21, evidencing signs and symptoms of anxiety in the last two weeks. Scoring 10 points or more can be seen as indicative of anxiety (Mossman et al., 2017; Kroenke et al., 2010).

According to the GAD-7 questionnaire and the scores obtained, it can be concluded that there is a prevalence of symptoms related to mild anxiety in 53 (38%) of the students, severe anxiety in 34 (25%), moderate anxiety in 25 (18%) and did not present any symptoms related

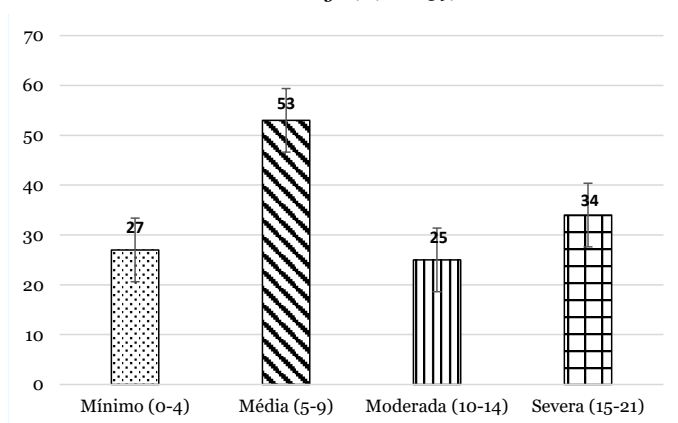
**Comentado [RD1]:** TRADUÇÃO DOS TEXTOS DA FIGURA (CONSEGUI TRADUZIR O TÍTULO DIRETAMENTE NO TEXTO):

Nervous, anxious, or very tense  
 Unable to control worries  
 Cared a lot about a lot of things  
 Had difficulty relaxing  
 Presented agitation and difficulty remaining seated  
 Easily upset or irritated  
 Felt scared like something horrible was going to happen

Not once (%)  
 Several days (%)  
 More than half of the days (%)  
 Almost every day (%)

to anxiety in 27 (19%), these data are expressed in Figure 2. Such data may be related to social isolation, which brought several psychological impacts and became an influence for risk factors related to mental distress (Mendes et al., 2021).

**Figure 2.** Score of the GAD-7- questionnaire in nursing students of a Federal Institution of Education, Science and Technology (*Instituição Federal de Educação, Ciência e Tecnologia*) (n = 139).



**Comentado [RD2]:** TRADUÇÃO DOS TEXTOS DA FIGURA:  
 Minimum (0-4)  
 Average (5-9)  
 Moderate (10-14)  
 Severe (15-21)

Source: The authors.

In addition, the pandemic brought circumstances such as: the need for social distancing, family reorganization, insertion of Emergency Remote Learning (*Ensino Remoto Emergencial - ERE*), changes in the study routine, delay in the calendar of courses, postponement of academic activities, uncertainties regarding the duration of the pandemic period, financial difficulties, barriers in access to the internet and devices compatible with teaching platforms. These aspects, added to other determinants, contribute to the triggering of the pathological process of anxiety (Gundim et al., 2020).

Compared to the previous period of the pandemic, there were significant differences in the number of university students with depression, anxiety, and other psychological disorders, considering that the context made it impossible to have leisure and contact with family members, serving as a precursor to feelings of fear, tension, irritability, changes in sleep patterns, and continuous stress (Galvão et al., 2020).

With regard to students in health courses, there are aggravating characteristics that contribute to the emergence of mental illness processes. Among the main aspects, the need for contact with the disease and death of patients, excessive extracurricular activities, imminence of the supervised internship and insufficient amount of sleep are highlighted (Paixão et al., 2021).

In view of the high prevalence of mental disorders, psychotropic medications are seen as an alternative for the treatment and reduction of signs and symptoms. However, they have adverse effects, which can cause health problems and physical and psychological dependence (Boni et al., 2021).

Although approximately 80% of the participants presented symptoms related to anxiety at different levels, it was found that only 12 (9%) students use drugs that act on the Central Nervous System (CNS). Table 2 shows the psychotropic medications mentioned by the students.

**Table 2.** Use of psychotropic drugs by nursing students of a Federal Institution of Education, Science and Technology (*Instituição Federal de Educação, Ciência e Tecnologia*) (n= 12).

Medicines	Class	No. (%)
Sertraline Hydrochloride	Antidepressant	5 (41,7%)
Paroxetine Hydrochloride	Antidepressant	2 (16,7%)
Fluoxetine	Antidepressant	2 (16,7%)
Clonazepam	Benzodiazepine	1 (8,3%)
Escitalopram Oxalate	Antidepressant	1 (8,3%)
Zolpidem	Imidazopyridines	1 (8,3%)

Source: The authors.

