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INTEGRATIVE REVIEW OF THE LITERATURE

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NEGATIVE REPERCUSSIONS AND PSYCHOLOGICAL IMPACT OF PANDEMIC BY COVID-19 ON HEALTH TEAMS

Repercussões negativas e impacto psicológico da pandemia por covid-19 nas equipes de saúde

Repercusiones negativas e impacto psicológico de la pandemia por covid-19 en equipos de salud

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ABSTRACT

Objective: to identify negative repercussions and the psychological impact on health professionals who work in the care of patients with coronavirus and strategies to minimize its effects. **Method:** integrative review of publications from 2010 to 2020, in the Public Medline databases, Journal Portal of the Coordination for the Improvement of Higher Education Personnel, Cumulative Index to Nursing and Allied Health Literature and TRIP DATABASE. **Results:** the analysis of 12 studies related to psychological impacts on workers resulted in three categories: perceived stressors; negative repercussions and psychological implications; and supporting factors for reducing stressors. **Conclusion:** the coronavirus pandemic can cause psychological distress and the results indicate the need for attention to the mental health of health workers. Assessing psychic overload, offering psychological support and implementing protocols for a safe environment make up the complex network of actions that determine success in coping with COVID-19.

DESCRIPTORS: Health personnel; Coronavirus infections; Stress, psychological; Occupational stress; Pandemics.

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RESUMO

Objetivo: identificar repercussões negativas e o impacto psicológico em profissionais de saúde que atuam no cuidado aos pacientes com coronavírus e estratégias para minimizar seus efeitos. **Método:** revisão integrativa das publicações de 2010 a 2020, nas bases de dados *Public Medline*, Portal de Periódicos da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, *Cumulative Index to Nursing and Allied Health Literature* e *TRIP DATABASE*. **Resultados:** a análise dos 12 estudos relacionados aos impactos psicológicos nos trabalhadores resultou em três categorias: estressores percebidos; repercussões negativas e implicações psicológicas; e fatores de suporte para redução dos estressores. **Conclusão:** a pandemia pelo coronavírus pode causar sofrimento psicológico e os resultados indicam a necessidade de atenção à saúde mental dos trabalhadores de saúde. Avaliação da sobrecarga psíquica, oferta de apoio psicológico e implementação de protocolos para um ambiente seguro compõem a complexa rede de ações que determinam o êxito no enfrentamento à COVID-19.

DESCRIPTORIOS: Pessoal de saúde; Infecções por coronavírus; Estresse psicológico; Estresse ocupacional; Pandemias.

RESUMEN

Objetivo: identificar repercusiones negativas y el impacto psicológico en los profesionales de la salud que trabajan en la atención de pacientes con coronavirus y estrategias para minimizar sus efectos. **Método:** revisión integradora de publicaciones de 2010 a 2020, en las bases de datos *Public Medline*, Portal de Publicaciones Periódicas - Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), *Cumulative Index to Nursing and Allied Health Literature* y *TRIP DATABASE*. **Resultados:** el análisis de 12 estudios relacionados con el impacto psicológico en los trabajadores resultó en tres categorías: factores de estrés percibido; repercusiones negativas e implicaciones psicológicas; y factores para la reducción de los estresantes. **Conclusión:** la pandemia por el coronavirus puede causar sufrimiento psicológico y los resultados indican la necesidad de prestar atención a la salud mental de trabajadores de la salud. evaluación de la sobrecarga psicológica, ofrecimiento de apoyo psicológico y la puesta en marcha de protocolos para un entorno seguro, conforman el complejo entramado de acciones que determinan el éxito a la hora de afrontar el COVID-19.

DESCRIPTORIOS: Personal de salud; Infecciones por coronavirus; Estrés psicológico; Estrés laboral; Pandemias.

