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Stress in healthcare workers in Hospitals and Emergency Care Units in Sergipe public health service during COVID-19 pandemic time

Estresse em profissionais da saúde de Hospitais e Unidades de Pronto Atendimento da rede pública de Saúde de Sergipe em tempo de pandemia de COVID-19

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The objective of this work was to assess the stress in healthcare workers (HCW) and its correlation with perception of stressors in their work environments - hospitals and emergency care units in the public health system in the state of Sergipe, Brazil, during the COVID-19 pandemic. This is a cross-sectional study carried out by non-probabilistic sampling with 58 HCW, using specific questionnaires and a validated scale (Job Stress Scale) about sociodemographic issues, job stress and COVID-19. Using the demand-control-support assessment model, the work performed was classified as passive, active, low strain and high strain, according work's demand and the range of decision-making freedom. Estimated correlations between each questionnaire were performed using Pearson's correlation coefficient through SPSS software, and descriptive statistics, through Excel. Most of the participants were shown to be under high psychological demand (93.10%) and found themselves with high control (89.66%). Some factors affected the HCW's perception of social support in the workplace, these were their team's knowledge about COVID-19, the availability of personal protective equipment, and their physical comfort while using it. HCW were involved in active work; although they were not in the worst scenario in relation to psychological stress, they were still under great psychological strain, which reinforces the need to adopt effective measures to reduce it.
Key words: Healthcare workers, occupational stress, COVID-19.

O objetivo de trabalho foi avaliar o estresse dos profissionais de saúde (PS) e sua correlação com a percepção dos mesmos quanto aos fatores estressores no ambiente de trabalho - hospitais e unidades de pronto atendimento do sistema público de saúde de Sergipe, Brasil, durante a pandemia de COVID-19. Trata-se de um estudo transversal realizado por amostragem não probabilística com 58 PS, os quais responderam, com o auxílio de questionários próprios e também validados (Escala de Estresse no Trabalho), questões sociodemográficas, de estresse no trabalho e específicas sobre o COVID-19. Utilizando o modelo demanda-controle-suporte de avaliação de estresse, o trabalho foi classificado em passivo, ativo, baixo desgaste e alto desgaste, conforme a demanda do trabalho e o alcance da liberdade de decisão. As correlações entre cada questionário foram realizadas pelo coeficiente de correlação de Pearson através do software SPSS, e a estatística descritiva através do Excel. A maioria dos participantes estava sob alta demanda psicológica (93,10%) e se viram com alto controle (89,66%). Alguns fatores afetaram a percepção dos PS sobre o suporte/apoio social no trabalho, a saber, o conhecimento da equipe sobre o COVID-19, a disponibilidade de equipamentos de proteção individual e seu conforto físico durante o uso. Os PS estavam envolvidos em trabalho ativo e, embora não estejam no pior cenário de estresse psicológico, ainda estão sob grande desgaste psicológico, fato que reforça a necessidade de adoção de medidas eficazes para reduzi-lo.
Palavras-chave: Profissionais de saúde, estresse ocupacional, COVID-19.

1. INTRODUCTION

In January 2020, new corona virus was declared a public health emergency of international concern, and in March was declared a global outbreak by the WHO. The new corona virus was first

reported in Wuhan China, and cause a novel kind of pneumonia, being named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease its cause coronavirus disease, or, like worldwide has been named, COVID-19 [1]. COVID-19 spreads rapidly and the best way to prevent its transmission is through physical distancing, which resulted in people being advised to stay at home [2]. Healthcare workers, however, have to do the exact opposite. The number of deaths from the disease and the number of confirmed cases keeps increasing as forecast [2], increasing the number of people who need health care. Healthcare workers (HCW) are among the most stressed professional categories. Occupational stress translates into a condition that leads to the deterioration of the body and a reduction in the person's work capacity, so, in addition to having a negative impact on the HCW's quality of life, stress also affects their efficiency at work [3]. COVID-19 generates stress through several ways, like an overload of activities, long working hours and exposure to the disease [4].

