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Perceived stress and anxiety in nursing professionals as covid-19 workfront

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ABSTRACT

OBJECTIVE

To identify the level of stress, perceived stress and level of anxiety of the nursing staff who worked in intensive care units in COVID-19.

METHODS

Cross-sectional study with 74 professionals from a public hospital in the city of São Paulo. Data was collected using sociodemographic characterization instruments, the Perceived Stress Scale (PSS10) and the Beck Anxiety Inventory (BAI). REDcap was used to analyze the data in terms of proportions, means, standard deviation and ANOVA correlation test, under approval number CAAE: 39975120.8.0000.5462.

RESULTS

The average age was 36 years, they were female (83.8%), self-declared black (56.7%), married or with a partner (81%). Self-perception of stress levels averaged 5.24 (SD ± 2.36) and anxiety 5.34 (SD ± 2.46). The PSS10 showed a moderate level of stress (29.7%) and the BAI showed a mild level of anxiety (21.6%). There was significance for anxiety $p \leq 0.034$ and stress $p \leq 0.042$ related to the length of time working in the unit.

CONCLUSIONS

The population had a significant level of stress and anxiety and is proportional to the time worked.

DESCRIPTORS

Stress, Psychological, Nursing, Intensive care units, Anxiety, COVID-19.

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INTRODUCTION

According to the World Health Organization (WHO) at the beginning of 2020 the world entered a state of pandemic caused by COVID-19, the virus that emerged in China at the end of 2019.[1] With the increase in the number of COVID-19 cases more people sought health services for treatment, thus increasing the workload of health professionals.[2]

Nursing professionals stand out as the largest professional category present in hospitals and play an important role on the front line, working to prevent, promote and recover health.[3,4] The situations experienced by these professionals due to their long working hours, low pay and often precarious working conditions have been exacerbated during the pandemic,[3] in addition to the lack of knowledge about the disease, the fear of contracting the virus, getting sick and dying, passing it on to friends and family, not being able to meet the demand from patients and being exposed to many deaths[5] These challenges encountered by professionals can lead them to develop or worsen symptoms of anxiety and stress.[6,7]

Stress is defined as an individual's interaction with a stressful event that causes abnormal wear and tear on the body and is associated with an inability to adapt.[8] It can constantly lead to physical, emotional and behavioral changes, damaging health.[9,10]

Anxiety, on the other hand, is characterized as an emotional state that compromises the human being in the biopsychosocial sphere, involving feelings of apprehension, alertness, tension and discomfort due to the anticipation of something that hasn't happened yet, and can sometimes be accompanied by symptoms such as palpitations and restlessness.[11] Too much can become pathological and affect social life, family life and performance at work.[12,13]

A study carried out with nursing professionals coping with COVID-19 in a university hospital showed that 48.9% of these professionals had anxiety,[14] a prevalence higher than other reviews and meta-analyses.[15] Another study showed that these professionals have an average level of stress, with the most frequent symptoms being exhaustion at the end of the working day, tiredness and a feeling of being overworked.[16]

Studying stress and anxiety in nursing professionals provides an understanding of its causes and further knowledge enables the creation of strategies to identify and combat these factors.

Thus, this study aimed to identify the level of stress, perceived stress and level of anxiety of nursing staff working in intensive care units for COVID-19 patients.

METHODS

This is a descriptive, cross-sectional study with a quantitative approach carried out in a state public cardiology referral hospital in the city of São Paulo/SP, Brazil. At the institution, an intensive care unit was opened to care for patients with heart disease and COVID-19. A team of nurses and nursing technicians who were already experienced and working in the ICU were assigned, along with the nursing team hired to open this new intensive care unit. Both ICUs had mixed teams, given the need to support the new teams. All the new nursing staff hired were welcomed, integrated, trained and continuously monitored by the existing core teams.

The population consisted of 107 participants, 29 nurses and 78 nursing technicians. The inclusion criteria were: being over 18 and having worked in COVID-19 care. The exclusion criteria were: unforeseen medical leave and dismissal during the collection period. The sample therefore consisted of 25 nurses and 49 nursing technicians who met the inclusion criteria and agreed to take part in the study.

An instrument was created with closed and semi-structured questions on the characterization of sociodemographic data such as age in years, gender, self-declared race/color, marital status, monthly family income and monthly expenditure.

Analog scales of stress and anxiety levels were applied, the values of which were obtained by measuring them using a 10-centimeter ruler, where 0 corresponded to the most negative feeling possible and 10 centimeters to the most positive feeling possible.[17]

We also used the Perceived Stress Scale (PSS10), which consists of a 10-question Likert-type questionnaire, ranging from 0 to 4, with questions referring to the thoughts and feelings experienced by professionals in the last month of their lives. The final score is obtained from the sum of the ten questions. The positive items (4, 5, 7 and 8) have their scores inverted as follows: 0=4, 1=3, 2=2, 3=1 and 4=0. The other questions are negative and must be added directly 0=0, 1=1, 2=2. 3=3 and 4=4. The minimum score is 0 and the maximum is 40.[18] For the definition and classification of stress scores, the population study carried out in Brazil was used as a reference, which characterized the average evaluation parameter of the PSS versions, stratifying the score into 5 score levels: ≤ 18 (low stress), 19-24 (normal stress), 25-29 (moderate stress), 30-35 (high stress) and > 35 (very high stress).[19]

