

## Impacts of Covid-19 Outbreak in Mental Health of Physicians and Nurses

Leonardo Maso Nassar<sup>1</sup>, Lisa Wolf<sup>2</sup>, Jorge Luis Sánchez Arevalo<sup>3</sup>

<sup>1</sup>University of São Paulo

<sup>2</sup>Hochschule Ravensburg - Weingarten university of Applied Sciences

<sup>3</sup>Federal University of Mato Grosso do Sul

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**ABSTRACT:** COVID-19 was a disease emerged in China and quickly became a pandemic. The pandemic has put health professionals under strong pressure. This situation can cause perpetual damage to mental health. Objective: the objective of the study was to conduct a scoping review to investigate the studies already produced on COVID-19's mental impacts on physicians and nurses. Methodology: the mnemonic population, concept and context of the Joanna Briggs Institute was used for a scoping review. Results: two studies carried out in China and three letters to the editors were found addressing mental problems in physicians and nurses. Conclusion: despite being a recent disease, COVID-19 already demonstrates impacts on the mental health of physicians and nurses. Although the articles were made in China, reports from other countries suggest that physicians and nurses around the world are mentally impacted by work during the pandemic, with relates of suicides ideation and suicide cases among nurses in Italy, in England, in USA, in Mexico and in India.

**KEY-WORDS:** COVID-19; Mental Illness; Physicians; Nurses.

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### INTRODUCTION

The COVID-19 outbreak started in Wuhan, Hubei, China, in December 2019 as a series of pneumonia cases of unknown causes (Huang et al., 2020). After a deep sequencing analysis, the scientific authorities discovered a novel coronavirus, which rapidly spread to other countries (Huang et al., 2020), changing everyday practices, including public health (Ataguba & Ataguba, 2020). Particularly during these times of the COVID-19 outbreak, healthcare professionals were under great pressure. The pandemic place healthcare professionals around the world in an unprecedented position, forcing them to make impossible decisions in a very stressful work environment (Greenberg, Brooks, Wessely, & Tracy, 2020). In addition, they were also at risk of contracting the virus while trying to save patients' lives. In the press conference of the WHO–China Joint Mission on COVID-19, NHCPRC reported that up until February 24<sup>th</sup> 2055 healthcare workers had been infected by the virus, with 22 (1.1%) deaths (Wang, Zhou, & Liu, 2020).

The healthcare sector was the prospect of seeing a large number of infected patients, which increased the risk of infection (Wang, Zhou, & Liu, 2020). The World Health Organization (WHO) and national/international scientific societies developed official recommendations for healthcare workers to reduce the risk of infection, creating guidelines for some care practices to make the work less dangerous (Ferioli et al., 2020). However, even with the safest possible working place, it is almost impossible to avoid the psychological impact of the COVID-19 outbreak.

The pandemic has potential to affect the mental health of healthcare workers in the frontline of the crises in a significant way (Pappa et al., 2020). In the past, along the SARS and the Ebola epidemics, the healthcare workers suffered a lot of pressure, by the increase of workload, physical exhaustion, inadequate personal equipment, and the necessity to make ethically difficult decisions (Liu et al., 2012). This situation needs to be looked carefully by health organizational managers because healthcare workers are especially vulnerable to mental health problems (Pappa et al., 2020).

It is well known that physicians and nurses commonly have to work in stressful environments, developing mental illness (McVicar, 2003; Shanafelt et al., 2012). Only in USA, between 300 to 400 physicians and medical students committed suicide per year; a number that is disproportionately higher than in other areas (Downs et al. 2014). Among nurses, the risk of suicide is also a subject for attention due the psychological pressure that they have to work (Mc Laughlin, 1994).

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Nowadays, the real impacts of the COVID-19 outbreak is impossible to measure. However, the information that we have until now provide an idea of what can happen in the future to physicians and nurses who are working in COVID-19 context. Wang, Zhou and Liu (2020) already alert us with their letter to The Journal of Hospital Infection, when they say that the “international communities, especially in other low- and middle-income countries with potential COVID-19 outbreaks, should learn early how to protect their healthcare workers”. For this reason, this article developed a scoping review survey to investigate what the scientific literature already investigated about the impact of COVID-19 in the psychological problems in physicians and nurses.

### METHODOLOGY

The study methodology is a Scoping Review based on the guidelines proposed by Joanna Briggs Institute (JBI, 2020). JBI is a nonprofit international organization for School of Translational Science of Faculty of Health Science, University of Adelaide in Australia. A Scoping Review is survey of available evidence to synthesize knowledge on a subject.