In general, health systems were not prepared to deal with the current situation and demonstrated slow and poor reactions to the outbreak, as can be seen even in high-income countries with relatively good health infrastructures, such as the UK, which had a large number of cases and deaths. This shows that COVID-19 is indeed a worldwide public health challenge. In Brazil, the number of confirmed and suspected cases increased considerably, as has the number of deaths, and it quickly reached second place in the world in respect of the number of COVID-19 cases and deaths, second only to the United States and becoming an epicenter for COVID-19 in Latin America [5]. Among the states of Brazil, Sergipe, although it is the smallest state, achieved significantly low rates of social isolation - making it the second worst in the country on epidemiological week 24 of the year 2020, and also had an increase in the number of new deaths by COVID-19 on epidemiological week 25. Additionally, using the same dates as reference, the state showed higher incidence rates than São Paulo, which represents the largest number of cases in the country, and also presented higher mortality rates than Bahia, the largest state in its region. In epidemiological week 24 of 2021, this scenario was maintained, with the state of Sergipe reaching the highest incidence of cases and being the second in mortality rate in the Northeast region [6, 7].

Assuming that the context described above generates occupational stress, and knowing that such stress is generated not only by the workload, including physical and intellectual factors linked to it - a dimension known as job demands, but also by the opportunity to use skills and make decisions, a dimension known as job decision latitude or control, we believe that knowing the stress load of HCW and the factors in the work environment that they report to this stress can certainly contribute to an institutional level to the development of coping strategies. Therefore, the objective of this work was to assess the stress in HCW and their perception of stressors in hospitals and emergency care units in the public health system in the state of Sergipe, Brazil, during the COVID-19 pandemic.

2. METHODS

2.1 Study design, participants and data collection

This was a cross-sectional, hospital-based survey carried out by non-probabilistic snowball sampling with 58 HCW, and it included clinical staff, of any gender, who agreed to participate and were in the professional categories of physicians, physiotherapists, nurses, nursing technicians and assistants working in public hospitals or in emergency care units (ECU - which have a simplified structure when compared to hospitals, but provide services such as X-rays, electrocardiography, pediatrics, laboratories, observation beds and stabilization rooms for the most severely ill patients) during COVID-19 pandemic in the state of Sergipe, Brazil. The data collection took place between May 23rd and June 20th of the year 2020, covering epidemiological weeks nº 21 (last day) to nº 25 (each epidemiological week is a seven-day period beginning on Sunday and ending on Saturday and is numbered since epidemiological event beginning). As data collection beginning took place in May, HCW who had been away from work for 4 months or more at the time of collection were excluded from the study.

The health facilities eligible to participate in this research were eleven public hospitals and public health emergency units from Sergipe's most affected areas [8] - 6 health facilities in Aracaju; 1 in Nossa Senhora do Socorro; 2 in Itabaiana; 1 in Estância, and 1 in Lagarto [9, 10], of which nine are represented in the sample of this research. Among those health facilities, the state indicates three referral hospital institutions for the referral of serious cases of COVID-19 [11], of which two are represented in this research. In a total, 09 health facilities were involved. These institutions were chosen because we assumed that frontline HCWs would be under the greatest stress.

The data collection instrument was an online questionnaire using the Google forms platform. The contact with the participants was made via email, text message or social network [12]. This research used a short version of a job demand-control-support model [13, 14] translated and validated in Portuguese by Alves et al. (2004) [15], known as the Job Stress Scale. The scale comprised 17 questions, divided in 3 domains - psychological demand, control and social support. A four-point Likert-type scale was used with 1 meaning never/almost never, 2 seldom, 3 sometimes and 4 often, for the demand and control dimensions (except for questions 4 and 9, where the Likert-type scale was inverse). For the social support dimension (which is responsible for making work stress less intense) a scale was used with 1 meaning strongly disagree, 2 mildly disagree, 3 mildly agree and 4 for strongly agree, being this dimension was evaluated singly.

