



NAZARBAYEV  
UNIVERSITY

**Nazarbayev University**

**Master of Public Health Thesis**

**Understanding the impact of Covid-19 pandemic on the mental  
health of the frontline medical workers in a post-pandemic period:  
A Scoping Review.**

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## **Abstract**

The COVID-19 pandemic has brought unprecedented challenges to global healthcare systems, with frontline medical workers facing immense pressure and strain. This scoping review examines the impact of the pandemic on the mental health of healthcare workers in the post-pandemic period, focusing on studies published from 2021 onwards. Through a systematic literature search, utilizing the Arksey and O'Malley framework, relevant articles were identified from databases including PubMed, Embase, Nazarbayev University Library, and Google Scholar. A total of 20 articles were analyzed, comprising cross-sectional studies, qualitative research, and systematic reviews. The findings reveal a significant prevalence of mental health conditions among healthcare workers post-pandemic, with post-traumatic stress disorder (PTSD), burnout, anxiety, and depression emerging as primary concerns. Factors contributing to mental health challenges include high stress levels, moral dilemmas, and inadequate support systems. The review highlights the importance of implementing interventions to support healthcare workers' mental health, such as regular screening, access to counseling services, and resilience training. Organizational support and policy changes are also crucial to mitigate workplace stressors and foster a supportive environment. Despite the importance of this topic,

the available literature on post-pandemic mental health remains limited, emphasizing the need for further research and comprehensive meta-analyses. Addressing the mental health needs of healthcare workers is essential not only for their well-being but also for ensuring the provision of quality patient care.

Keywords: COVID-19, mental health, healthcare workers, recovery, PTSD, burnout, resilience

## **Table of Contents**

<b><u>ACKNOWLEDGMENTS</u></b>	<b><u>2</u></b>
<b><u>Abstract</u></b>	<b><u>3</u></b>
<b><u>Introduction</u></b>	<b><u>5</u></b>
<b><u>Methodology</u></b>	<b><u>9</u></b>
<b><u>Results</u></b>	<b><u>13</u></b>
<b><u>Discussion</u></b>	<b><u>19</u></b>
<b><u>Limitations</u></b>	<b><u>24</u></b>
<b><u>Recommendations</u></b>	<b><u>25</u></b>
<b><u>Conclusion</u></b>	<b><u>26</u></b>
<b><u>References</u></b>	<b><u>28</u></b>
<b><u>Appendices</u></b>	<b><u>32</u></b>

## **Introduction**

SARS-CoV-2, known as coronavirus or Covid-19 became the global pandemic, which infected more than 760 million people worldwide, out of which around 6.9 million deaths worldwide. This created a crisis in all fields of life and work, especially in the field of healthcare, by putting the pressure over the healthcare workers as they have been in direct contact with the virus, experienced high volume of patients and stress due to high workload, fear of getting infected. According to the World Health Organization, during the first year of the COVID-19 pandemic, global prevalence of anxiety and depression increased by 25 percent. (WHO, 2024) Given that healthcare professionals, such as doctors and nurses were on the frontline of responding to Covid-19 pandemic, the burden that pandemic placed over the frontline health workers was great and their physical and mental health was under pressure. (Molebatsi et al., 2021). There are many studies that discuss the experiences of healthcare workers during Covid-19. It has been reported by the healthcare workers that COVID-19 has a serious effect on the mental health of people such as psychological stress including anxiety and depression during the time of pandemic. Many factors increase the risk of mental health problems including exposure to economic, social, environmental and geopolitical circumstances. Protective factors and mental health risks are found in society at various scales (Fattori et al., 2023). During pandemic healthcare professionals were afraid of infecting their friends and family, experiencing high work

stress because of high demand of patients in care and suffering from social discrimination, this can lead to decrease the quality of care. Because of these reasons, healthcare professional's experience emotional disorders such as fear, anxiety and depression, post-traumatic stress and sleep problems. Moreover, many mental health challenges healthcare professionals faced were not dealt properly at the time due to the uncertain trajectory of coronavirus. (Safiye et al., 2023) Moreover, WHO estimates that between 80000 and 180000 healthcare workers could have died from COVID-19 from January 2020 to May 2021. (WHO, 2024) This shows how the mental health of healthcare professionals might have been negatively affected. These healthcare professionals have an increased risk of developing post-traumatic stress disorder, since they were exposed to the high levels of stress and traumatic events in their role of caring for patients during the Covid-19. Post traumatic stress disorder (PTSD) is a type of psychiatric disorder that develops in the person who experiences a traumatic condition such as life-threatening injuries and illness. (Safiye et al., 2023). Since the mental and physical well-being of many healthcare personnel was compromised, the recovery is necessary. Understanding the prevalence and effect of post traumatic stress disorder and other mental health conditions, such as depression, and even suicide among the healthcare workers is necessary to provide them with the support and resources they require to recover their mental health and thrive post-pandemic.