The applied strategy to the survey was the mnemonic Population, Concept and Context (PCC). For the mnemonic, Population is the group or problem in a specific situation; Concept is the relevant elements to be considered; and Context is the environment where the population is placed on. The PCC guidelines for the presente study was:

- Population: physicians and nurses;
- Concept: mental disorders;
- Context: Covid-19.

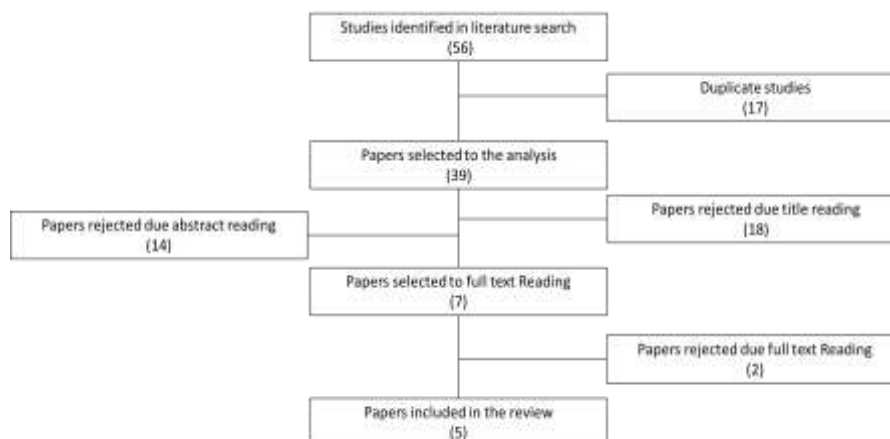
The survey search articles in three data bases: Scopus, Web of Science and Pub Med. The Medical Subject Heading (MeSH) was used to find the proper key-words was used to find the right keywords for the research. The boolean terms, AND, OR and NOT, were also considered along with the keywords for the research. The whole key-words used on this study are in Table 1.

**Table 1. Key-Words or the survey**

| PCC Strategy   | Key-Words  |
|----------------|--|
| Population (P) | Nurse or "Personnel, Nursing" or "Nursing Personnel" or "Registered Nurses" or "Nurse, Registered" or "Nurses, Registered" or "Registered Nurse"   |
| Concept (C)    | "Mental Disorder" or "Psychiatric Diseases" or "Psychiatric Disease" or "Psychiatric Illness" or "Psychiatric Illnesses" or "Psychiatric Disorders" or "Psychiatric Disorder" or "Diagnosis, Psychiatric" or "Psychiatric Diagnosis" or "Behavior Disorders" or "Mental Disorders, Severe" or "Mental Disorder, Severe" or "Severe Mental Disorder" or "Severe Mental Disorders" |
| Context (C)    | "Coronavirus Infections" or "Coronavirus Infection" or "Infection, Coronavirus" or "Infections, Coronavirus" or "Middle East Respiratory Syndrome" or "MERS" or Covid-19   |

The bibliographic survey was carried out by pairs of researchers during the month of August 2020. The papers selection was guided by a script prepared by the authors with the following eligibility criteria: the paper should be in English; mental disorders of physicians or nurses should be reported by the paper; and the mental disorder should be generated by the work with Covid-19. The study did not limit the survey to a specific year as COVID-19 is a recent phenomenon.

The first studies search result in 56 papers. The selection process followed the steps of the eligibility criteria: 17 studies were rejected because they were duplicated; 18 papers were rejected due the title reading; 14 papers were rejected due the abstract; and seven papers were reject after the full text reading. In the end, five papers were selected. The selection process is described in Figure 1.



**Figure 1.** Survey final result

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### RESULTS

The application of the eligibility criteria enabled the selection of two scientific articles and three letters to the editor about psychological problems in physicians and nurses during the COVID-19 pandemic. Both articles were conducted in China, the first country suffered from COVID-19. The authors names, the title, the objective, the country and the type of the studies are presented in Table 1.