When analyzing the sources of stress present at work (demand) and decision latitude (control) using the demand-control-support model, a measure of strain at work, known as a Karasek quadrant, is derived [13]. After adding the scores of the items in each dimension, the mean values are used to demonstrate the relationship between the demand and control dimensions, resulting in jobs characterized as "work with high strain", where there is intense psychological demand but low control; "passive work", in which there is low psychological demand and low control; "active work", where there is high psychological demand but the worker has high control and "low strain work", in which there is low psychological demand and high control. As seen in Figure 1.

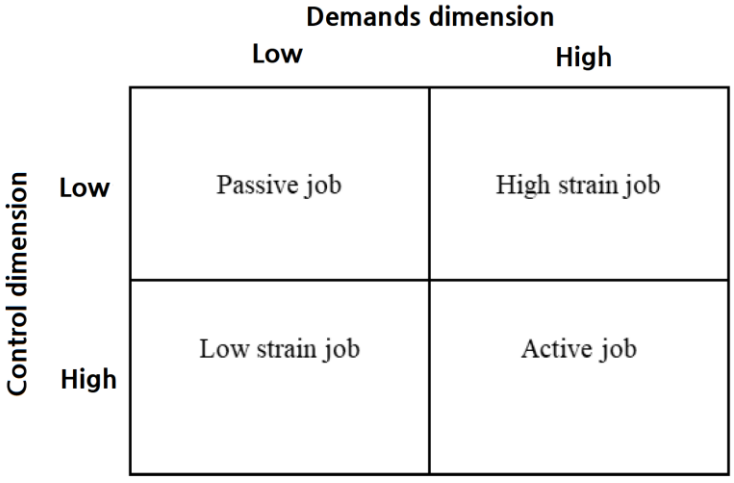

Figure 1: Demand-control model of job strain. Adapted from Karasek.

The first two quadrants, high strain at work and passive work, are those with the greatest deleterious effect on the worker, either by combining intense psychological demand and lack of control over the work and decisions involved or by lack of stimulation, where the worker experiences the junction of low control and demand. Low strain work would be the "ideal quadrant", since in active work the worker experiences a high psychological demand, even though they are still able to manage and prioritize their work, and define how to do it because they have good work control.

There was also a specific questionnaire about COVID-19 (here denominated as COVID- 19 questionnaire) which was developed to serve the objectives of this study. The questionnaire consisted of seven items, all written as statements. The items deal with the availability and use of personal protective equipment (PPE); personal knowledge and team knowledge about COVID-19,

emotional readiness and the influence of the pandemic on workload and capacity. The answers that could be chosen were the same as for the social support dimension, with the scale inverted for questions 3 and 6. The analysis of the questionnaire was performed through the average of the scores provided in each statement separately and then compared with the score that represents the best scenario for each statement, for example, in statements about the availability of PPE and sufficient knowledge, the best score would be a 4, for strongly agree.

It is important to note that the confidence analysis using Cronbach's α indicated satisfactory internal consistency for both questionnaires JSS: 0.609 and COVID-19: 0.715. A sociodemographic questionnaire was also applied to collect data regarding the professional category, age, length of time in job, double shift performing care functions, and educational level.

All the questionnaires were self-reported and completed by the participants. All participants agreed to take part in the research and signed a free and informed consent form, and authorized the use of the data, before participating in the research. The anonymity and confidentiality of the information acquired were guaranteed in the participation agreement, which was also signed by a representative of the researchers (digital signature). The authors assert that all procedures in this study comply with the ethical standards of the relevant national and institutional committees on human experimentation, and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving human subjects were approved by Comissão Nacional de Ética em Pesquisa - Conep, Brazil (#4.041.886), in accordance with the resolution of the Conselho Nacional de Saúde - CNS 466/12.