Currently the research on this topic is still in its beginning stage because of this, there is a need for comprehensive studies to address the problem and identify the effective interventions. Many primary studies were conducted to evaluate the different mental health aspects among the healthcare workers in different countries. The main goal of these studies is to examine the specific aspects of mental health in healthcare workers such as depression and anxiety, post-traumatic stress disorders (PTSD). Addressing the needs of mental health recovery of healthcare workers post-pandemic is necessary, since the untreated mental health problems can impair their decision-making abilities, judgment and interpersonal skills that ultimately compromise safety and quality of care of patients. Moreover, untreated mental health can cause chronic disability and decrease the productivity among the health care workers. Moreover, addressing this issue can increase the resilience and overall capacity of healthcare systems in the context of responding effectively to future emergencies and crises. This scoping review will summarize the existing studies that examine the impacts of COVID-19 pandemic on mental health of healthcare workers post-pandemic period, starting 2021. This scoping review aims to examine and address a critical knowledge gap on studies on post-Covid -19 mental health problems among healthcare workers and review available recent papers on that topic. Secondly, the review aims to identify contributing factors impacting the mental health of healthcare workers post-pandemic.



Moreover, to explore coping strategies utilized to enhance mental health resilience within the healthcare workforce.

By doing this review, it will become possible to see what is the depth of existing literature exploring the impact of COVID-19 outbreak on the mental health of frontline medical workers, and what factors may have contributed to that.

### *Methodology*

This part of the review will focus on methodologies and guidelines used to select and analyze selected literature. For this review, the Arksey and O'Malley framework systematic approach was used. The Arksey O'Malley method was developed by Joanna Arksey and Lisa O'Malley in 2005 and has become a widely recognized and utilized framework in the field of evidence synthesis. (Levac D., et al, 2010) This framework involves five stages, such as identifying research questions, identifying relevant studies, study selection, charting relevant data, and reporting.