We also used the Beck Anxiety Inventory (BAI), which is made up of 21 Likert-type questions, ranging from 0 to 3, in order to quantify the degree of anxiety. The four alternatives for the questions are: absolutely not (score 0); slightly: it didn't bother me much (score 1); moderately: it was unpleasant, but I could bear it (score 2); and severely: I almost couldn't bear it (score 3). The final classification will be according to the sum of the questions, where 0-10: minimum degree of anxiety; 11-19: mild anxiety; 20-30: moderate anxiety and; 31-63: severe anxiety.[20,21]

Data were collected in COVID intensive care units between January and June 2021. Participants were invited, instructed and data collection was carried out after they had accepted and signed an informed consent form. An envelope containing the self-administered instruments was delivered for collection and after a week, the questionnaires were collected and checked. The procedure of searching for answers was repeated up to three times for each participant and when there was no return, it was considered a refusal and the research ended.

After collection, data were stored in REDCAp statistical software for data analysis. Categorical variables were analyzed as absolute (n) and relative (%) frequencies and quantitative variables as means and standard deviation. The ANOVA correlation test was used to verify the relationship between the stress and anxiety variables and the quantitative sociodemographic variables.

The project was approved by the Research Ethics Committee under CAAE: 39975120.8.0000.5462.

RESULTS

Sociodemographic characteristics

The sample consisted of 25 (33.8%) nurses and 49 (66.2%) nursing technicians, with a total of 74 (100%) nursing professionals. The average age was 36.03 years (SD ± 7.79), with a minimum age of 21 and a maximum of 59. There was a predominance of professionals aged between 31 and 40 (44.6%), female (83.8%), self-declared black (56.7%), single with a partner (40.5%) and married or in a stable union (40.5%).

With regard to monthly family income, 43 (58.1%) earned up to 5 minimum wages and 39 (52.7%) had monthly personal expenses of between 3 and 5 minimum wages. In terms of education, the majority had been trained for between 1 and 5 years (39.2%), worked during the day (58.1%), with a daily workload of 12 hours (83.8%), and had been at the unit for at least 4 months (50%), did not use medication on a daily basis (71.6%) and had another job (68.9%), as shown in table 1.

Table 1- Sociodemographic characteristics of nursing professionals. São Paulo/SP, 2021.

Variables	N (%)
Age group	
21 to 30 years	18 (24,3)
31 to 40 years	33 (44,6)
> 40 years	23 (31,1)
Professional category	
Nurse	25 (33,8)
Nursing technicians	49 (66,2)
Sex	
Female	62 (83,8)
Masculine	12 (16,2)
Race/Color	
Black (brown and black)	42 (56,7)
White	29 (39,2)
Yellow	3 (4,1)
Marital status	
Single without a partner	5 (6,8)
Single with a partner	30 (40,5)
Married/stable union	30 (40,5)
Separated/divorced	8 (10,8)
Widow(er)	1 (1,4)
Family income/month (in MW) *	
To 5	43 (58,1)
> 5	31(41,9)
Personal expenditure/month (in MW)*	
< 3	22 (29,7)
3 to 5	39 (52,7)
> 5	13 (17,6)
Time since graduation in years	
1 to 5	29 (39,2)
6 to 10	20 (27)
> 10	25 (33,8)
Length of time working in this unit	
To 4 months	37 (50)
5 to 12 months	19 (25,7)
> 12 months	18 (24,3)
Work shift in this unit	
Daytime	43 (58,1)
Night time	31 (41,9)
Has another job	
Yes	51 (68,9)
No	23 (31,1)
Daily workload	
12 hours	62 (83,8)
> 12 hours	12 (16,2)
Daily use of medication	
Yes	21 (28,4)
No	53 (71,6)

Source: Prepared by the author of the study. (2024).
Note: *Minimum wage (MW) at the time of the survey R$1,100.00.

Nursing professionals' self-perception of their level of stress and anxiety

With regard to nursing professionals' self-perception of their level of stress and anxiety, measured using the analog scale, the averages were close: 5.24 (SD ± 2.36) for level of stress and 5.34 (SD ± 2.46) for level of anxiety (Table 2).

Table 2 - Nursing professionals' self-perception of stress and anxiety levels. São Paulo/SP, 2021.

Perceived level of stress and anxiety	Min-Max	Mean	Standard Deviation
Stress level	(0-10)	(5,24)	(2,36)
Level of anxiety	(0-10)	(5,34)	(2,46)

Source: Prepared by the author of the study. (2024).

Classification of the PSS 10 stress level and the BAI anxiety level

On the Perceived Stress Scale - PSS10, the scores ranged from 0 to 32, with a mean of 17.26 (SD ± 6.69). Of the 74 professionals, 22 (29.7%) had a moderate level of stress, 10 (13.5%) had a high level of stress and 8 (10.8%) had a very high level of stress (Table 3).

