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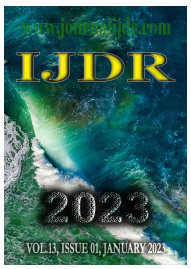

RESEARCH ARTICLE OPEN ACCESS

MENTAL HEALTH ASSESSMENT IN TUTORS AND HEALTH PROFESSIONALS DURING THE COVID-19 PANDEMIC: A CROSS-SECTIONAL STUDY

Ana Sílvia de Mendonça Machado Barbosa de Oliveira*[1], Larissa Sá Barreto Maciel Chaves[1], Idílio Lucas Freitas Araújo[2] and Arturo de Pádua Walfrido Jordan[1]

[1]Faculdade Pernambucana de Saúde, Recife, Brazil
[2]Faculdade de Ciências Médicas, Universidade de Pernambuco, Recife, Brazil

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****Corresponding author: Ana Sílvia de Mendonça Machado Barbosa de Oliveira***

ABSTRACT

Objective: To analyze the prevalence of depression, anxiety and stress related to stressors, strategies for the prevention and treatment of injuries in health professionals during the COVID-19 pandemic. **Methods**: A cross-sectional study was conducted with 91 health professionals. It was used a sociodemographic questionnaire and another to identify the factors that affected mental health, both created by the authors, in addition to the Reduced Version of the Depression, Anxiety and Stress Scale and the Event Impact Scale – Revised. The data were compiled and analyzed by the programs EXCEL 2016 and R v4.1.0 and contingency tables to examine the associations between the factors were elaborated. **Results**: The prevalence of anxiety, depression, stress, and post-traumatic stress disorder were, respectively, 27.47%, 5.49%, 1.10% and 14.29%. It was also observed the association of self-perception of negative change in emotional state, decreased amount of sleep, quality of sleep and disposition after a period of sleep, with anxiety and post-traumatic stress. **Conclusions**: The prevalence of anxiety and post-traumatic stress disorder is high among health professionals in the pandemic. Better strategies for prevention and treatment of these disorders should be implemented.

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INTRODUCTION

The disease caused by the Severe Acute Respiratory Syndrome Coronavirus2 (SARS-CoV-2) is the point of greatest worldwide attention since January 30, 2020, when the World Health Organization (WHO) declared the Coronavirus Disease 2019 (COVID-19) a public health emergency and later, on March 11, 2020, as a pandemic (Huang et al., 2019 and World Health Organization, 2020). The incidence of cases was increasing progressively. Overall, at the time this article was written, a total number of 200 million cases and 4 million confirmed deaths had been reported to WHO (World Health Organization, 2020). In Brazil, the first imported case was confirmed on February 25, 2020. (Brasil, 2020). By the 34th epidemiological week of 2021, more than 20 million cases of COVID-19 and more than half a million deaths were confirmed in the country. The Northeast is the Brazilian geographic region with the second highest number of confirmed cases, counting more than 4 million cases (Ministério da Saúde, 2021). One of the most affected states in this region is Pernambuco, which, in the 34th epidemiological week, accumulates more than 600,000 cases and 19,345 confirmed deaths. As of August 27, 2021, 87,712 state health professionals were tested for COVID-19, of which 31,051 were confirmed cases.

The capital of this state, Recife, on the same date, had 149,668 confirmed cases of the disease (Ministério da Saúde, 2021 and SES-PE, 2021). Due to the public health emergency, several countries have chosen to use periods of social distancing for rapid containment, which differs from quarantine periods (restriction of movement of healthy people who may have been exposed to the virus, with the aim of monitoring symptoms and detecting the disease early) and isolation (separation between sick and non-sick people), as it aims to prevent the spread of COVID-19 from the reduction of physical interactions in a community, including infected and not yet infected people (WHO, 2020; Wilder-Smith, 2020 and Aquino, 2020). There is already evidence that relates this measure to a higher prevalence of depression, anxiety and stress, especially in health professionals who are acting on the front line to combat SARS-CoV-2 (Ramírez-Ortiz, 2020; Tan, 2020 and Ornell, 2020). Depression can be understood as both a normal affective state (sadness) and a symptom, syndrome or disease (Del Porto, 1999 and MJ, 1983). According to WHO estimates, the worldwide prevalence of depression is around 4.4% (322 million people), 15% of which (about 48 million cases) in the in the America. In Brazil, this estimate is that 5.8% (11,548,577 people) of the population has depression (World Health Organization, 2017). Mental symptoms, physiological symptoms, and behavioral evidence are evaluated for the diagnosis of depression (Del Porto, 1999 and