It was found that most of the substances used by the students have effects on Anxiety Disorders, with antidepressants capturing the serotonin molecule being the most used class. This finding is similar to those found in the literature, since anxiety is usually treated by allopathic drugs from the classes of antidepressants, benzodiazepines, azapirones and beta-blockers. The use of antidepressants in young people is estimated at 8.3%, and may be higher in students, considering the demands of the undergraduate course, social pressure and obligations of the labor market (Silva et al., 2020; Souza et al., 2021)

In addition, the low percentage of use of drugs with CNS potential by students is highlighted. This result may point to the lack of professional follow-up of these students, revealing a naturalization of symptoms and the underestimation of the need for follow-up/treatment.

When asked about the use of medicinal plants, 76% of the students stated that they used them and 24% denied them. Table 3 shows the plant species used by the interviewees with anxiolytic properties and the number of citations that each plant received.

**Table 3.** Most cited species with anxiolytic properties.

Scientific name	Popular name	No. of citations
<i>Matricaria chamomilla</i> L.	Camomile	37
<i>Melissa officinalis</i> L.	Lemon balm	32
<i>Foeniculum vulgare</i> Mill.	Fennel	19
<i>Mentha x piperita</i> L.	Mint	14
<i>Rosmarinus officinalis</i> L.	Rosemary	4
<i>Cymbopogon citratus</i> (DC.) Stapf	Lemongrass	8

Source: The authors.

Because Brazil is a country with vast biodiversity, plants emerge as an economic, natural, historical, cultural and medicinal resource for the treatment of various diseases and conditions, including anxiety. The elderly are pointed out as the main holders of knowledge about their use, but there was a high adherence of the young population with this therapeutic method. Some species act at the CNS level through calming, sedative and anxiolytic action, in order to prevent and treat mental disorders (Conceição et al., 2018; Buzin et al., 2021).

Other species were also mentioned for the treatment of anxiety, but only one was mentioned: *Curcuma longa* (saffron), *Eucalyptus globulus* (eucalyptus), *Citrus sinensis* (orange), *Linum usitatissimum* (linseed) and *Passiflora edulis* (passion fruit).

Camomile (*M. chamomilla*) is one of the species most cited by students for its calming potential. It is believed that its flavonoid constituents can induce anxiolytic effects, affecting norepinephrine (NA), dopamine (DA), GABA and serotonin molecule transmission or modulation of the hypothalamic-pituitary-adrenocortical axis (S. Lima et al., 2019).

Lemon balm (*M. officianalis*) has the chemical component of citral and flavonoids, which have anxiolytic properties proven in preclinical studies. This species is one of the most used for the treatment of anxiety, insomnia, depression and nervousness, considering its flavor and acceptance of the sensory senses (Jesus & Oliveira, 2021).

In the scientific literature there are reports on the anxiolytic activity of the crude extract of fennel (*F. vulgare*). In addition, this species is effective in the treatment of insomnia, acting as a tranquilizer in situations of nervousness (Pelosi et al., 2014).

Mint (*Mentha x Piperita*) can be used both to control anxiety and to reduce gastrointestinal manifestations related to the disorder, given its calming and digestive action. Its major constituents are menthol and menthol (Bortoluzzi et al., 2020; Santos et al., 2021).

Rosemary (*R. officinalis*) demonstrates effects similar to anxiolytics and antidepressants, serving as an alternative to conventional treatment with medications, in some



situations. Another way to reduce anxiety and depression is through the essential oil at a dose of 500 mg/kg (Sztormowski et al., 2021)

Lemongrass (*C. citratus*) has a therapeutic indication as a sedative and for situations of nervousness. Its chemical class includes citral, flavonoids, organic acids, neural, among others. In addition, an essential oil with relaxing properties can be extracted, in order to help control stress and anxiety (Diniz et al., 2020).

### **Conclusions**

In view of the above, the impact of the Covid-19 pandemic on the mental health of nursing students can be perceived, resulting in anxiety, lack of disposition, and difficulties related to sleep habits. Thus, it is possible to observe the use of psychotropic drugs in order to mitigate these clinical manifestations.

However, it can also be seen that the monitoring of these students falls short of the real need. The need for a holistic and humanized look at students' mental health is essential on the part of educational institutions.

In addition, the use of medicinal plants with calming and anxiolytic properties by most of the respondents is highlighted, evidencing popular knowledge about the species. However, due to the vast biodiversity of Brazil, it is necessary to encourage research on the subject, aiming to explore the therapeutic potential of these species.

To the detriment of the pandemic, which highlighted emotional fragility, the results reinforce the need for spaces that promote students' mental health, in order to ensure emotional control and self-care, preventing the emergence of various psychic disorders.

Because the study took place remotely, some limitations were found in the location and response of some students. In addition, the lack of data on the mental health of these students in the period before the pandemic made it impossible to compare and evaluate the impacts brought by the pandemic context to mental health.

The work has scientific relevance, since it enabled the knowledge about the mental state of the students of the bachelor's degree in nursing, contributing to future research aimed at the development of mechanisms to control the symptoms related to anxiety disorder and evaluation of the therapeutic properties of the species mentioned.

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