2.2 Statistical analysis

The analyses were performed using the Statistical Package for Social Sciences, version 26 (IBM SPSS Statistics Subscription Trial for Microsoft Windows 64-bit, Armonk, NY: IBM Corp). The variables were presented as mean, median, standard deviation, and percentages for the descriptive analysis. Normality was tested by the Shapiro-Wilk test. Correlations between sociodemographic variables and the results of both questionnaires were performed using Pearson's correlation coefficient, being translated as weak when between 0.10-0.39, moderate when 0.40-0.69, strong relationship when 0.70-0.89 or very strong correlation when between 0.90-1.00 [16]. The reliability of the questionnaires was assessed by Cronbach's alpha. Statistical significance was set at 5% ($P < 0.05$).

3. RESULTS

3.1 Demographic characteristics

Table 1 shows the population's characteristics. This study obtained the initial participation of 76 HCW, but only 58 (76,31%) were included after applying the study criteria, as seen in Figure 2.

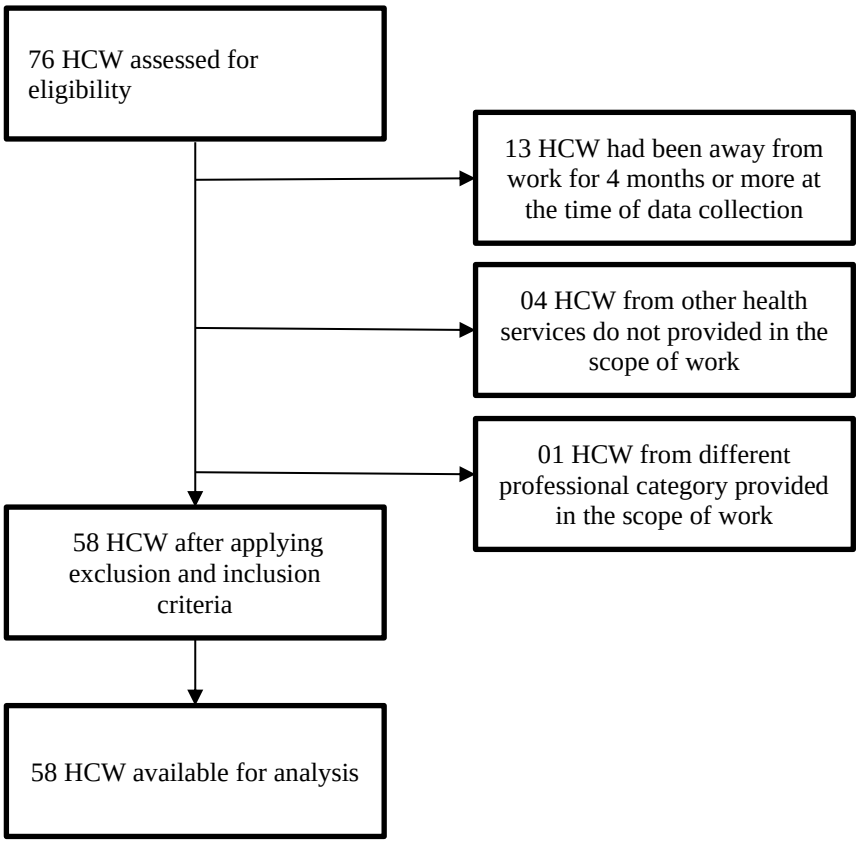

Figure 2: Flow diagram showing participation profile.

In the sample, 41.38% (n = 24) of the participants were nurses, 32.76% (n = 19) were physiotherapists, 10.34% (n = 6) were nursing technicians and assistants, 8.62% (n = 5) were physicians, and 6.9%, n = 4 did not give their profession (data not shown). Among the participants, 58.62% (n = 34) had a second job, which is common among Brazilians HCW [17], the predominant age group was 31-40 years old (58.62%; n = 34), and the majority of the sample had worked in their job for ten years or more (51.72%, n = 30). The predominant educational level of the participants was specialization/residency (46.55%, n = 27), followed by undergraduate (27.59%, n = 16). All participants were clinical staff as frontline HCW, which is professionals who provided care directly to patients with confirmed or suspected COVID-19.