INTRODUCTION

The first cases of infection with the novel coronavirus SARS-CoV-2 were reported in December 2019 in Wuhan province of Hubei, China,^{1,2} which is considered the largest outbreak of atypical pneumonia since Severe Acute Respiratory Syndrome (SARS) in 2003.^{3,4}

The SARS-CoV-2 pathogen is the latest member of the coronavirus family of RNA involved, and the infection is transmitted between humans primarily by the respiratory route.^{3,4}

The global outbreak of the disease, termed COVID-19, determined the decree of a “Public Health Emergency of International Concern” by the World Health Organization in January 2020 and due to its geographical spread, it raised epidemiological criteria to be declared a pandemic on March

11, 2020.⁵ News of the pandemic and constantly updated numerical data quickly reached the world, spreading a climate of panic globally.⁶

Due to the infectious power of the virus, the incipient vaccination process in some countries, and the lack of specific drugs for treatment, the pandemic due to COVID-19 has a high stressful potential, especially among the healthcare workers directly involved.^{2,6} The increasing number of suspected and confirmed cases, the increasing workload, the scarcity of personal protective equipment, the lack of drugs, and the absenteeism of healthcare workers generate predictable and legitimate mental overload.²

Studies conducted in China, the first epicenter of the disease, suggest the infection's effects on the mental health of society.^{1,3} In the first two weeks of the outbreak, 16.5% of the population reported depressive symptoms, 28.8% reported anxiety, and 8.1% reported increased levels of stress, all ranging from moderate to severe.³

Psychological manifestations also affected health professionals, with high rates of severe symptoms of depression, anxiety, insomnia, and anguish, especially among nurses.²

Previous research has warned about the importance of research on the topic by showing that healthcare workers experienced severe emotional stress with significantly high scores for developing Post-Traumatic Stress Disorder (PTSD) during the period of coronavirus outbreak in Korea in 2015.⁷

Thus, the need to investigate and understand part of the challenges related to the care of patients with COVID-19 in the field of worker health, with a focus on mental health, is justified. The discussions that involve the psychic work overload in the context of the pandemic can help guide psychological assistance services and hospital institutions in promoting the well-being and mental health of health professionals.

Considering the emotional stress experienced by this group of workers, the question: “What are the negative repercussions of the pandemic by coronavirus on the mental health of the health team and the possible strategies to minimize its effects?” was elaborated. Thus, it is aimed to identify the negative repercussions and psychological impact on professionals who work in the care of patients with coronavirus and possible strategies to minimize their effects.

METHOD

This is an integrative review with inclusion of experimental and non-experimental studies, as well as data from the theoretical and empirical literature.⁸

The study followed the recommended steps: development of the guiding question and objectives; literature search; establishment of criteria for the selection of articles that make up the sample; data collection; categorization and critical analysis of the studies included; synthesis and discussion of the main evidence.⁸

The guiding question was based on the PICO strategy, an acronym for Patient, Intervention, Comparison and Outcomes, a word referring to the outcome.⁹ Since the study did not perform comparisons, the PIO method was used.

Since COVID-19 is a recent disease, with insufficient evidence for an in-depth survey, it was decided to include publications from previous experiences with coronavirus outbreaks, such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS), as it was understood that they may provide valuable input for the development of answers to the question of this study.

The inclusion criteria established were publications in any language, in the period from 2010 to 2020, that addressed the psychological aspects and support strategies for health professionals facing situations of outbreaks and epidemics by coronavirus. Theses and dissertations were excluded.

For the bibliographic survey we chose the Public Medline (PubMed) platform, the Periodical Portal of the Coordination for the Improvement of Higher Education Personnel (CAPES), the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and TRIP DATABASE.

The PubMed search strategy was structured as follows: for P- (Health Personnel or Patient Care Team); for I- (coronavirus or coronavirus infections); for O- (Stress, Psychological or Occupational Stress). The descriptors were combined by the Boolean operator AND and the search adapted to the other databases. Data collection occurred in April 2020.

The results were grouped in a reference manager, and 180 publications were retrieved.

Repeated studies and those that did not match the pre-established time frame were eliminated, leaving 78 articles.

The material was analyzed by two independent judges who decided, after reading the title and abstract, which articles would be analyzed, according to the eligibility criteria.

Fifty-nine articles that were not related to the researched subject were excluded. There was conflict among four studies, resolved by a third judge, leaving 19 publications for full reading. Of these, seven were excluded for addressing issues such as recommendations and clinical experiences, characteristics of previous epidemics by the coronaviridae family, analysis of performance protocols, impact of the pandemic on individuals with psychiatric disorders, and strategies to contain transmission. Twelve publications remained for the study.