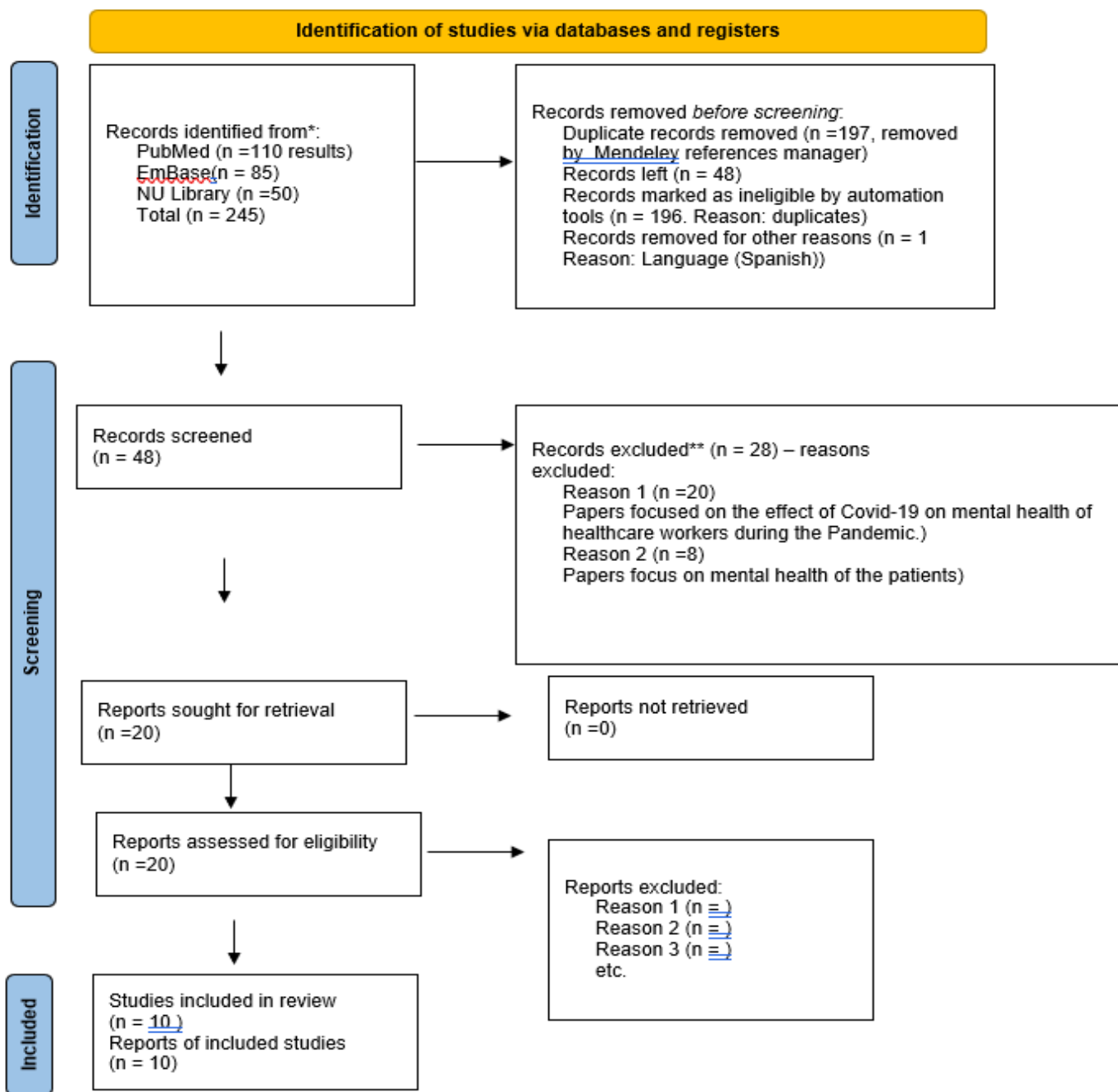
For stage one, the research question was identified as "What is the depth of existing literature exploring the impact of COVID-19 outbreak on the mental health of frontline medical workers?" By identifying the research question, we can further To characterize mental health challenges experienced by healthcare workers post-pandemic and identify and characterize coping strategies employed by healthcare workers to mitigate the impact of the pandemic on their mental well-being. Thus, allowing broad exploration of the topic, encompassing various aspects of mental

health outcomes, such as anxiety, depression, PTSD, burnout, resilience, coping strategies, and psychological well-being.

Searches in three bibliographic databases were performed to review the evidence on the prevalence of mental health conditions post-pandemic among health care workers. PubMed, Embase, Nazarbayev University, as well as the World Health Organization database, Google Scholar were searched to identify relevant articles from January 2021 until 2024 with the language restriction, excluding literature not published in English. The search was also limited to papers focused on mental health of healthcare workers post-pandemic only. Moreover, the review included papers that were published in peer-review journals, studies examining a range of mental health outcomes such as anxiety, depression, PTSD, burnout, as well as coping strategies. Papers that include research utilizing qualitative, quantitative, or mixed-methods approaches. Studies conducted worldwide to capture diverse perspectives and experiences. Literature published in English or with available translations in English. Subsequently, articles were screened to determine their relevance for the research, excluding studies unrelated to the mental health of frontline medical workers during the post-COVID-19 period. Research focusing solely on the general population or other specific occupational groups, such as doctors and nurses. Research conducted solely during the acute-pandemic phase of the COVID-19 in 2020 were excluded as well. Studies not accessible through academic databases, reputable sources, or with

limited availability of full-text versions, and literature not published in English or lacking adequate translation resources was excluded as well. Overall, the search strategy yielded 245 records through PubMed, Embase, and Nazarbayev University Library, of which 193 were duplicates that were removed using Mendeley software's automation tool. The automation tool did not identify a few duplicates, and these duplicates were removed manually (n= 2). Out of those remaining 49 records, 1 was excluded due to language barrier. It was solely in Spanish, although the abstract was available in English (n=1). Furthermore, 48 abstracts of the remaining records were assessed and 28 records were excluded based on their abstracts as studies did not meet inclusion criteria. Overall, 20 full text articles were retrieved, of which 10 were excluded, due to not being focused on the post-pandemic period and being focused on 'long-Covid' conditions, and not on mental health. Another reason, excluded papers discussed mental health of other frontline workers, such as police and army, and not healthcare professionals.