MJ, 1983). Anxiety is an unpleasant emotional state, characterized by apprehension, tension or malaise related to the anticipation of danger. Anxiety and fear become pathological when they are disproportional to the stimulus or age group (ALLEN, 1995). The proportion of the global population with anxiety disorder is 3.6% (264 million people). In the Region of the Americas, there are a total of 21% (57.22 million) of these cases, with Brazil being the country with the highest rates in the region, with 9.3% (18,657,943 people) of the country's population suffering from anxiety (World Health Organization, 2017). Post-traumatic stress is a consequence of direct exposure (in which the affected person experienced or was a witness) or indirect (knowing that it happened to a close family member or friend) to traumatic situations, such as death, illness or serious injury, among other factors (Olashore, 2018). The prevalence of this involvement in health professionals varies between 0% and 30%. (Sendler, 2016 and Waheed, 2019). Currently, the Revised Event Impact Scale (IES-R) is the most cited screening tool in the literature (Caiuby, 2012). These three conditions (depression, anxiety, and post-traumatic stress) are extremely present in the context of health professionals, especially during the current COVID-19 pandemic. Previous studies indicate that survivors of acute infectious diseases may have to face these conditions (Tan, 2020 and Ornell, 2020) With the pandemic as a stressor, high numbers of depression, anxiety and post-traumatic stress were recorded in the general population and, particularly, health professionals who treated patients with COVID-19 in Wuhan, China, the first epicenter of the disease, between January and February 2020 (Caiuby, , 2012; Xiao, 2020 and Wang, 22019). Thus, the present study aimed to analyze the prevalence of depression, anxiety and post-traumatic stress disorder in health professionals who are linked to the *Faculdade Pernambucana de Saúde* (FPS), in Recife, during the COVID-19 pandemic, and its associated factors.

MATERIALS AND METHODS

This is an observational, analytical, and quantitative cross-sectional study conducted at the *Faculdade Pernambucana de Saúde* (FPS) from July 2020 to August 2021. The included population is composed by health professionals who held the position of tutors of undergraduate courses (dentistry, medicine, nursing, nutrition, pharmacy, physiotherapy, and psychology) of the FPS, with a sample of 91 from the total of 277 professionals. They were contacted via e-mail and received a link containing the Informed Consent Form (ICF) and, after acceptance, the online questionnaire of the study, using the LimeSurvey® Platform. To measure the prevalence of depression, anxiety, and stress, it was used the reduced version of the Depression, Anxiety and Stress Scale (DASS-21), which has 21 items, divided into 3 subscales, referring to symptoms of depression, anxiety and stress that occurred in the previous week, to which the subject assigns scores between 0 and 3. The result is obtained by summing the scores of the items of each subscale. In addition, the Impact of Event Scale - Revised (IES-R) was also applied, which is an instrument for screening the symptomatology of post-traumatic stress disorder. It consists of 22 items distributed in 3 subscales (avoidance, intrusion and hyperstimulation). The score ranges from 0 to 4 and the result of each subscale is defined by calculating the average of the items that compose it. The final score is obtained by the sum of the scores of each subscale. A sociodemographic questionnaire was also applied that measured the following variables: gender, age, race/color, course that teaches, origin and residence, education level, profession, family income, marital status, religion, with whom it lives and the number of people living in the household. Finally, a structured questionnaire was applied, constructed by the researchers, about the associated factors that most affect or affected their mental health during the COVID-19 pandemic, in addition to the satisfaction of volunteers with strategies for prevention and treatment of depression, anxiety and post-traumatic stress offered.