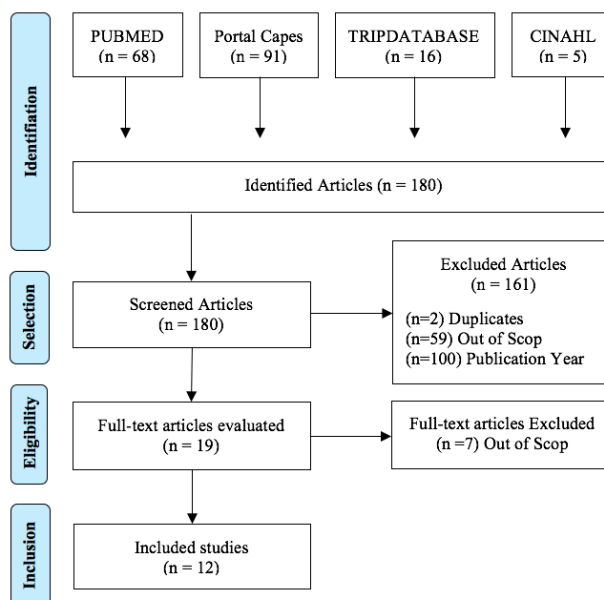
The entire inclusion and exclusion process considered the steps proposed by the Flow Prism¹⁰, described in Figure 1.

In view of the results, the compiled materials were analyzed based on their objectives, methodology, level of evidence of approach, and relevance of the main findings.

We chose to use the classification system proposed by Melnyk and Fineout-Overholt¹¹, composed of seven levels, as follows level I - evidence derived from systematic reviews or meta-analysis of relevant clinical trials; level II - evidence derived from at least one well-designed randomized controlled trial; level III - well-designed clinical trials without randomization; level IV - well-designed cohort and case-control studies; level V - systematic review of descriptive and qualitative studies; level VI - evidence derived from a single descriptive or qualitative study; and level VII - opinion of authorities or expert committee report.¹¹

After content review and synthesis, the results were grouped into three categories: perceived stressors; negative repercussions and psychological implications; and support factors for stressor reduction. Then, the data were organized from absolute frequency (n) and percentage (%).

Figure 1- Flowchart of the article selection process - PRISMA Flow Diagram



RESULTS AND DISCUSSION

The selected publications were organized and synthesized based on the author, country of origin, year of publication, methodology used, level of evidence, and objectives, as shown in Table 1.

Table 1 - Data from the selected publications from 2010 to 2020.

Reference	Country / Year	Methodology	Level of Evidence	Objectives
Choi JS; Kim JS. ¹²	South Korea 2018	Quantitative, observational.	IV	Identify factors that influenced ethical issues during MERS-CoV outbreak.
World Health Organization. ¹³	Switzerland 2020	Instruction Note.	VII	Recommend actions that assist in the management of mental problems and the psychosocial well-being of different target groups during the pandemic.
Kim JS; Choi JS. ¹⁴	South Korea 2016	Quantitative, observational	IV	Assess burnout level of nurses during MERS-CoV outbreak.
Lai, Jianbo, et al. ²	China 2020	Quantitative, observational	IV	Assess magnitude of symptoms such as depression, insomnia, and distress of Chinese healthcare workers active in pandemic COVID-19.
Lee SM, Kang WS, Cho AR, Kim T, Park JK. ⁷	South Korea 2018	Quantitative, observational	IV	Assess immediate stress and psychological impact of health care professionals who treated patients with MERS.
Kim Y. ¹⁵	South Korea 2017	Quantitative, observational	IV	To identify the psychological stress of nurses assisting patients with MERS-CoV.
Khalid I, Khalid TJ, Qabajah MR, Barnard AG, Qushmaq IA. ¹⁶	Saudi Arabia 2016	Quantitative, observational	IV	Explore emotions, perceived stressors, and coping strategies of health care workers during MERS-CoV outbreak.
Fagiolini A, Cuomo A, Frank E. ¹⁷	Italy 2020	Experience report.	VII	To describe the experience of health professionals in Italy in dealing with the pandemic due to COVID-19.
Xiao H, Zhang Y, Kong D, Li S, Yang N. ¹⁸	China 2020	Quantitative, observational	IV	Use structural equation modeling (SEM) to determine the effects of social support on sleep quality and function for medical staff treating patients with COVID-19.
Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, et al. ¹⁹	China 2020	Experience report.	VII	To describe psychological intervention measures adopted for healthcare professionals during coping with COVID-19.
Kang HS, Son YD, Chae SM, Corte C. ²⁰	South Korea 2018	Qualitative, descriptive.	IV	Explore nurses' work experiences during MERS outbreak.
Brooks SK, Dunn R, Amlôt R, Rubin GJ, Greenberg N. ²¹	United Kingdom, 2018	Systematic review.	V	Identify social and occupational factors that affect the psychological well-being of health care workers involved in the SARS crisis.