Table 3 - PSS10 stress level classification. São Paulo/SP, 2021.

Stress level classification	N (%)
Stress score	
Low	20 (27)
Normal	14 (18,9)
Moderate	22 (29,7)
High	10 (13,5)
Very high	8 (10,8)

Source: Prepared by the author of the study. (2024).

The Beck Anxiety Inventory (BAI) scores ranged from 0 to 47 with a mean of 11.38 (SD ± 10.57), 16 (21.6%) of the sample had a mild level of anxiety (Table 4).

Table 4- BAI anxiety level classification.São Paulo/SP, 2021.

Anxiety level classification	N (%)
Score de ansiedade	
Minimal	42 (56,7)
Light	16 (21,6)
Moderate	13 (17,6)
Severe	3 (4,1)

Source: Prepared by the author of the study. (2024).

Taking into account the stress and anxiety, there was a significance of p≤0.034 for anxiety and p≤0.042 for stress among the professionals in this study, related to the length of time they had worked in the specific unit. Nursing staff who had worked for more than one year had higher levels of anxiety and stress compared to those who had worked for up to four months.

DISCUSSION

In this study, the predominant category was female nursing technicians, aged between 31 and 40, with an average age of 36.03, with a partner, corroborating other studies in this professional category.[5,14,22] It is important to note that the predominance of nursing technicians is related to the fact that nursing work is hierarchical and the greatest demand for technical procedures is carried out by this category[22] and by

women, despite the fact that males are entering the professionThe predominance of nursing technicians is also due to the fact that the estimated size for an ICU is one nursing technician for every two beds per shift and one nurse for every eight beds or fraction thereof in each shift, as determined by Resolution No. 7 of February 24, 2010, which provides for minimum requirements for the operation of Intensive Care Units of the Ministry of Health. [23]

Considering the characterization of work, the prevalence was 12 hours per day, on the day shift, with insertion in the unit for at least 4 months, corroborating the literature.[24] With regard to self-declaration, the largest proportion was of black race/color, with a partner, had a monthly family income of up to 5 minimum wages, 1 to 5 years of training and more than one job, similar results identified in the literature.[25]

In light of the level of anxiety, most had minimal anxiety, confirming the results of other studies carried out with health professionals.[26,27] As for stress levels, 29.7% had moderate stress levels, 13.5% had high stress levels and 10.8% had very high stress levels. These results are similar to those of a study which classified the sample as having moderate, high and very high levels of stress. [26] The stress of these professionals may be related to stressors related to work demands, such as excessive working hours, shorter rest periods, the number and complexity of procedures in the units, and the lack of protective materials and equipment. [26]

The self-perception of nursing professionals showed an average level of stress of 5.24 (SD ± 2.36) and anxiety of 5.34 (± 2.46), consistent with the assessment of stress by the Perceived Stress Scale - PSS10, in which 34 (45.9%) had normal or low stress and with the Beck Anxiety Inventory (BAI), in which 42 (56.7%) had minimum anxiety scores.

Higher levels of anxiety and stress were found among nursing staff who had worked for more than a year compared to those who had worked for up to four months. This can be explained by the strategy adopted to mix the professionals, since the older ones had to train the new ones, thus taking on more responsibility. On the other hand, the new hires were satisfied with the job placement and the local training, as many nursing professionals had entered the job market due to the high demand for COVID-19 illnesses, which required the opening of beds, emergency hiring and made it possible to employ professionals who had previously been graduates and had no experience or job opportunities.

The pandemic has brought several challenges for health professionals, causing them to develop stress and anxiety and consequently increasing the likelihood of them making mistakes and jeopardizing care.[6] The challenges caused by COVID-19 and the illness of health professionals can still have consequences over the years. It is vitally important that psychological support services are made available to these professionals, providing welcome and helping them to cope with stressors and adapt to situations that trigger illness with less suffering.[26]

Limitations of the study

The study's limitation is associated with convenience sampling with professionals in a single institution and the cross-sectional design of the project, with the variables being collected at a single point in time, making it impossible to establish causal relationships.

Contributions to the practice

It is believed that the results of this study can contribute to the identification of stress factors and the level of stress and anxiety of nursing professionals and can help prevent these factors within the work environment in pandemic situations.

CONCLUSION

The socio-demographic profile of the nursing professionals working in the COVID ICU was 36 years old on average, female, self-declared of black race/color, married or in a stable union or single with a partner, with a monthly family income of up to 5 minimum wages, trained for between 1 and 5 years, working for 4 months, during the daytime, working 12 hours a day and in a dual employment relationship.

The self-perception of nursing professionals showed an average level of stress and anxiety, corroborating the assessment of stress by the Perceived Stress Scale - PSS10, and the Beck Anxiety Inventory (BAI).

There was a significance of p≤0.034 for anxiety and p≤0.042 for stress among the professionals in this study related to the length of time they had worked in the specific unit, showing that nursing staff who had worked for more than a year had higher levels of anxiety and stress compared to those who had worked for up to 4 months.

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