**Table 1 – Information of the articles founded**

| Author                       | Title   | Objective   | Country | Type    |
|------------------------------|---|---|---------|---------|
| <b>Que et al</b>             | Psychological impact of the COVID-19 pandemic on healthcare workers: a cross-sectional study in China                         | Investigate the prevalence of psychological problem among healthcare workers during the COVID-19 pandemic in different regions in China.                                  | China   | Article |
| <b>Tian et al</b>            | Mental health burden of frontline health professionals treating imported patients with COVID-19 in China during the pandemic. | To examine the prevalence of stress, depression, anxiety, and sleep quality among health professionals who work on the frontline in hospital during the COVID-19 pandemic | China   | Article |
| <b>DeCaporale-Ryan et al</b> | Addressing Skilled Nursing Facilities' COVID-19 Psychosocial Needs Via Staff Training and a Process Group Intervention        | Report a training experience with skilled nursing facilities  | USA     | Letter  |
| <b>Nelson; Lee-Winn</b>      | The mental turmoil of hospital nurses in the COVID-19 pandemic  | Describe the mental efforts of a nursing team during the beggining of COVID-19 outbreak   | USA     | Letter  |
| <b>Xiang et al</b>           | Tribute to health workers in China: A group of respectable population during the outbreak of the COVID-19                     | Explored relevant reasons and offered suggestions to reduce the risk of infection and provide emergency psychological response for this population.                       | China   | Letter  |

The study of Que et al (2020) aimed to investigate the prevalence of psychological problem among 2285 healthcare workers during the COVID-19 pandemic in different 28 regions throughout China. A cross-sectional survey was conducted in February 2020, using the Generalized Anxiety Disorder Scale, Patient Health Questionnaire and Insomnia Severity Index. The healthcare works presented the following results to anxiety, depression, insomnia and the overall psychological problem respectively: 46.04%, 44.37%, 28.75% and 56.59%. Physicians and nurses presented the following results to overall psychological problems respectively: 60.35% and 62.02%.

From the total of healthcare workers, 30.94% were men and 69.09% were women, with average age of 31 years old. The participants included medical residents (913; 39.96%), physicians (860; 37.64%), nurses (208; 9.10%), technicians (179; 7.83%) and public health practitioners (125; 5.47%). From the 860 physicians, 314 were men and 546 were women; and from the 208 nurses, 13 were men and 195 were women.

For physicians, 51.05% presented anxiety, which 11.98% with moderate/severe levels; 47.91% presented depression, which 12.91% with moderate/severe levels; 28.93% presented insomnia, which 5.93% with moderate/severe levels; and 60.35% presented overall psychological problems, which 18.14% with moderate/severe levels. For nurses, 51.44% presented anxiety, which 14.90% with moderate/severe levels; 46.15% presented depression, which 12.02% with moderate/severe levels; 33.18% presented insomnia, which 9.62% with moderate/severe levels; and 62.02% presented overall psychological problems, which 21.15% with moderate/severe levels.

As possible risk factors associated with psychological problems, Que et al (2020) include: participation in front-line work, attention to neutral or negative information about the pandemic, receiving negative feedback from people who worked on the front-line, and uncertainty or unwillingness to join front-line work and so on. According to the survey's results, nurses, who may have a higher workload and greater risk of direct exposure to patients with COVID-19, are more susceptible to mental problems.

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Moreover, due to the contagious nature of the disease, nurses may be separated from their family members to reduce the risk of transmission; worry about family members may be one of the main sources of stress in nurses. Physicians are also under a lot of pressure and stress; however, despite the fact that almost 50% presented depression, the majority of the physicians are male and may have a higher acceptance of risk than nurses and have better coping skills.

In conclusion, the authors suggested that a greater risk of psychological problems may be associated with receiving negative information about the pandemic. Moreover, front-line workers appear to be an important risk factor for anxiety, insomnia and overall psychological problems. Furthermore, depression and symptoms of post-traumatic stress might persist even after the end of the pandemic situation.

The study of Tian et al (2020) examined the prevalence of stress, depression, anxiety, and sleep quality among health professionals who work on the frontline in hospital during the COVID-19 pandemic. The study was conducted in April with the Questionnaire Star program. All of the 1,057 frontline health professionals in Beijing Xiaotangshan Hospital were invited, of whom, 845 participated in this survey, which 76.8% were nurses.

Besides this information, which shows that major of the frontline workers were nurses, the study did not present any other information about the professionals. Due to this fact, it is impossible to detail the exact information about nurses and physicians. The prevalence of moderate to severe stress level among the frontline workers was 60.8%; while the prevalence of depression, anxiety and insomnia symptoms were 45.6%, 20.7%, and 27.0%, respectively. In conclusion, the authors suggested that high levels of stress and mental health problems are common among frontline health professionals during the COVID-19 pandemic, even in the setting of a well-contained disease transmission.