Table 1: Prisma



## Results

After analyzing the twenty articles, ten articles were identified as relevant. Selected papers for a scoping review, include cross-sectional studies, qualitative studies and systematic reviews. For more detailed information on chosen papers please refer to Table 3 in the Appendices section. The key results from the study titled "Prevalence and factors associated with post-traumatic stress disorder in healthcare workers exposed to COVID-19 in Wuhan, China: a cross-sectional survey" by Pan et al. (2021), show prevalence of PTSD of 13.7 percent among 659 doctors and nurses in China. The factors that were associated with the increased risk of developing a PTSD, are chronic illness, social isolation and job dissatisfaction. PTSD among HCW is correlated with reduced sleep duration, feeling of loneliness and diminished quality of life. Moreover, based on these findings, authors emphasize the importance of support provision, such as supportive family and work environment.

The key results from a study titled "Risk and protection factors of mental stress among medical staff in the third year of the COVID-19 pandemic" by Eichenberg et al. (2024) talk about the continued mental stress. This study reveals that HCWs continue to experience significant mental stress even three years after the pandemic. The key predictor of mental stress among HCW are high levels of stress experienced at the beginning of the Covid-19 Pandemic. Moreover, this study explores occupational differences in mental stress level, such as nurses experiencing higher burden, since

being in closer contact with patients, and doctors benefiting more protective factors compared to nurses. Thus, suggesting that tailored protection strategies needed for support and intervention efforts. To address the prolonged mental health impact on HCWs, interventions should prioritize immediate access to mental health services, resilient coping mechanisms, supportive work environments and mental health friendly policies are essential.

Results from Coimbra, B. M., et al, (2024). Moral injury and mental health among health-care workers during the COVID-19 pandemic: meta-analysis yielded thirty three studies from thirteen countries, representing 31849 individuals. There was a positive association between MI and all investigated mental health problems ( $r_s = 0.30 - 41$ , all  $p_s < .0001$ ). The strongest effect between MI and PTSD was among US samples, while MI and anxiety and depressive symptoms was among nurses. Moral injury is moderately associated with symptoms PTSD, depression, anxiety, burnout, and suicidal ideation.

The key results from Nehme, M., et al (2023), The longitudinal study of subjective wellbeing and absenteeism of healthcare workers considering post-COVID condition and the COVID-19 pandemic toll discuss subjective well-being trends. The main finding of this study is that among 3083 participants nice percent reported insomnia, one point four percent reported cognitive impairment, eight point eight percent feeling stress and burnout.

"Healthcare Workers and COVID-19-Related Moral Injury: An Interpersonally-Focused Approach Informed by PTSD" by D'Alessandro et al. (2022) explores moral injury among HCWs and highlights psychological toll of ethical dilemmas during Covid -19 pandemic. Paper suggests that interpersonally tailored approaches, communication strategies and targeted interventions need to be adapted as a coping strategy.

Study titled "Mental health of healthcare providers needs support: preparing for the post-COVID-19 era" by Kian et al. (2023) emphasize urgent need to provide support for the mental health of healthcare providers, recognizing the significant toll that the COVID-19 pandemic has taken on their psychological well-being. This is due to 45.5 percent out of 332 Iranian HCWs having experienced psychological disorders post-pandemic, with 25.3 percent having general anxiety disorder and 31.6 percent experiencing PTSD. Furthermore, authors suggest that strategies to support mental health of healthcare providers needs to be implemented in a post-pandemic period.

"Psychiatric symptoms and moral injury among US healthcare workers in the COVID-19 era" by Amsalem et al. (2021) similarly explores prevalence of PTSD, and reveals significant rates (70 percent) of anxiety, depression, PTSD, and other mental health challenges within the 350 HCWs population. Furthermore, authors suggest that moral injury characterized by ethical conflicts and moral distress are significant predictors of psychological distress. All this highlights a significant impact on the overall well-

being and functioning of healthcare workers. Thus, suggesting targeted interventions and support services. Moreover, implementing policies to mitigate moral injury and foster a supportive work-environment is necessary.