Table 1: Distribution of HCW from hospitals and emergency care units in the public health system in Sergipe during the COVID-19 pandemic, according to sociodemographic characteristics

Sociodemographic variable	N	%
Age range		
20-30	18	31,03
31-40	34	58,62
41-50	5	8,62
51-60	1	1,72
Total	58	100
Working Time	N	%
<1 year	5	8,62
1-5 years	13	22,41
6-10 years	10	17,24
>10 years	30	51,72
Total	58	100
More than one job	N	%
YES	34	58,62
NO	24	41,38
Total	58	100
Instruction level	N	%
Technical education	4	6,90
University graduate	16	27,59
Specialization / residency	27	46,55
Master	10	17,24
Doctorate degree	1	1,72
Total	58	100

3.2 Job Stress Scale and COVID-19 questionnaire

The Job Stress Scale – JSS and the COVID-19 questionnaire results are summarized in Tables 2 and 4, respectively.

As can be seen in Table 2, mean psychological demand was 15.76 (SD = 1.66), being considered high strain values above 12.5. When attention is focused on decision latitude, the mean value is 17.38 (SD = 2.15), with values lower than 15 being considered low control. The social support at work dimension obtained the mean value = 17.47 with SD = 3.14.

Table 2: Prevalence of JSS's dimensions among HCW from hospitals and emergency care units in the public health system in Sergipe during the COVID-19 pandemic.

	Psychological Demand	Control	Social support
Measures			
Median	16	18	17
Mean	15.76	17.38	17.47
Standard Deviation	1.66	2.15	3.14
Intensity n (%)			
High	54 (93.10)	52 (89.66)	30 (51.72)
Low	4 (6.90)	6 (10.34)	28 (48.28)

As seen in Table 3, when relating the dimensions of control and demand, the prevalence of workers in active work was 86.21% (n = 50), 6.9% (n = 4) in work with high strain, with the remainder in a context considered as passive work or low strain work, being 3.45% each (n = 2 each). For the social support dimension, the mean, median and standard deviation were also used, as shown in Table 2 combined in their respective low and high social support dimensions.

Table 3: Prevalence of stress categories at work (Karasek's quadrants) among HCW from hospitals and emergency care units in the public health system in Sergipe during the COVID-19 pandemic.

Characteristic of work	Interaction of quadrants	HCW n (%)
High job strain	High psychological demand and low control	4 (6.90)
Passive	Low psychological demand and high control	2 (3.45)
Active	High psychological demand and high control	50 (86.21)
Low job strain	Low psychological demand high control	2 (3.45)
Total		58 (100)

Table 4 shows the statements in the COVID-19 questionnaire. Among the factors in the questionnaire, the item "the pandemic COVID-19 influenced my workload" was the one in which the mean (1.67) of the answers came closest to the ideal scenario; however, it was the one with the highest standard deviation (SD = 1.11). The second item that came closest to the ideal scenario was "the pandemic COVID-19 is interfering with my work capacity more than any other previous situation ", with a mean of 1.78 and SD = 0.92. Those furthest from the ideal scenario were those referring to the statements "I feel comfortable when using the PPE indicated for COVID-19", with a mean 2.19 and SD = 0.96, "the people who work with me are trained to work in the COVID-19 pandemic " with a mean of 2.09 and SD = 0.82, and" I feel emotionally/psychologically prepared to work in the COVID-19 pandemic", with mean of 2.26 and SD = 0.93.

Table 4: Factors of the COVID-19 questionnaire.