The contents obtained through the questionnaires were tabulated using the EXCEL 2016 program and analyzed using the Software R v4.1.0. Descriptive statistics of sociodemographic characteristics were calculated, and the response percentages were calculated according to the number of answers per question on the total number of participants. In addition, the DASS-21 and IES-R scores were calculated according to the parameters of each method already described for each participant, originating a table for each of the 3 subgroups of DASS-21 (anxiety, depression, and stress) and a general for IES-R. Thus, the cutoff scores were defined to infer the presence or not of each disorder measured by these instruments, effectively categorizing each participant as presenting or not presenting each disorder. In fact, this process simplifies the creation of contingency tables between each question of the questionnaire itself and the tables in the literature, as well as a comparison between these tables. The objective of creating contingency tables between each variable of the questionnaire itself and the results of the DASS-21 and IES-R tests, where all variables are categorical, was to allow statistical inference at the level of association between such variables through the Chi-Square and/or Fisher's Exact Tests, with significance level of 5% ($p \leq 0.05$). Pearson's Chi-Square Test works with the null hypothesis that the variables are statistically independent. Therefore, considering a level of 5%, if a p-value less than or equal to 0.05 is found, it is found that the variables have some relationship and are not independent, being the same valid for Fisher's Exact Test. The reason for the adoption of both tests is the sample size (91 participants), which can be considered small for the Chi-Square test, depending on the number of categories of each variable. Finally, the project was approved by the Research Ethics Committee of the *Faculdade Pernambucana de Saúde* (by the CAAE 33315920.5.0000.5569 and assent form nº4.118.776), all participants provided the Electronic Informed Consent Form before accessing the questionnaire and the anonymity of the subjects was preserved throughout the research process. The study respected all ethical precepts of CONEP Resolution 510/16.

RESULTS

From the population of 277 tutors of the undergraduate courses of the *Faculdade Pernambucana de Saúde*, 91 complete answers were obtained. Of the 91 tutors approached, 33 (36.26%) teach for medical school; 19 (20.88%), nursing; 13 (14.29%), psychology; 12 (13.19%), pharmacy; 6 (6.59%), nutrition; 5 (5.49%), dentistry and 3 (3.30%), physiotherapy. Regarding the sociodemographic profile, 69 (75.82%) of the answers were female tutors, 51 (56.04%) considered themselves white, 52 (57.14%) are Catholic and 35 (38.46%) have a family income of more than 12 minimum wages. The largest proportion of the participants, 41 people (45,05%), are between 30 and 39 years old. Regarding marital status, 56 participants (61.4%) are married (Table 1). Of the total interviewee, 25 tutors presented sufficient criteria for anxiety in the DASS-21, leading to a prevalence of 27.47% in the sample. Among them, 8 (8.79% of the total) presented the minimum score for mild anxiety; 13 (14.29%), for moderate anxiety; 3 (3.30%), for severe anxiety and 1 (1.10%), for extremely severe anxiety. For the depression parameter, of the total sample, 86 people (94.50%) did not present sufficient criteria in the DASS-21, revealing the prevalence of 5.49% in the population studied. From the people with a sufficient score for this involvement, 3 (3.30 of the sample) fit the criteria for mild depression and 2 (2.20%) for moderate depression. In the context of stress, almost all participants (90 people) did not present a sufficient score, according to DASS-21, which resulted in a prevalence of 1.10% in the sample, equivalent to one interviewee, who presented mild stress. Regarding post-traumatic stress disorder (PTSD), 13 interviewees obtained a sufficient score by IES-R for the involvement, characterizing a prevalence of 14.29% in the sample. The remaining 78 (85.71%) scored equivalent to the absence of complete PTSD, but this does not exclude the existence of symptoms of the involvement or partial PTSD. (Table 2) In addition, 58 professionals (63.74%) reported self-perception of negative change in emotional and psychological state during the pandemic caused by the virus. From de total of subjects, 40 (43.96%) claimed to be sleeping fewer hours than usual and the same percentage did not observe a change in relation to sleep quality, although 39 people (42.86) stated difficulty in maintaining sleep. In addition, 54 (59.34%) stated that they wake up tired. (Table 3)

Table 1. Sociodemographic profile of tutors of dentistry, pharmacy, physiotherapy, psychology, medicine, nursing, and nutrition courses of the *Faculdade Pernambucana de Saúde*. Recife, Pernambuco, Brazil, in 2021