The letter of DeCaporale-Ryan et al (2020) is an expression of the author's concern about the mental health quality of clinicians during the COVID-19 crisis. According to the authors, healthcare workers are under a great level of stress for caring vulnerable patients, working with constant changes in the isolation precautions regulations, and worrying about the possibility to infect their loved ones. Even before the COVID-19 outbreak, it was known that healthcare workers whose work in skilled nursing facilities and psychiatric centers are under a high risk to develop mental issues, such as burnout.

The authors shared an experience that they have with a skilled nursing facility and psychiatric centers in collaboration with the University of Rochester Geriatric Telepsychiatry Program. They developed a group with 67 participants by videoconferencing to approach subjects like the anxiety for their patients, their personal safety and the safety of their loved ones. In the end of the sessions, the coordinators received positive feedbacks. The participants reported increased awareness of ways to support patients and also that they benefited from attending to their self-care. The author suggested that this experience may ameliorate COVID-19's negative psychosocial effects in healthcare workers.

Nelson and Lee-Winn (2020) described their own experience with the COVID-19 outbreak. The authors initiated their letter questioning if they are killing other patients due to the lack of appropriate security equipment for COVID-19. The authors reported that they had to keep working diligently, hoping that a mask, used for three days long, would protect them from the virus, while they saw friends and coworkers getting sick and eventually needing intubation.

The authors revealed their suffering from intense anxiety every day before work for the fear about when they would get sick. In addition, the nurse staff of the organization felt powerless against the members of the hospital's administration, who did not see the turmoil that they went through. The fact that managers are far from the front line did not allow them to feel the real fear that the staff had every day during the pandemic. The authors also reported anxiety and panic attacks of coworker nurses and increased number of burnout. Most of the anxiety was provoked by the sensation that they would end like the patients in intensive care unit to die.

In addition, the hospital's management also asked the nurses to have FaceTime or to call the patient's family prior to the intubation due to the fact that they would have little chance to live the hospital alive. This situation caused a lot of negative feelings among the staff because the hospital did not allow visitors inside the facilities, and the families would not have the opportunity for a last chance to see the patients alive.

The letter of Xiang et al (2020) is a tribute to all health workers in China. The authors describe in few paragraphs the beginning of the COVID-19 crises in China, and how health workers, including Dr. Chaolin Huang and his colleagues, who first reported clinical features of patients infected with the virus, got infected and died by the disease.

The authors speculated several hypotheses for the number of infected health workers in the beginning of the pandemic in China: lack of proper awareness to combat COVID-19; insufficient supplies to protect the frontline health workers, and the delay to establish diagnosis criteria to confirm cases with COVID-19. The outbreak was a great burden to Chinese healthcare workers, whose, in recent years, have been confronted with frustrating situations in the health care system and also with violence against clinicians in workspace. Due to the fact that workers' mental health would be at stake, the authors suggested that policymakers and health authorities should make efforts to protect the healthcare workers during the COVID-19 outbreak. Moreover, health workers

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should receive professional counselling if they showed early signs of Burnout, anxiety and/ depression to minimize the risk of developing psychiatric morbidity.

### DISCUSSION

The final result of the survey showed a critical scenario for health workers, specially physicians and nurses, and managers of medical organizations. The three letters to the editors presented concerns about the mental condition of health workers, which the letter of Nelson and Lee-Winn (2020) described the worst environment, and the two articles confirm that physicians and nurses are really under a mental pressure. It is important to highlight that in less than six months after the beginning of COVID-19 pandemic, the scientific literature already has studies reporting mental illness in health care professionals who worked with contaminated patients.

This result is an alert to healthcare managers, hospital managers, public managers and healthcare workers, because, even both articles were from China, we can assume that healthcare professionals, especially physicians and nurses, from all over the world are dealing with the same situation as their Chinese colleagues. The letters of Nelson and Lee-Winn (2020) and DeCaporale-Ryan et al (2020) reinforce this assumption because both of them are not from China. Moreover, in a letter to the editor of the magazine *Psychiatry Research*, Rahman and Plummer (2020) alerted the scientific community about the problem of suicide in nurses that were working in COVID-19 workplace. The authors reported nurses suicide related to COVID-19 in Italy, in England, in USA, in Mexico and in India.

The media and public health generally focus on the biological and physical impacts of epidemics, rather than pay the proper attention to mental health issues that coincide with the emerging disease (Tucci et al. 2017). In some cases, the mental problems are eschewed due to cultural considerations (Tucci et al. 2017). It is widely reported that the practice of medicine and nursing are naturally demanding and stressful (McVicar, 2003; Shanafelt et al., 2012). It is well known by the science the high suicide ideations and suicide rates between nurses and physicians due they work conditions (Gold & Schwenk, 2020; Wang, Zhou, & Liu, 2020).