Regarding the level of evidence, eight (66.7%) were classified as level IV, three (25.0%) as level VII, and one (8.3%) as level V. Regarding the nature of the study, six (50.0%) were classified as observational.

All 12 (100%) articles included were published in English. Regarding the year five (41.6%) are from 2020, four (33.3%) from 2018, two (16.6%) from 2016 and one (8.3%) from 2017.

Regarding the origin of the study, the most frequent were five (41.6%) conducted in South Korea and three (25%) in China.

The analysis of the results was organized into three categories, as shown in Table 2.

Table 2- Main results of the publications from 2010 to 2020, according to the thematic axes.

1st Category: Perceived stressors	2nd Category: Negative repercussions and psychological implications	3rd Category: Support factors for stressor reduction
Social stigmatization. ^{12,13,15,16,21}	Guilt by “avoiding the patient”. ¹²	Social Support. ^{12-16,18,21}
Risk of self and family contamination. ^{12,14-16,20}	Stress. ^{13-15,18,20,11}	EPIs adequados e suficientes. ^{12,15,16,19,20}
Responsibility, compulsory care, and ethical duty. ^{12,15,16}	Constant feeling of pressure and fear. ¹³⁻¹⁶	Guidelines, protocols and training for infection control and creating a safe environment. ^{12,14-16,19,20}
Risk of self and family contamination. ^{12,14-16,20}	Burnout Syndrome. ^{14,20}	Compensation mechanisms for the professional to facilitate his/her participation in patient care. ^{12,15,16,20}
Responsibility, compulsory care, and ethical duty. ^{12,15,16}	Insomnia or poor sleep quality. ^{2,15,18}	Breaks and rest between shifts. ¹³
Disagreement on infection control protocols and care flows. ^{12,15,20}	Anguish. ²	Physical care such as healthy eating and physical activity routine. ¹³
Insufficient or inadequate PPE. ^{12,15,16,20}	Depression. ⁷	Communication with friends and family, through virtual contact. ¹³
Continuous flow of patients. ¹⁴	Psychic suffering. ^{7,15}	Guaranteeing psychosocial and mental support services to employees. ^{7,13-15,17,19}
Insufficient or inadequate PPE. ^{12,15,16,20}	Symptoms of Posttraumatic Stress Disorder. ^{7,21}	Quality and reliable information for the entire health team ¹³
Continuous flow of patients. ¹⁴	Feeling of abandonment and helplessness. ^{15,17}	Professional rotation between more and less stressful areas. ¹³
Insufficient human and material resources and inadequate physical structure. ^{14-16,20,21}	Feeling of injustice. ¹⁵	Teams with experienced professionals. ^{13,15}
Low social and family support. ^{14,15}	Physical Exhaustion. ¹⁵⁻¹⁷	Work flexibility for professionals directly affected or with family members impacted by stress. ¹³
Insufficient human and material resources and inadequate physical structure. ^{14-16,20,21}	Stress Dermatitis. ¹⁵	Strong and resilient health systems for epidemic situations. ^{14,15}
Low social and family support. ^{14,15}	Pain due to physical demands. ¹⁵	Mind control, repetitions of positive affirmations. ¹⁵
Technical unpreparedness and professional inexperience ¹⁷		Professional recognition before the institution and society. ¹⁵
Training insufficiency. ^{15,21}		
Use and discomfort of the constant use of PPE during the workday. ^{15,16,20}		
Bureaucratic activities and reporting. ¹⁵		
Clinical worsening of patients. ¹⁵		
Patient and family disregard for the institution's recommendations. ¹⁵		
News of new cases on TV and in the newspaper. ¹⁶		

In the first category, the main stressors perceived by health professionals were listed. The most frequent ones were social stigmatization^{12,13,15,16,21}, risk of self-contagion/contagion from family^{12,14-16,20} and insufficient human and hospital resources associated with inadequate physical structure^{14-16,20,21} cited in five (41.6%) publications. Insufficient or inadequate personal protection equipment appears as the second most frequent stressor, in four (33.3%) publications.^{12,15,16,20}

Exposure to endemic and epidemic agents has a negative impact on the work organization process of the health team, due to increased daily demand and workload. It causes a continuous flow of patients, an increase in the volume of bureaucratic activities, such as the notification of suspected or confirmed cases²², in addition to demanding more time and attention from the professional with demands regarding the use of infection control precautions.