Characteristic	N	%
Total sample tutors	91	100
Gender.		
Male	22	24,18
Female	69	75,82
Race/color.		
White	51	56,04
Brown race/skin color	30	32,97
Black	7	7,69
Yellow	2	2,20
Indigenous	1	1,10
Household income.		
One to three minimum wages	2	2,20
Four to seven minimum wages	29	31,87
Eight to twelve minimum wages	25	27,47
More than twelve minimum wages	35	38,46
Religion.		
Catholic	52	57,14
Protestant	12	13,19
Spiritism	9	9,89
No religion, but believe in God	9	9,89
No religion and no belief in God	5	5,49
Marital status.		
Married	56	61,4
Single	26	28,57
Separate	4	4,40
Stable Relationship	3	3,30
Others	2	2,20

Table 2. Prevalence of anxiety, depression and stress by *The Depression, Anxiety and Stress Scale - 21 Items* (DASS-21) and post-traumatic stress disorder by *The Impact of Event Scale - Revised* (IES-R) in health professionals linked to the *Faculdade Pernambucana de Saúde*, in the position of tutors, during the pandemic of COVID-19. Recife, Pernambuco, Brazil, in 2021.

Characteristic	N	%
Total sample tutors	91	100
Anxiety by DASS-21.		
Normal (0-7)	66	72,53
Anxiety (≥ 8)	25	27,47
Mild (8-9)	8	8,79
Moderate (10-14)	13	14,29
Severe (15-19)	3	3,30
Extremely severe (≥ 20)	1	1,10
Depression by DASS-21.		
Normal (0-9)	86	94,50
Depression	5	5,49
Mild (10-13)	3	3,30
Moderate (14-20)	2	2,20
Stress by DASS-21.		
Normal (0-14)	90	98,90
Stress	1	1,10
Mild (15-18)	1	1,10
Post-Traumatic Stress Disorder (PTSD) by IES-R.		
Normal or partial (< 32)	78	85,71
Post-Traumatic Stress Disorder (≥ 33)	13	14,29

Regarding the action on the front line in combating SARS-CoV-2, 33 participants (36.26%) work directly in contact with confirmed cases of COVID-19. The factors: fear of transmitting COVID-19 to the family, reported by 65 participants (71.43%); work overload, by 52 (57.14%); and tiredness, by 37 (40.66%) were the most listed as the ones that most affected mental health in that period. In addition, 48 participants (52.75%) stated that the anticipation of the academic vacation of the *Faculdade Pernambucana de Saúde* for the month of May, when the peak of the epidemic was predicted in the state, contributed positively to mental health (Table 4).

Table 3. Self-perception about the emotional and psychological state of health professionals linked to the *Faculdade Pernambucana de Saúde*, in the position of tutors, during the pandemic of COVID-19. Recife, Pernambuco, Brazil, in 2021

Characteristic	N	%
Total sample tutors	91	100
Self-perception of change in emotional and psychological state in the period of the pandemic of COVID-19.		
Observed positive change.	20	21,98
Observed negative change.	58	63,74
No change was seen.	13	14,29
Self-perception of change in the number of hours of sleep.		
More hours than usual.	11	12,09
Less hours than usual.	40	43,96
There was no change in the number of hours of sleep.	30	32,97
There was no feeling of change.	10	10,99
Self-perception of change in sleep quality.		
Sleep maintenance insomnia.	39	42,86
Sleep-onset insomnia.	12	13,19
No change was seen.	40	43,96
Sensation after a period of sleep.		
Tiredness.	54	59,34
Stress.	5	5,49
Rested and ready for routine activities.	26	28,57
Other	6	6,59

Table 4. Factors associated with mental health that most affect or affected health professionals linked to the *Faculdade Pernambucana de Saúde*, in the position of tutors, during the pandemic of COVID-19. Recife, Pernambuco, Brazil, in 2021

Characteristic	N	%
Total sample tutors	91	100
The subject's act on the front line in combating the SARS-CoV-2.		
The subject acts on the front line.	33	36,26
The subject acted in the front line but doesn't currently.	14	27,47
The subject didn't and doesn't act in the front line.	44	8,79
Factors that most affected the subject's mental health during the pandemic of COVID-19.		
Fear of contracting the COVID-19.	40	43,96
Fear of transmitting the COVID-19 to the family.	65	71,43
Tiredness.	37	40,66
Work overload (performance of more functions than usual).	52	57,14
Increased workload.	31	34,07
Noticing the presence of characteristic symptoms of COVID-19, such as: headache, pharyngitis, shortness of breath.	8	8,79
Impact, in mental health, of the anticipation of academic vacations of the Faculdade Pernambucana de Saúde on May, in which the peak of the epidemic in the state was predicted.		
There was a positive impact.	48	52,75
There was a negative impact.	4	4,40
There was no impact on mental health.	39	42,86