Statements	Ideal	Median	Mean	Standard Deviation
I have adequate PPE, supplies, equipment and infrastructure to work in the COVID-19 pandemic.	4	3	2.76	0.88
I feel comfortable using the PPE indicated for the COVID-19.	4	2	2.19	0.96
The COVID-19 pandemic influenced my workload.	1	1	1.67	1.11
The people who work with me are qualified to work in the COVID-19 pandemic.	4	2	2.09	0.82
As a health professional, I have all the necessary knowledge / information regarding COVID-19.	4	3	2.55	0.92
The COVID-19 pandemic is interfering with my ability to work more than any previous situation.	1	2	1.78	0.92
I feel emotionally / psychologically prepared to work in the COVID-19 pandemic.	4	2	2.26	0.93

4. DISCUSSION

According to the model used, which is one of the best for assessing stress at work [18], and despite limited sample size, the work performed for HCW in hospitals and emergency care units in the Sergipe public health service during the pandemic time was characterized as being of high psychological demand and control, which means that although HCWs experience pressures of a different psychological nature, they can use their intellectual skills to do their job, and they have the authority to make decisions about how to do it. Therefore, even if the psychological demands are excessive, they are less harmful as the HCW can choose how to plan its work (coexistence of

high psychological demands and high control = active work). Also, just over half of the participants reported having high social support, which is a lower percentage compared to a study conducted before the pandemic which used the same measuring instrument in a different population [19].

Although there are no prior studies with the same design to compare results found in this research, it is possible to cite other studies that, despite using different instruments/population, they were developed in the same region. These research yielded in-demand psychological, stress and common mental disorders with lower percentages than those found in this research, conducted during the pandemic [19-21]. However, even under high psychological demand, they are able to make positive progress in their work activities, as evidenced by the fact that most HCW fit into the active work quadrant. This can be explained from two perspectives: at the time of data collection, cases in the northeast were falling; however, the number of new cases per day is on an upward curve, with an increase historically expected from epidemiological week nº 27, and this study stopped data collection on epidemiological week nº 25. The other possibility is that the HCW, as demonstrated in the COVID-19 questionnaire (ideal = 4; median = 3, mean = 2.55, SD = 0.92), believe they have sufficient knowledge, which would provide them with the necessary preparation for handling the situation [22].

Unfortunately, this personal satisfaction with knowledge about COVID-19 does not extend to the team (ideal= 4; median = 2, mean = 2.09, SD = 0.82); although the divergence between these two statements leads to questions about the real status of the HCW's knowledge in relation to COVID-19. However, even though current knowledge about COVID-19 is limited, the lack of knowledge can be considered a source of stress as high levels of team knowledge or preparation have been shown to be capable of relieving psychological pressure in many ways [2, 22, 23]. The importance of this can be demonstrated in the moderate correlation between the statement about the team's training to work in the pandemic, present in the COVID-19 questionnaire, and the social support dimension, being $r = 0.426$; $p = 0.001$.

Another noteworthy fact is that although social support was apparently sufficient to make work stress less intense – since social support can moderate the negative impact of high strain on well-being, as shown by the fact that most HCW fall into the category of active work and high social support (86.21% and 51.72%, respectively), it was not enough to make HCW feel emotionally/psychologically prepared for work in the pandemic COVID-19 (ideal= 4; median = 2, mean = 2.26, SD = 0.93); and a weak negative correlation was observed between psychological demand and social support ($r = -0.271$; $p = 0.039$).

As previous studies have shown, a lack of social support, or its ineffectiveness, can also be considered a source of stress. Therefore, given the important role social support plays, it is essential that both the government and the health facility provide such support. This can be done through relatively small measures, such as ensuring a well-designed on-call system (allowing rest) and creating support groups to guide self-care, and also through larger projects, such as the establishment of a limit to the maximum hours worked and a salary floor for HCW, which could allow them not to have to do more than one job, a factor that contributes to the increase in stress among HCW [17, 24, 25]. Nursing in particular is affected by these factors, and although this discussion was not one of the main aims of this study, these aspects should be given careful consideration as they are closely related to work-related stress. It is also worth noting that nursing is the largest professional category in the health field in Brazil, and in this sample [26]. Our findings show that of the 54 HCW classified as being under high psychological demand, 59.26% have more than one job in the health field. Pearson's correlation demonstrated a weak negative correlation between workload (number of jobs) and social support ($r = -0.279$; $p = 0.034$).