Even though the professional does not commit suicide as a result of psychological problems, the condition can persist for years (Que et al., 2020). This weakened mental condition compromises patient safety, because healthcare works who has high taxes of psychological problems has higher chances to commit errors during the treatment with the patient (Talih et al., 2016). The concern of Que et al (2020) in the end of their survey makes sense, because the healthcare professionals still can suffer the psychological effects of COVID-19 for years after the end of the pandemic. For this reason, the mental condition of nurses and physicians is not only a professional problem, to be handle by the individual or by medical organizations, but a severe situation that has potential to impact the whole society.

The literature well known that death of patients is a situation of a great mental suffering by physician (Meier, Back, & Morrison, 2001). In these situations, the physicians tried to save the patient's life at least. On the other hand, during the COVID-19 pandemic, a lot of physicians has been reported that they have to choose who would live and who would die due the insufficient equipment in hospitals (BBC, 2020). They even had the opportunity to try to save patient's life in this situation. This dreadful decision has potential to cause permanent psychological damage to a healthcare professional.

In the letter of Nelson and Lee-Winn (2020), they described that the healthcare crew also had the doubt if they were killing other patients by transmitting the virus to them. This situation is worrying because the health workers, who should save the patients' lives, were the responsible for killing them. Besides the impossibility to save the patients, physicians and nurses also have to concern about their own lives and about the lives of their family. They are concern to transmit the virus to their families and to be responsible for a death of a beloved one.

This cauldron of negative feelings may raise the risk of mental illness and suicide ideation, which were already reported during the COVID-19 outbreak by Rahman and Plummer (2020). A suicide of a coworker can have a significant impact on the rest of the company's workers and to the overall organization (Boccio & Macari, 2013). That is why the health organization's managers must work to provide a safest as possible workplace for the mental health of the employees.

If Tian et al (2020) are correct with the suggestion that mental health problems are common among frontline health professionals during the COVID-19 pandemic, and previous studies showed that stress and pressure are natural for this type of work, health care organizations and society must care about their physicians and nurses. The role of healthcare managers increased during the outbreak, because, in addition to their responsibilities with the organization's patients, they are now even more responsible for the mental conditions of the employees due the well-known fact that suicide ideations in nurses and physicians are related with work conditions (Gold & Schwenk, 2020; Wang, Zhou, & Liu, 2020). The academic community must draw the attention of the society to avoid that the situation described by Tucci et al (2017) happens with the COVID-19 pandemic. One solution that can be draw by hospital's managers is the implementation of small-group reflection rounds. DeCaporale-Ryan et al (2020) described a

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group experience with good results. Moreover, the literature already has studies to support this strategy of group approach to reduce mental stress in healthcare workers.

Wen et al (2013) developed a research with physicians of the US emergency medicine residency program by creating a confidential environment where the residents could discuss difficult ethical or other problems that they were having in the workplace. The implementation of small groups reflection had positive impact on mental health of the participants, because it provided reflective practice and cooperative learning. The authors argue that the group was also useful to provide to each other mutual support. This can be a strategy to be adopted by hospital's managers to improve the mental conditions for health workers. The support provided by the group is important to show that the employee is not alone or that is a weakness for having negative feelings. If Tian et al (2020) are correct with the suggestion that mental health problems are common among frontline health professionals during the COVID-19 pandemic, and previous studies showed that stress and pressure are natural for this type of work, health care organizations and society must care about their physicians and nurses. For this reason, the present study aimed to alert the academic community about the risk of mental suffering that physicians and nurses are facing. The pandemic of COVID-19 is a problem that needs engagement from managers with their employees.

### CONCLUSION

The final survey's result with two articles and three letters to the editor, which is an alert signal, because the scientific community already reported psychological problems in physicians and nurses by COVID-19 with less than one year of the outbreak. The two studies took place in China, but it is possible to assume that physicians and nurses from other countries also have to deal with the same issues, because nurses' suicide have been reported in different nations. The letters to the editors cited by this study shows a concern about the psychological situation of physicians and nurses along the COVID-19 pandemic with potential to cause permanent mental damage to these workers. Is an obligation of the scientific community alert the society to this situation, because it is not an individual problem of healthcare works, but a condition that impacts the society as a whole.

A suggestion to hospital's managers is the implementation of groups reflection rounds. The literature already demonstrated that is an effective strategy to ameliorate the mental conditions of health workers, which can be use during the COVID-19 outbreak and after the pandemic's end.

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