More than the half of the participants, 48 people (52.75%), inferred that they had an increase in workload during the pandemic, and 32 of these (35.16% of the total) had an increase of at least four hours per week of work. Among the 16 people (17.58%) who had reduced workload, 12 (13.19% of the total) had a decrease of at least 4 hours per week. (Table 5) Regarding the self-perception of change in emotional and psychological state, a statistically significant association was observed with the results obtained from the application of DASS-21, analyzing the subgroup of questions that indicate anxiety ($p<0.01$), and IES-R ($p=0.01$). It was found that among the 58 people who observed negative change in emotional and psychological state during the COVID-19 pandemic period, 23 (40%) and 13 (22%) presented sufficient criteria for anxiety and PTSD, respectively. On the other hand, the 13 (100%) participants who did not observe this change also did not present enough score for anxiety and PTSD, and among the 20 professionals who observed positive

change, 18 (90%) and 20 (100%) did not present criteria for the respective issues. Regarding self-perception of change in sleep quality, it was observed that, among the 39 people who reported difficulty in maintaining sleep, 14 (36%) presented sufficient criteria for anxiety, and 6 (15%) for post-traumatic stress disorder (PTSD).

Table 5. Change in the workload of health professionals linked to the *Faculdade Pernambucana de Saúde*, in the position of tutors during the COVID-19 pandemic. Recife, Pernambuco, Brazil, in 2021

Characteristic	N	%
Total sample tutors	91	100
Changes in workload during the COVID-19 pandemic period.		
The subject had an increased workload.	48	52,75
The subject had a decreased workload.	16	17,58
The subject's workload remained unchanged.	24	26,37
Other.	3	3,30
Increase in hours in weekly workload (if applicable).		
From 1 to < 2 hours.	2	2,20
From 2 to < 4 hours.	13	14,29
From 4 to < 6 hours.	16	17,58
6 hours or more.	16	17,58
It isn't applicable.	44	48,35
Decrease in hours in weekly workload (if applicable).		
From 2 to < 4 hours.	4	4,40
From 4 to < 6 hours.	7	7,69
6 hours or more.	5	5,49
It isn't applicable.	75	82,42

Among the 12 people who reported difficulties in falling asleep, 6 (50%) obtained an anxiety minimum score and 5 (42%) for PTSD. Taking as reference the 40 participants who did not observe changes in sleep quality during the pandemic period, 35 (88%) and 38 (95%) did not present criteria for anxiety and PTSD, respectively, in the tests applied. This implies a statistically significant association between self-perception of change in sleep quality and the results obtained from the application of DASS-21 for anxiety (p=0.01) and IES-R (p=0.01). It was also observed statistical significance in relation to the self-perception of change in the amount of daily sleep hours, when associated with DASS-21 for anxiety (p<0.01) and IES-R (p=0.01). Among the 40 people who reported being sleeping fewer hours than usual, 17 (43%) had an anxiety score and 11 (28%) had PTSD. Observing the 11 people who claimed to be sleeping longer than usual, 6 (55%) and 9 (82%) did not present a sufficient score for anxiety and PTSD, respectively. In addition to these, the 30 people (100%) who stated that they had not noticed changes in the number of hours of sleep did not present the minimum score for the involvement. Finally, of the 10 participants who did not observe the change in sleep time, 7 (70%) and 10 (100%) did not present the minimum score, respectively, for anxiety and PTSD. Regarding the sensation after a period of sleep-in association with the DASS-21 subscale for anxiety and with the IES-R, it is found that of the 54 people who stated that they felt tired when they woke up, 20 (37%) and 10 (19%) reached the minimum scores for anxiety and PTSD, respectively. None of the 26 people who said that they wake up rested and ready for routine activities presented sufficient criteria in the IES-R for PTSD, and only 2 (8%) reached them in DASS-21 for anxiety. In addition, referring to the 5 interviewees who reported waking up stressed, 3 (60%) had the minimum score for anxiety and 2 (40%), for PTSD. This evidence a statistically significant association between sensation after a period of sleep, DASS-21 for anxiety (p=0.01) and IES-R (p=0.05).

