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ORIGINAL ARTICLE

ANXIETY SYMPTOMS AND ASSOCIATED FACTORS AMONG HEALTH PROFESSIONALS DURING THE COVID-19 PANDEMIC

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ABSTRACT

Objective: to identify anxiety symptoms and associated factors among health professionals during the COVID-19 pandemic. Method: a cross-sectional study carried out with 1,354 health professionals, whose socio-professional data and psychological and physical anxiety symptoms were collected via Google Forms between May 17th and May 21st, 2020, in northeastern Brazil, and analyzed using Pearson's Chi-Square test and logistic regression. Results: there was an association between psychological symptoms and age (p=0.036) and female gender (p=0.015), as well as between physical symptoms and age (p=0.000), having provided care for patients with COVID-19 (p=0.003), if the professional presented COVID-19 symptoms (p=0.000), with social interaction with symptomatic people (p=0.028) and gender (p=0.000). Conclusion: the study may support a better understanding of the health professionals' experience in relation to the COVID-19 pandemic for developing policies for the care of professionals, as well as encourage further studies, considering the urgency, uniqueness and magnitude of the situation experienced.

DESCRIPTORS: Health Personnel; Anxiety; Fear; Pandemic; Coronavirus.

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INTRODUCTION

Currently, the world experiences a serious health crisis when facing the Coronavirus Disease 2019 (COVID-19), caused by Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), of great infectivity, with the first cases in China and subsequent events in other countries. Recognizing the disease seriousness, the Chinese National Health Commission defined it, on January 20th, 2020, as a Type B infectious disease, immediately considered a pandemic, due to the rapid infection and the significant number of deaths worldwide[1-2].

This situation aggravates the stress and anxiety of health professionals who, in addition to all the difficulties experienced daily, deal with an unknown disease without any defined treatment and which has considerable lethality power, but not clearly described to the present day[3].

Anxiety must be faced in a natural way, as it is a response to the various threats that the individuals suffer or even think they suffer in daily life. The symptoms are human body responses to external and internal stimuli, which involve physical changes such as sweating, indigestion, tremors, palpitations and difficulty breathing, in addition to subjective sensations, characterized as psychological, such as fear of dying, feeling terrified, nervous, anxious and incapable to relax, among others[4]. The latter are caused by the release of substances such as norepinephrine and cortisol, which cause an increase in pressure and tachycardia, with hyperventilation and a reduction in the carbon dioxide blood level, sending wrong signals to the brain[5]. Thus, anxiety becomes a problem when there is no risk match or if the exposure time to it is unbearable for the person facing such situation.

It is emphasized that the way in which each person experiences and faces the pandemic is individual and, therefore, not only the professionals who provide direct care in the intensive care unit of patients with COVID-19 must be considered, but all those who work in health units, serving different types of patients who, in one way or another, feel the burden of the responsibility to care for the other, often marked by intense suffering, which may lead to despair and suicide[6].

Thus, the objective was to identify anxiety symptoms and associated factors among health professionals during the COVID-19 pandemic, as well as what the main symptoms are.

METHOD

A cross-sectional study, carried out in Ceará, Brazil. The study population consisted of health professionals from the state, comprising 81,426 individuals, in the following categories: Physicians (15,506), Nursing professionals (56,323) and Physiotherapists (9,597).

The sample was for convenience; after identifying the health professionals through the descriptions on profiles in social networks (WhatsApp, Instagram and Facebook) which signaled that they belonged to the aforementioned categories, 5,123 were invited to participate in the study by sending private messages. The professionals who returned the instruments filled in at least to 80% of the totality were included, and those under 18 years old and who reported having diagnoses of mental disorders were excluded.

Collection took place between May 17th and May 21st, 2020 (five days, predetermined period for data collection), when 1,369 people answered the form produced by the researchers. A pilot test was carried out with five professionals (not included in the final sample) and no need to implement changes in the instrument was identified. Physical and psychological symptoms identified in the specialized literature in the area were included in

the data collection instrument.

Professionals from Nursing, Medicine and Physiotherapy participated in the study; two nursing technician were excluded for not being aged 18 full years old, and 13 for returning the completed questionnaire with less than 80% of the total questions. Thus, the sample was concluded with 1,354 professionals.

The dependent variables defined in the study were presence of anxiety symptoms that the professionals identified in themselves and that emerged during the COVID-19 pandemic; psychological symptoms (fear of dying, feeling terrified, nervous, anxious and unable to relax) and physical symptoms (sweating, indigestion, tremors, palpitations and difficulty breathing)(5); and the independent variable were as follows: personal, clinical and professional data, such as professional category, gender, age, symptoms of the disease and living with someone who presented the symptoms, testing for COVID-19, test result, workplace (hospital or other health services), daily working time, type of activity provided (assistance in intensive care units or other health services) and whether they attended patients with COVID-19.