This increase in workload, the number of shifts, and the lack of professionals can be associated with the aggravation of work stress, as verified in Ireland during an influenza outbreak.²² Thus, epidemic situations compromise the usual workflow^{23,24} and require the implementation of additional resources, such as the recruitment and hiring of new professionals.

As human and material resources become insufficient, the quality of personal protective equipment (PPE) and the adequacy of the physical structure of health care facilities are questioned, the work environment for these professionals becomes more arid.¹²⁻¹⁴ Thus, hospitals should prepare their facilities and material resources for outbreaks of emerging infectious diseases, in addition to establishing systematized guidelines and ongoing discussions for infection control.¹⁴

In this regard, research suggests the need for assessment of the potential impact on the workload of health professionals, with analysis of the need for adequate staffing and allocation of resources in a pandemic situation to develop and implement prevention and rapid response protocols.²²⁻²⁴

The recall of more than 40,000 health care workers, the urgent construction of makeshift hospitals to treat COVID-19 patients, and the rapid provision of essential supplies in China, the first epicenter of the pandemic, illustrate how these strategies can contribute to mitigating the effects of overload and cushioning the psychological pressure on workers.²⁵

Despite being contradictory, the preparation process of health care units and infection control training²⁶ can still be potential stressors for professionals during pandemics, since they require urgent changes in the flow of care, adaptations in the service, and urgent training.

Thus, preparing for the unexpected through simulated exercises and continuous training using event mapping and modeling may be useful in outbreak management, favoring the development of capacity and competence of the units²⁴ and developing resilient health systems to face situations similar to the current one^{14,15}.

Moreover, as suggested in six (50%) publications as supportive factors, managers and administrators should establish guidelines and protocols for creating a safe environment.^{12,14-16,19,20} This personalized approach during a challenging period can minimize the risks and workload of professionals.

Still regarding stressors, the fear of self-contamination and of contamination of the family demonstrates psychological suffering, being associated with anxiety and depression, as pointed out in other studies.^{7,27}

The health professional's preventive care extends beyond the hospital environment and continues at home. Thus, the time and effort spent on rituals to decontaminate clothing and personal objects, vehicles of contamination for family members, are also referred to as highly stressful.²⁷

Isolation recommendations, limiting circulation in places where the risk of contamination is higher, such as hospitals, can generate fear and stigma in certain groups of people.^{28,29} This corroborates the highlighting of social stigmatization of professionals who work in health units as a significant stressor. During the MERS-CoV outbreak in Korea, health care workers reported the occurrence of this phenomenon of harassment.¹²

In addition, stigmatization contributed to increased avoidance behavior after a period of social withdrawal, favoring the thought that health care workers were infected and could contaminate people in the community.^{30,31} Stigma thus exerted an indirect effect on mental health through stress among nurses working in the infectious MERS-CoV epidemic.³²

To prevent such societal behavior, the government and public institutions should provide accurate information about the disease and educate the population for changes in mentality.³³ After all, the emergence of infectious diseases will continue in the future, and the formation of a mature public awareness will help us deal with these diseases.¹²

In the category of negative repercussions and psychological implications, stress appeared in six (50%) studies,^{13-15,18,20,11} followed by the feeling of constant pressure and fear highlighted in four (33.3%).¹³⁻¹⁶ Anxiety,^{2,17,18} insomnia or poor sleep quality,^{2,15,18} and the feeling of physical exhaustion¹⁵⁻¹⁷ also emerged in three (25%) articles. These results are consistent with a study from China, in which 58.6% of healthcare workers developed mental symptoms after the peak of covid-19 cases in that country.²⁵

In contrast, Singapore had 14.5% of workers with anxiety, 8.9% with signs of depression, 6.6% with stress symptoms, and 7.7% with symptoms consistent with PTSD, possibly explained by previous experience with the SARS outbreak.³⁴