From the perspective of the factors that influenced the mental health of participants during the COVID-19 pandemic, the data obtained regarding the anticipation of academic vacations for the peak month of the pandemic constitute statistical significance when associated with DASS-21 for anxiety (p=0.02) and IES-R (p<0.01), in which 29 (60%) of the 48 people who claimed to have had a positive impact on mental health did not achieve anxiety scores in DASS-21, and 36 (75%) also did not achieve it in IES-R for PTSD.

Table 6. Opinion of the subjects about the quality of actions for the prevention and treatment of depression, anxiety and post-traumatic stress in health professionals and tutors linked to the *Faculdade Pernambucana de Saúde*, during the pandemic of COVID-19. Recife, Pernambuco, Brazil, in 2021

Characteristic	N	%
Total sample tutors	91	100
Are the strategies for the PREVENTION of depression, anxiety and post-traumatic stress offered to health professionals during the COVID-19 pandemic by the public and/or private authorities are/have been well conducted with positive results?		
Totally agree	26	28,57
Partially agree	15	16,48
Neither agree nor disagree	31	34,07
Partially disagree	13	14,29
Totally disagree	6	6,59
Are the strategies for the TREATMENT of depression, anxiety and post-traumatic stress offered to health professionals during the COVID-19 pandemic by the public and/or private authorities are/have been well conducted with positive results?		
Totally agree	21	23,08
Partially agree	20	21,98
Neither agree nor disagree	35	38,46
Partially disagree	11	12,09
Totally disagree	4	4,40
Are the strategies for the PREVENTION of depression, anxiety and post-traumatic stress offered to tutors of *Faculdade Pernambucana de Saúde* during the COVID-19 pandemic by the public and/or private authorities are/have been well conducted with positive results?		
Totally agree	11	12,09
Partially agree	9	9,89
Neither agree nor disagree	45	49,45
Partially disagree	19	20,88
Totally disagree	7	7,69
Are the strategies for the TREATMENT of depression, anxiety and post-traumatic stress offered to tutors of *Faculdade Pernambucana de Saúde* during the COVID-19 pandemic by the public and/or private authorities are/have been well conducted with positive results?		
Totally agree	10	10,99
Partially agree	7	7,69
Neither agree nor disagree	53	58,24
Partially disagree	15	16,48
Totally disagree	6	6,59

In addition, of the 4 participants who perceived a negative effect on this measure, 1 (25%) presented sufficient criteria for these involvements in DASS-21 and IES-R. In relation to those who did not notice interference of the measure in mental health (39 people), 34 (87%) and 39 (100%) did not present the minimum score for anxiety and PTSD, respectively. Still as one of the most listed factors as influencers in mental status during the pandemic, tiredness was statistically significant when it was associated with the DASS-21 subscale for anxiety (p=0.01) and IES-R (p=0.01). Among the 54 people who elected it as an important factor, 46 (85%) had not enough criteria for anxiety in DASS-21, and 51 (94%) did notreach the minimum score for PTSD in the IES-R. Among the 37 people who considered it, 17 (46%) obtained sufficient score for anxiety and 10 (27%), for PTSD. In the context of coping strategies related to the mental health of these professionals, the subjects' opinion on the provision of prevention and treatment of depression, anxiety, and post-traumatic stress by the public and/or private authorities during the COVID-19 pandemic period was measured. It was observed that 41 people (45.05%) partially or totally agree that the measures to prevent these diseases were well performed and had positive results for health professionals, while for the group of tutors of FPS, 26 (28.57%) partially or totally disagree. Regarding the measures to treat the diseases in question, 41 people (45.05%) also partially or totally agree that the measures were well performed and had positive results for health professionals, while for the group of tutors of the FPS, 21 (23.08%) partially or totally disagree. (Table 6)