The data were entered into Excel® spreadsheets and exported to the Statistical Package for Social Sciences (SPSS), version 23.0. Descriptive statistical analyses were performed, presented through simple and absolute frequencies, mean and standard deviation. The dependent and independent variables were categorized, thus not requiring a normality test. Pearson's Chi-Square test was used, considering a p-value<0.05, as well as the Odds Ratio (OR), with a 95% Confidence Interval (95% CI). After the association, binary logistic regression was performed, with adjustment of the variables, and those with a statistical significance of 0.05 remained in the final model. The data are presented in tables.

The research was managed in accordance with the ethical precepts for research studies with human beings and approved by the Brazilian Research Ethics Committee, registered in accordance with Opinion N. 4,029,492. The informed consent form was electronically signed by the participants.

RESULTS

A total of 1,354 health professionals from Ceará participated in the study. Their mean age was 34.4 years old (±8.8), with 1,183 (87.4%) females and 812 (60%) participants without a partner. The mean time since graduation was 8.9 (±7.9) years; and, among the professional categories, 953 (70.4%) were from Nursing: 762 (56.3%) nurses, 180 (13.2%) nursing technicians and 11 (0.9%) nursing assistants; 255 (18.8%) physicians; and 146 (10.8%) physiotherapists.

Among the participants, 71 (5.2%) did not report symptoms related to anxiety during the study period. Of the 1,283 participants who reported some symptom, 1,053 (88%) were afraid, 1,034 (80.6%) were unable to relax and 988 (77%) felt nervous. Table 1 presents the distribution of symptoms according to the participants' answers.

Table 1 – Physical and psychological symptoms of the health professionals (n=1,354). Fortaleza, CE, Brazil, 2020 (continues)

Physical symptoms	No	%	Yes	%
Tremors	1090	80,5	264	19,5

Sweat	994	73,4	360	26,6
Difficulty breathing	837	61,8	517	38,2
Indigestion	727	53,7	627	46,3
Palpitation	592	43,7	762	56,3
Psychological symptoms				
Terrified	674	49,8	680	50,2
Fear of dying	536	39,6	818	60,4
Nervous	366	27	988	73
Unable to relax	320	23,6	1034	76,4
Afraid	301	22,2	1053	77,8

Source: The authors (2020).

The psychological symptoms had a prevalence value above 50%, while palpitation was a physical symptom in more than half of the professionals.

Bivariate analysis was performed, considering the "presence of psychological and physical anxiety symptoms" outcome and the independent variables, as shown in Table 2.

Table 2 – Factors associated with the psychological and physical symptoms of the health professionals (n=1,354). Fortaleza, CE, Brazil, 2020 (continues)

Characteristics	**Psychological Symptoms**			**Physical Symptoms**		
	Yes (n)	**(%)**	**p**	**Yes (n)**	**(%)**	**p**
Age (years old)			**0,036**			**0**
≤35	779	93		654	78	
>35	463	89,7		350	67,8	
Workplace			0,538			0,264
Other services (emergency care units and basic health units)	514	92,3		139	70,9	
Hospital	728	91,3		865	74,7	
Workload (daily in hours)			0,068			0,349
≤6	139	88		122	77,2	
>6	1103	92,2		882	73,3	
Professional category			0,552			0,423
Nurse	879	92,2		715	75	
Physician	230	90,2		181	71	
Physiotherapist	133	91,1		108	74	
Type of activity			0,734			0,264
Assistance in other health units	181	92,3		139	70,9	

Assistance in intensive care unit	1061	91,6		865	74,7	
Assisted patients with COVID-19			0,638			**0,003**
No	351	91,2		264	68,6	
Yes	891	92		740	76,4	
Presented COVID-19 symptoms			0,127			**0,000**
No	594	90,5		457	69,7	
Yes	648	92,8		547	78,4	
Underwent COVID-19 test (any of the available tests)			0,266			0,57
No	765	92,4		599	72,3	
Yes	477	90,7		405	77	
COVID-19 test result			0,11			0,88
Negative	263	89,5		217	73,8	
Positive	979	92,4		787	74,2	
Someone from the social circle had COVID-19			0,451			**0,028**
No	686	91,2		540	71,8	
Yes	556	92,4		464	77,1	
Gender			**0,015**			**0,000**
Female	1061	92,5		876	76,4	
Male	181	91,7		128	61,8	

Source: The authors (2020).

The binary logistic regression analysis was performed only with the variables which presented p<0.005 in the bivariate analysis, namely: age, care for patients with COVID-19, whether the professional had COVID-19 symptoms, social interaction with symptomatic people and female gender.

After OR adjustment, only the "social interaction with symptomatic people" variable was not statistically significant, being removed from the final model. In Table 3, it can be seen that the final model was significant [$X^2(1)=20.733$; $p=0.000$; $R^2_{Nagelkerke}=0.65$], pointing out that 65% of the anxiety symptoms can be explained by age, gender and the fact that the professional has presented symptoms or has assisted patients with COVID-19.