In contrast to this finding, another study did not reveal significant differences between stress and previous experience of nurses in epidemic scenarios. However, the stress level of those who faced it for the first time was higher than the others.³⁵

Understanding the influence of previous experience in epidemic events on the behavior and performance of health professionals can support the decision making of managers. This approach can contribute technically and psychologically.³⁶

In the category of support factors for stressor reduction, social support was cited in seven (58.3%) publications.^{12-16,18,21} Other results reinforce the positive effect of social support as an element capable of favoring the concentration and commitment of the professional with patient care, even in adverse environments.¹²

According to a study conducted in China, health professionals who lacked parental support and care showed a decline in mental health.²⁵ Moreover, the low support from family and friends was significantly related to burnout among Korean nurses during the MERS-CoV epidemic.¹⁴

The need for guidelines, protocols, and training for infection control and creation of a safe environment, as well as the guarantee of psychosocial and mental support services for the employees pointed out in six (50.0%) publications are also part of the strategies recognized by the professionals to alleviate the stressors.^{7,13-15,17,19}

In this sense, the offer of adequate and sufficient equipment for individual protection, cited in five (41.6%)^{12,15,16,19,20} publications, and of compensation mechanisms for the professional to facilitate his/her participation in patient care, evident in four (33.3%)^{12,15,16,20}, seem to be relevant alternatives.

The structuring of teams with more experienced professionals together with less experienced ones may promote a supportive environment and safer procedures.^{13,15}

The contributions of more experienced professionals in epidemic outbreak scenarios are countless. Their more developed knowledge and skill are helpful in meeting the complex needs of the infected. In addition, mature psychological robustness cooperates with awareness of infection control practice and adherence to precautionary measures in epidemic situations.^{13,15}

It is worth noting, however, that professionals with previous experience may underestimate the severity of impending outbreaks. Thus, the need for further research in this area is reinforced.³⁶

As for the proposals of work reorganization, aiming to safeguard the physical and mental health of health professionals, the following are recommended: rotation of workers from more to less stressful areas, regular break periods¹³ and shortening the work day, as recommended in the literature.³⁵

There are suggestions that hospital administrators limit the number of workers exposed to COVID-19 patients by separating them by cohort. Whenever possible, schedule recovered employees to work on COVID-19 units, and counter to the recommendations cited above, use overtime with long shifts to reduce the required number of professionals.³⁷

Such proposals are questionable not only with regard to the increased risk of infection from prolonged exposure, but also with regard to the psychological well-being of the workers³⁸ as well as disregarding the possibility of reinfection of the professionals.

Previous experience with an Ebola-infected patient in Germany indicated that short shifts improved staff satisfaction with working conditions and increased the personal safety of health care workers.³⁸

Four (33.3%) publications^{12,15,16,20} have suggested mechanisms for staff compensation, including the work reorganization measures³⁶ mentioned above, and the offer

of benefits such as post-epidemic reward vacations¹⁵ and financial gratification.^{15,16}

The diversity of findings of negative health repercussions and psychological implications in workers working in coronavirus epidemics reinforces the need to ensure psychosocial and mental support to professionals. It is vital to identify those who are exhausted or suffering psychologically in order to have a timely intervention.^{14,35}

It is believed that by strengthening the psychological defense of health care workers, nations can continue the battle against COVID-19 with higher expectations of success..^{14,35}

CONCLUSION

The results suggest that the pandemic by the coronavirus can cause psychological suffering in health professionals, mainly due to stressors such as social stigmatization, risk of self and family contamination, insufficient human and material resources, and inadequate physical structure.

Regarding the allied strategies in mental health harm reduction, it is verified that they are linked to the complexity of COVID-19 coping measures. This involves the use of technology, infrastructure, resource allocation and investment, and staff training.

Research whose central themes involve the coronavirus is incipient, especially related to the psychological issues of health professionals. Thus, the reduced number of studies and the fragility of the quality of evidence of the publications analyzed stand out.

The psychological responses during the fight against COVID-19 can be dramatic and long-lasting. This demonstrates the need for greater visibility of the psychological issue of essential workers during emerging pandemics. In this regard, this study will contribute to updating and providing evidence to direct attention to the mental health status of this group of workers and provide input for decision making.

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