This research also evaluated PPE related questions, given that the prevention of the spread of COVID-19 in the hospital environment depends on the use of personal protective equipment (PPE) by HCW and sometimes by the patient; and even the fact that this input can be a source of anxiety [3, 27]. Besides, just the fact that COVID-19 is an infectious disease can be pointed out as a source of stress [4]. This fear is not for nothing, as can be seen when analyzing the contagion of COVID-19 among HCW.

In the USA, the number of HCW infected with COVID-19 represents 2.63% of the total, in Italy this was 12.14%, with the data referring to epidemiological weeks nº 32 and nº 31, respectively [2, 28]. Up to epidemiological week nº 27, Brazil reported a total of 1,577,004 cases of COVID-19, of

which 11% were from HCW. Among these, 34.38% were nursing technicians or assistants, 14.82% nurses, 10.97% physicians and 2,43% physiotherapists [7]. In this period, the state of Sergipe recorded 29,761 cases of COVID-19, with 7.11% being in HCW [29]. Of these, 37.83% were nursing technicians or assistants, 19.74% nurses, 14.78 physicians and 2,55% physiotherapists - the distribution among professional categories following the global trend [30]. It should be noted that, as in Italy, Brazil has a high number of infected HCW, even compared to the USA, which leads the ranking in respect of confirmed cases. The HCW cannot abstain from going to work due to the pandemic, thus, the only source of protection for such is the use of PPE, proving how important it is, among all situations, during this pandemic.

Issues related to PPE in the face of the COVID-19 pandemic are constantly related to its scarcity worldwide - being an additional source of anxiety for HCW [27]. In this research the availability of PPE and whether the HCW's felt comfortable using it was evaluated. A weak positive correlation between the dimension of control and availability of PPE ($r = 0.399$; $p = 0.002$), and a moderate positive correlation with high significance between the dimension social support and availability of PPE ($r = 0.414$; $p = 0.001$), and the dimension social support and physical comfort in the use of PPE ($r = 0.434$; $p = 0.001$) were found. In fact, these findings show PPE has the potential to mitigate stress in the workplace during the pandemic since the availability and comfort in using these items gives a greater sense of control and social support to the HCW. Conversely, PPE unavailability or scarcity, and discomfort in its use can be a source of stress during the pandemic.

Despite the important role of PPE, it is known that there are different barriers to their effective use, including carelessness, and the time spent cleaning them, to annoyance about their use, itself a stress factor and a cause of the neglect of the proper use of PPE [3]. Thus, training regarding the use of PPE - donning and doffing, good related protocols, and barrier precautions, as well as the incentive to adopt the correct procedures are important. Senior management needs to have greater involvement in this issue, as the effectiveness of PPE is related, among other things, to its proper use [3, 31].

It is known that there may be divergences between data reported by different sources, so the exact or real numbers related to COVID-19 are not known; however, there is no way to disregard these numbers, and a projection of the consequences on the mental health of HCW can be obtained by comparison with previous epidemics. For example, some HCW who worked in the USA during the outbreak of severe acute respiratory syndrome (SARS) in 2003 had high symptoms of posttraumatic stress disorder (PTSD) related to SARS three years after the outbreak, corroborating the fact that the mental health of HCW should not be ignored or treated as minor issue. HCW are at risk not only of PTSD but also of depression, substance abuse and suicide [32, 33]. Perhaps it can be argued that the specific socio-cultural characteristics of each region should be considered; however, it is known that even socio-culturally different regions can be very similar in respect of the management of the disease and its local impact [22].

