STRESS IN HEALTHCARE WORKERS IN HOSPITALS AND EMERGENCY CARE UNITS IN SERGIPE PUBLIC HEALTH SERVICE DURING PANDEMIC TIME

ABSTRACT

This article considers stress in healthcare workers (HCW) in Sergipe, Brazil, during COVID-19 pandemic in hospitals and emergency care units in the public health system. This is a cross-sectional study, HCW completed a questionnaire about sociodemographic issues, job stress and specific questions about COVID-19. Using the demand-control-support 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. Most of the participants were shown to be under high psychological demand (93.10%) and feel 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, with scores of r = 0.426; p = 0.001; r = 0.414; p = 0.001; and r = 0.434; p = 0.001, respectively. HCW are involved in active work; although they are not in the worst scenario in relation to psychological stress, they are still under great psychological strain, which reinforces the need to adopt effective measures to reduce it.

Keywords
Healthcare workers; occupational stress; COVID-19; coronavirus; occupational health.

RESUMO

Este artigo considera o estresse em profissionais de saúde (PS) em Sergipe, Brasil, durante a pandemia de COVID-19 em hospitais e unidades de pronto atendimento do sistema público de saúde. Trata-se de um estudo transversal, os PS responderam sobre questões sociodemográficas, estresse no trabalho e questões específicas sobre o COVID-19. Utilizando o modelo demanda-controle-suporte, 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. A maioria dos participantes estava sob alta demanda psicológica (93,10%) e tinha alto controle (89,66%). Alguns fatores afetaram a percepção dos PS sobre o 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, com pontuações de r = 0,426; p = 0,001; r = 0,414; p = 0,001; e r = 0,434; p = 0,001, respectivamente. Os PS estão 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; coronavírus; saúde do trabalhador.

Estresse em profissionais da saúde de hospitais e unidades de pronto atendimento da rede pública de sergipe em tempo de pandemia.

Introduction

In March last year the coronavirus disease (COVID-19), caused by coronavirus 2 (SARS-CoV-2), was declared a global outbreak by the WHO (CDC, 2020). Despite the stay at home advice, healthcare workers (HCW), have to do the exact opposite. HCW are among the most stressed professional categories, but COVID-19 still can add some stress in this scenario. Health systems were not prepared for pandemic and it was not different in Brazil. The smallest Brazil's state, Sergipe, had an increase in the number of new deaths by COVID-19 on epidemiological week 25 and showed higher incidence rates than São Paulo, which represents the largest number of cases in the country (*Boletins Epidemiológicos, 2020*). Thus, the objective of this research was to assess the stress in healthcare workers in hospitals and emergency care units in the public health system in the state of Sergipe, Brazil, during the COVID-19 pandemic.

Method

Design, Participants, Procedures and Ethical Considerations

This is a cross-sectional survey conducted via not probabilistic snowball sampling which included clinical staff, of any gender, in the categories of physicians, physiotherapists, nurses, nursing technicians and assistants working in public hospitals or in emergency care units during COVID-19 pandemic in the state of Sergipe, Brazil. The data collection took place between epidemiological weeks nº 21 to nº 25 (May 23rd to June 20th 2020), so, HCW who had been away from work for 4 months or more at the time of collection were excluded from the study.

There was eleven health facilities eligible to participate in this research, all from Sergipe's most affected area, being three indicated by state as referral hospital institutions for serious cases

of COVID-19 (SERGIPE, 2020), of which two are represented in this research. In a total, 09 health facilities were involved in this research.

The data collection instrument was an online questionnaire with a short version of job demand-control-support (DCS) model in Portuguese (Theorell et al., 1988; Alves et al., 2004) and contact was made via email, text message or social network (de Albuquerque, 2009). The DCS model has questions divided in 3 domains - psychological demand, control and social support. A four-point Likert-type scale was used for the demand and control dimensions (1 for never/almost never, 2 for seldom, 3 for sometimes and 4 for often; except for questions 4 and 9, where the Likert-type scale was inverse). For the social support dimension a scale was used with 1 meaning strongly disagree, 2 mildly disagree, 3 mildly agree and 4 for strongly agree, being this dimension evaluated singly. The measure of strain at work was derived by relationing dimensions demand and control (Karasek, 1979), resulting in jobs characterized as "work with high strain" (intense psychological demand but low control); "passive work" (low psychological demand and low control); "active work" (high psychological demand and high control) and "low strain work" (low psychological demand and high control).

A specific questionnaire about COVID-19, developed to serve the objectives of this study, was also applied. The questionnaire had seven items written as statements and the answers that could be chosen were the same as for the social support dimension, with the scale inverted for questions 3 and 6. Its analysis was performed through the average of the scores provided in each statement separately and then compared with the score that represents the best answer, for example, in statements about the availability of PPE and sufficient knowledge, the best score would be a 4, for strongly agree. 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 by the participants, who agreed to take part in the research by signing a free and informed consent form before participating in the research. 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 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.