Table 3 – Logistic regression final model. Fortaleza, CE, Brazil, 2020 (continues)

Included	**95% CI for OR****			
	B (SE) *	**Lower**	**OR**	**Upper**
Constant	0,883 (0,138)			
Age	0,507 (0,129)§	1,440	1,566	1,728
Presented COVID-19 symptoms	0,434 (0,130)‡	1,543	1,196	1,990
Assisted patient with COVID-19	0,326 (0,140)‡	1,385	1,052	1,824

Female gender	0,758 (0,163)§	1,469	0,340	1,645

Note: * Standard Error. † Confidence Interval ‡ p<0.001 § p<0.05. ** Odds Ratio.
Source: The authors (2020).

DISCUSSION

The participating health professionals presented physical and psychological symptoms related to anxiety. With regard to anxiety, a Chinese study carried out with 230 health professionals during the COVID-19 pandemic pointed out high anxiety and stress rates, in addition to other mental disorders, especially among nurses[7]. A meta-analysis showed that anxiety could vary according to gender, with combined prevalence values of 20.92% in men and 29.06% in women. In the groups with physicians and nurses, the combined prevalence of anxiety was 21.73% and 25.80%, respectively[8].

The professionals stated they were afraid, and that they presented inability to relax and nervousness, corroborating a study carried out with physicians and Nursing professionals in Wuhan, China, who were in significant psychological distress, with insomnia, stress, nervousness, anger and anguish symptoms[9-10].

Fear of dying was one of the psychological symptoms presented by the study participants, which results from the high potential for infection by the disease, uncertainty about its course, high mortality rates or fear of infecting family members and friends[11]. It is known that fear is triggered by immediate danger, causing physiological and emotional changes, as a way of coping with the object that caused it. However, difficulties in the elaboration of some experiences can trigger psychiatric disorders, where imminent danger is superimposed by fear, becoming pathological, debilitating the individuals and preventing them from reacting[12].

In the multivariate model, age up to 35 years old and being female were configured as associated factors for physical anxiety symptoms. The literature points out that anxiety seems to erupt more intensely and urgently among women, correlated with different female experiences, mediated by social situations and organic issues[13].

Another factor associated with anxiety symptoms pointed out in this study was the care provided to patients with COVID-19. A study carried out in China showed that providing direct care to infected patients was associated with a higher risk of developing anxiety symptoms (OR: 1.57; 95% CI: 1.22-2.02; p<0.001)[14].

Health professionals are at greater risk of becoming infected with COVID-19, as they are in direct contact with and treat infected people. Thus, in addition to disturbing working conditions, the health professionals' vulnerability, as a result of caring for patients with COVID-19, can impose a greater risk of psychological changes and mental illness[10].

In this study, presenting COVID-19 symptoms was associated with anxiety symptoms. A number of studies on the mental health of health professionals during the pandemic were produced; however, there was lack of research studies that addressed the topic in detail and subjectively, such as qualitative approach studies and the different theoretical frameworks that direct the look at the experiences of human beings in relation to the various symptoms produced by the illness. Most of the manuscripts include the presence of psychological distress due to illness and the possibility of death[15-16].

Due to the situation exposed, the COVID-19 pandemic imposed and will continue to impose psychological impacts to health professionals, making it imperative to seek strategies that protect and promote the psychological well-being of these individuals both during and after the outbreak[17].

From this perspective, actions need to be developed to help the general population and specific groups directly exposed to the virus[18]. A study carried out in the United Kingdom developed a digital support package around psychological well-being for health professionals, through consultation with the interested parties. This showed high fidelity with regard to the workers' commitment and involvement, demonstrating high usability and practicality, considered appropriate for health professionals, for use during and after the COVID-19 pandemic[19]. It was observed that some professionals adhered to the proposal and have used online tools provided by psychologists and psychiatrists, in search of immediate care for emotional issues[20].

As a potential study limitation, the research locus is pointed out: as it was restricted to a Brazilian state, it is impossible to generalize the data, in view of the peculiarities experienced in the region under study, as well as the number of professionals. However, there is a need to carry out and compare studies that deal with this theme in different Brazilian states for knowledge and comparisons across locations. In addition, the cross-sectional design cannot reveal causality.

CONCLUSION

Among the participants, 94.8% reported some anxiety symptom during the pandemic. There was a significant association between psychological symptoms and the female gender. In addition, 65% of the anxiety symptoms in health professionals may be related to age, gender, presence of symptoms or providing care to patients with COVID-19.

The study may support a better understanding of the health professional's experience in relation to the pandemic, for the development of care policies for the professional, as well as to encourage further studies, considering the urgency, uniqueness and magnitude of this situation.

Paying attention to this issue may prevent emotional breakdown in the professionals, especially those on the front lines. Thinking about anxiety relief strategies is imperative to protect these individuals and maintain the number of healthy people to take care of the growing number of cases. In the short term, it may also provide opportunities for the professionals themselves to reflect on the reality in which they live, in search of self-knowledge and strategies that may minimize the anxiety levels, given the current global scenario.

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