Hill et al. in "The prevalence of mental health conditions in healthcare workers during and after a pandemic" (2022) discuss prevalence of mental health conditions, with PTSD standing for 21.7 percent, followed by anxiety disorder 16.1 percent, followed by other mental health conditions, with age, level of exposure and type of care being identified as important moderating factors. Findings of these authors suggest interventions to support mental health of HCWs, such as psychoeducation, psychological support services, workplace interventions, and policy changes.

O'Donnell et al., (2022) conducted a study on examining the Mental Health care of workers analyzing qualitative studies finding of these studies and revealed that the high level of depression, anxiety and stress among the frontline health care workers with varying prevalence rates the factors which are contributing to the mental health issues are lack of personal protective equipment increased workload social isolation and fear of infection. Increased levels of severe mental health symptoms among HCWs were connected to the lower productivity, decreased morale, increase of absenteeism and high rates of turnover among the staff. All these may influence the efficiency of public health organizations during urgency. According to this study, 20 percent of the participants claimed their job did not allow them to take any breaks



during the acute phase of the outbreak. Thus, this inability to rest highly affected development of the symptoms. These HCW reported that they did have any information regarding any support programs offered by their employees. Authors suggest that many strategies could minimize the adverse symptoms of mental health among healthcare workers during public health emergencies. Authors recommend urgent requirements for interventions supporting HCWs. These interventions include counseling services, mindfulness-based interventions, peer support programs and resilience training. It was found that these interventions are effective in minimizing the symptoms of anxiety, depression and stress among the frontline HCW. Nevertheless, barriers to access support services such as lack of resources, time constraints, and stigma affects the effectiveness. In this study, found that the significance of implementing a comprehensive support program according to the needs of health care workers, helpful to promote their mental health recovery.

The study of Bryant-Genevier, (2021) provides valuable insights into addressing the problems related to the mental health of HCWs in the post-pandemic period. These highlight the different key strategies that help to promote mental health recovery such as fostering support in the work environment, self-care addressing systemic problems that contribute to the poor mental health outcomes and providing access to the mental health resources. The central theme of this article is the significance of taking a holistic approach for the mental health recovery identifying that personal, organizational and

societal factors are interconnected and impacted each other by focusing on self-care practices such as exercise mindfulness and stress management, healthcare workers can cope up with their work demands and address the risk of mental health issues and burnout. Moreover, this article highlights the critical role of supportive work environments in fostering workers to feel respected, valued and supported in seeking help for their mental health requirements. Providing access to the mental health sources such as peer support programs counseling services and mental health education issues ensures the healthcare workers have support for recovery. Moreover, the study highlights the significance of addressing issues within the healthcare organization that contribute to the poor mental health issues such as depression, stress and anxiety. This involved addressing problems such as inadequate staffing, high workloads, stigma Surrounding the mental health issues and lack of resources. By addressing these problems, healthcare organizations can develop an environment that focuses on the well-being of Frontline Healthcare workers and foster their resilience and recovery after the pandemic. The study provides valuable insights and strategies to support the mental health recovery of healthcare workers after the covid 19 pandemic. By implementing these strategies, healthcare organizations can play an important role in supporting the mental health of Frontline Healthcare workers and ensure that they are able to continue providing care with high quality to their patients. Most of the respondents reported that they have experienced stressors and traumatic

events since March 2020 because of feelings overwhelmed by balance between family and workloads (72 percent), receiving job associated threats (11.8 percent) and feeling threatened, bullied or harassed (23.4 percent). Twelve percent of participants informed that they had Covid-19. Participants that reported experiencing high levels of stress reported more post-traumatic stress disorder symptoms than participants that experienced less traumatic events and stressors. According to this study, the prevalence of mental health symptoms among healthcare workers was higher than as compared to previous reports. Prevalence symptoms of anxiety and depression among healthcare workers was similar to those reported in previous studies.