Data analysis

The analyses were done by Statistical Package for Social Sciences (IBM SPSS Statistics Subscription, Armonk, NY: IBM Corp). The variables were presented as mean, median, standard deviation, and percentages; normality was tested by Shapiro-Wilk test, correlations between sociodemographic variables and results of both questionnaires were performed by Pearson's correlation coefficient (Schober et al., 2018). Statistical significance was set at 5% ($P < 0.05$).

Results

Demographic Characteristics

This study's sample was 58 HCW, being 41.38% nurses, 32.76% physiotherapists, 10.34% nursing technicians and assistants, 8.62% physicians, and 6.9% did not give their profession. 58.62% had a second job, the predominant age group was 31-40 years old (58.62%), and the majority of the sample had worked in their job for ten years or more (51.72%). The predominant educational level of the participants was specialization/residency (46.55%), followed by undergraduate (27.59%). All participants were clinical staff as frontline HCW.

Demand-control-support model and COVID-19 questionnaire

The mean dimensions were 15.76 (SD=1.66) in psychological demand, 17.38 (SD=2.15) for decision latitude 17.47 (SD = 3.14) for social support. When analyzed separately, 93.1% of workers were under high psychological demand, 89.6% had decision power (control) and 51.7% had high social support. As for the characteristic of developed work, there was 6.9% of workers in high demand, 3.4% in passive work, 86.2% in active work and 3.4% in low demand at work.

Table 1 shows the statements in the COVID-19 questionnaire. Statement number 3 was the one in which the mean of the answers came closest to the ideal scenario; however, it was the one with the highest standard deviation. Those furthest from the ideal scenario were statements number 2, 4 and 7.

Table 4
COVID-19 questionnaire's average scores by statements among HCW from hospitals and emergency care units in the public health system in Sergipe during the COVID-19 pandemic.

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

Discussion

There are no prior studies with the same design to compare results found in this research; however, there are other studies with similar aim developed in the same region, which yielded in-demand psychological, stress and common mental disorders with lower percentages than those found in this research, conducted during the pandemic (Mota et al., 2014). Despite being under

high psychological demand, workers were able to make positive progress, as evidenced by most HCW fit into the active work. This can be explained from two perspectives: at the time of data collection, cases in the northeast were falling; the other possibility is that the HCW, as demonstrated in the COVID-19 questionnaire, believe they have sufficient knowledge, which would provide them with the necessary preparation for handling the situation (Wong et al., 2007).

This personal satisfaction with knowledge does not extend to the team; even though current knowledge about COVID-19 is limited, the lack of knowledge can be considered a source of stress, the opposite is also true (Wong et al., 2007). That can be demonstrated in the moderate correlation between the statement about the team's training, present in the COVID-19 questionnaire, and the social support dimension, being $r = 0.426$; $p = 0.001$. However, social support was not enough to make HCW feel emotionally/psychologically prepared for work in the pandemic COVID-19 and a weak negative correlation was observed between psychological demand and social support ($r = -0.271$; $p = 0.039$).

Both the government and the health facility must provide that support. This can be done by ensuring a well-designed on-call system and creating support groups to guide self-care, and also by the establishment of a limit to the maximum hours worked and salary floor for HCW, which could allow them not to have to do more than one job, a well-known stress factor among HCW (Trettene et al., 2016). Our findings show that of the 54 HCW classified as being under high psychological demand, 59.26% have more than one job. Pearson's correlation demonstrated a weak negative correlation between workload (number of jobs) and social support ($r = -0.279$; $p = 0.034$).

Another source of anxiety among HCW is related to PPE (Dimitriu et al., 2020), so, this research also evaluated PPE related questions. 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. Was evaluated the availability of PPE and whether the HCW's felt comfortable using it, and 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. Although we cannot compare results found in this research with prior studies in the same envoirenment, a projection of the consequences on the mental health of HCW can be obtained by comparison with previous epidemics, for example, the outbreak of severe acute respiratory syndrome (SARS) in 2003 in the USA (Dutheil et al., 2019).

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.

Considering the findings of this research, it can be concluded that in the state of Sergipe, HCW who are at the forefront in the fight against COVID-19 can be described as being involved in active work, which 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. Although 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. This study also could not found some habitual correlations between sociodemographic data and stress, like age and length in job and stress (Trettene et al., 2016), 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.

The COVID-19 pandemic has undoubtedly had a major impact on public health worldwide, and it is clear that this research only scratched the surface of the subject. 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; however, it was possible to show that the sample was representative when considering the field proposal and health facilities in the state.

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