DISCUSSION

The research measured the impact of the COVID-19 pandemic on anxiety, depression, stress, and post-traumatic stress disorder and pointed out that most health professionals felt the negative impact of the period on mental health. It was also observed a decrease in the number of hours of sleep, sleep quality and sensation after a period of sleep. In addition, the factors most associated with emotional state in the pandemic period were fear of transmitting COVID-19 to the family, work overload, and tiredness. The findings of the present study reveal prevalence of 27.47% for anxiety, 5.49% for depression, 1.10% for stress and 14.29% for post-traumatic stress disorder on the health professionals. These data are compatible with those found in multinational studies, showing a higher prevalence of PTSD in the sample analyzed, compared to the pre-existing literature (Chew, 2020; González-Sanguino, 2020). There was also divergence in relation to another article, written in China, since the positive results in IES-R were lower than in DASS-21 (Wang, 2019). This may be a consequence of the difference in the pandemic period in which the two studies were conducted, as the present one was performed after months of the initial impact of pandemic spread, while the Chinese one was performed two weeks after the event. Another information that deserves to be highlighted is that 63.74% of the participants reported self-perception of negative change in emotional and psychological state during the COVID-19 pandemic. This data is associated with the presence of sufficient score for anxiety and PTSD. The finding is consistent with what was predicted in a previous publication, which includes the perception of loss of health, including emotional health, anxiety and post-traumatic stress among the expected pandemic issues (Shigemura, 2020). In the context of sleep, it was found that 43.96% of the interviewees are sleeping fewer hours than usual, in addition to 42.86% reporting sleep maintenance insomnia and 13.19%, sleep-onset insomnia.

These data are aligned with the expectations, since the main aspects related to poor sleep quality are stress and sudden changes in sleep routine, both present in the period in question, making insomnia a common response to the pandemic (Orsini, 2020). All these factors related to the amount of hours spent and sleep quality are associated with the presence of criteria for anxiety and PTSD, both in the present study and in the available literature. This association is explained both by causal factor, with anxiety and stress as inducers of insomnia, and by the consequence of insomnia acting as a stressor. In addition, it reflects on the subjects' disposition after a period of sleep, and in this study, 59.34% of the interviewees feel that they wake up tired (Zhang, 2019 and Åkerstedt, 2006). The factors of fear of transmitting COVID-19 to the family (71.43%), work overload (57.14%), and tiredness (40.66%) were the most listed as those that most affected mental health in this period and converge with those mentioned in the literature (Chew, et al., 2020). The absence of tiredness as an influencing factor of mental health status during the pandemic was also associated with the absence of minimum criteria for anxiety and PTSD. In addition, 52.75% of the participants stated that the anticipation of the academic vacation of the *Faculdade Pernambucana de Saúde* for the month of May, in which the peak of the epidemic was predicted in the state, contributed positively to mental health, converging with the literature, which points to vacation periods as important to recover health through work-related stresses (Hächler, 2017). Finally, the opinion of most of the subjects about the provision of prevention and treatment of depression, anxiety, and post-traumatic stress by the public and/or private authorities, during the COVID-19 pandemic period, is that they were well performed and had positive results for health professionals. In the context of the tutors of undergraduate courses, these measures were considered, by the majority, insufficient, ineffective, or not applied. Considering that only 17.58% of the participants had a reduction in the workload and that studies indicate that the reduction of this burden is fundamental to promote positive mental health outcomes among health professionals, it is observed that it is necessary to review the coping strategies used by institutions, aiming to minimize the impact of the COVID-19 pandemic on the mental health of health professionals (Damiano, 2021). It is important to note that the present study is susceptible to certain limitations. At the beginning of data collection of the present study, no specific validated measurement scales were available for mental health assessment in the context of COVID-19, such as the Fear of COVID-19 Scale (FCV-19S), currently available and adapted to the Brazilian reality (Ahorsu, 2020 and Andrade, 2020). Moreover, the use of an online questionnaire restricts participation to individuals familiar with technological means. Likewise, some individuals may have refrained from being involved in the study for fear of the negative repercussions related to data collection by electronic questionnaire, even though anonymity is guaranteed by the researchers. Despite this limitation, however, a sample of more than 32% of the target population was gathered. The findings of this study lead to the conclusion that self-perception of negative change in emotional state, reduction in quality and/or number of hours of sleep and sensation after a period of sleep were shown to be the factors most associated with the presence of sufficient scores for anxiety by DASS-21 and post-traumatic stress disorder by IES-R by health professionals who are linked to the *Faculdade Pernambucana de Saúde* (FPS), in Recife, during the COVID-19 pandemic. These data are in accordance with the literature and reflect the urge to elaborate and implement measures aimed at the prevention and treatment of depression, anxiety, and post-traumatic stress, since, in the opinion of most of the tutors interviewed and in the light of the available literature, the current actions are not entirely satisfactory.

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