It is already known that adequate protocols, training and strategies that provide HCW with the opportunity to reflect on stressors are of great value. It is also clear that HCW are experiencing many negative feelings such as frustration, discrimination, and exhaustion, among others [3, 30, 34]. Institutions can offer practical help and tangible support to HCW that can make a real difference. In this respect, an interesting negative correlation was established between educational level and the dimension of social support, $r = -0.341$ and $p = 0.009$.

And last, but not least, this study demonstrated the important relationship between social support, and HCW feeling emotionally prepared for work during the pandemic (correlation between social support dimension and specific question about emotional preparation in the COVID-19 questionnaire: $r = 0.469$; $p = 0.000$. Correlation between social support dimension and total COVID-19 questionnaire: $r = 0.508$; $p = 0.000$). This correlation shows that, even in an unprecedented situation as is the case in relation to COVID-19, the health facility, through the social support it provides, is seen by the HCW as the anchor capable of contributing to their emotional balance and helping them to deal with situation that now presents itself.

It is important to note that, although some of the relationships established have been classified as weak, extreme values are often not found in practice, especially when considering that the object of study is the result of complex and multifactorial interactions and that, therefore, the variation of

one variable does not fully explain the behavior of another variable, so the low correlation coefficient is not an indication that there is no relationship between the variables [35, 36].

Still, this research does not demonstrate whether the HCW's perception of stressors in the work environment is being influenced by the pandemic or not, it cannot be denied that the factors mentioned are present during the pandemic, which allows, by syllogism, to infer that such factors impact the work performed by HCW during the COVID-19 pandemic. This study also could not found some habitual correlations between sociodemographic data and stress, like age and length in job and stress [17, 20], and this someway can reveal that the pandemic generates an environment capable to eliminate that eventually vantages. Anyway, all correlations can be found in the supplemental material.

5. CONCLUSION

Considering the findings of this research, it can be concluded that, in the state of Sergipe, the HCW who are at the forefront in the fight against COVID-19 can be described as being involved in "active work" according to the analysis employed. This is characterized by high psychological demand, but also high control, and although they are not in the worst scenario of psychological wear and tear, they are still under great psychological pressure, and it is therefore important to monitor them closely. The results demonstrated not only a failure with regard to the provision of training about COVID-19, but also the important role played by training on the subject, which is correlated with social support and, consequently, with the potential to relieve stress. It also demonstrated how the availability of PPE and comfort in using it are related to social support in the workplace.

The COVID-19 pandemic has undoubtedly had a major impact on public health worldwide, and in addition to the "natural" stress that is part of health care work, HCW had to learn how to deal with a novel disease which suddenly took so many lives, has high morbidity and requires a lot of care to avoid contagion. It should be recognized that at this moment HCW are the most valuable asset of any nation. We hope that this study has at least highlighted ways in which HCW themselves, and senior management, can intervene and adopt effective measures to minimize the stress of HCW during the COVID pandemic in similar situations.

An important limitation of this study is the size of the sample, as there was difficulty recruiting HCW, perhaps due to their exhaustive workloads, and therefore general statements should be taken with caution; however, it was possible to show that the sample was representative when considering the field proposal and health facilities in the state. Another potential methodological limitation is that this study, like any cross-sectional study, is just a snapshot of the population with findings that are characteristic of a particular population and region, and it cannot provide a view of cause and effect. So, may not necessarily be easily extrapolated to other regions or countries, thus, other models of studies in different geographic regions are necessary. It is clear that this research only scratched the surface of the subject. New research is needed that can not only identify, but directly relate the stressors to the pandemic, as well as specific coping strategies for this scenario, at the institutional and individual level. Furthermore, this research demonstrated that, in a pandemic scenario, stress, social support and institutional training are related; therefore, research focusing on the study of how social support and training are able to reduce occupational stress in the context of the pandemic would be welcome.

6. ACKNOWLEDGEMENTS

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