## **Discussion**

The major themes that emerged from the review of these papers are the prevalence of mental health conditions, such as PTSD, Burnout, Suicide, with PTSD being the most common among HCWs in a post-pandemic period. Burnout, high stress level, as well as a moral dilemma during the outbreak period is what influenced the presence of mental health conditions in the post-pandemic period after 2021. Almost every paper reviewed discusses the importance of implementing regular mental health screening programs that can help identify individuals in need of support.. Offering access to counseling services, peer support groups, and mental health resources can provide essential emotional support and coping strategies, as well as the importance of supportive work and home environment. Moreover, providing resilience training

programs and psychological education sessions can equip healthcare workers with tools and strategies to manage stress, build resilience, and cope with the challenges of their work. In addition, organizational support and policy changes to promote employee well-being and reduce workplace stressors were recommended. This may include measures such as adjusting work schedules to minimize overtime, providing adequate staffing levels to prevent burnout. According to O'Donnell et al., (2022) from the outbreak of the COVID-19, the differences among the experiences of frontline and non-frontline healthcare workers has broader public discourse. In some cases, frontline healthcare workers are narrowly associated with the experiences of those working in acute hospital based systems. Although, there are a large number of healthcare workers outside of these systems who have continued direct contact with the common people and healthcare users throughout the COVID-19 pandemic and thus they carry many risks. Therefore, policymakers and researchers need to accept a fine-grained perspective of binary non-frontline or frontline differentiation. Such perspectives identify that psychological pain resulting from a pandemic that was general across all sections of the workforce. Although, it also identifies the different healthcare worker's experiences depending on where they work in acute or primary settings and whether they work remotely or patient facing. Additionally, the ability to address the psychological demands of COVID-19 response is shaped by preexisting working situations and adequacy of resources at the management of healthcare

workers. Therefore, the transition of COVID-19 from pandemic to endemic needs a more holistic approach to address the staff welfare that encompasses the overall workforce. The study of Bryant-Genevier, (2021) provides valuable insights and strategies to support the mental health recovery of healthcare workers after the COVID-19 pandemic. In this study, there were 26000 participants among which one half of workers experienced symptoms of worsening mental health conditions. High prevalence reported by the younger and transgender or non-binary participants. Moreover, long working hours and inability to take time off were among the contributing factors. Authors also suggest that adapting control and prevention practices can help to minimize negative mental health conditions. The results of the study found that prevalence of mental health symptoms among healthcare workers was higher than previously reported studies which was approximately 40.9%. Prevalence symptoms of anxiety and depression among healthcare workers was similar to those in previous reports among healthcare workers. Nevertheless, the prevalence of PTSD disorder among healthcare workers was ten to twenty percent higher than previously reported healthcare workers, general public and common personnel. Post-traumatic stress disorder symptoms disproportionately impacted public healthcare workers who experienced traumatic stressors associated with work. For example, felt unappreciated at the workplace or felt inadequately compensated. Stressful and traumatic work experiences were associated with the COVID-19

pandemic and played a role in increasing the risk of developing post-traumatic stress disorder symptoms among healthcare workers. Increased adverse symptoms of mental health among healthcare workers was associated with high turnover, increased absenteeism, lower morale and lower productivity that can affect the effectiveness of healthcare organizations during emergencies. For instance, increasing staffing size and developing flexible schedules can minimize the requirement of long working hours (Hooper et al., 2021). Employees that were encouraged to take the breaks had lesser risk of developing adverse mental health results. Additionally, implementation of programs assisting employees can enhance employee's coping and resilience. The findings of this study have four limitations. Authors used a convenience sample of HWCs participants and the reported symptoms of mental health were assessed by using screening instruments that do not represent clinical diagnosis of mental health disorders. Overall, this study suggests strengthening and establishing sustainable coping strategies at the workplace can improve mental health conditions among employees, especially for HCWs that are at increased risk.

When comparing to existing literature on mental health impact of Covid-19 during the acute phase of the pandemic in 2020, the findings are similar with the ones found in a “Interventions to support the resilience and mental health of frontline health and social care professionals during and a a disease outbreak, epidemic or pandemic: a mixed methods systematic review” by Pollock A., et al. (Pollock A, 2020) These findings

highlight the prevalence of mental health conditions, with intersection of burnout and PTSD. And highlight the importance of implementing interventions to support well-being in this population.

Although the importance of this topic is significant, the available literature on this topic post-pandemic is limited. The diminishing of papers published is illustrated in Table 2. This possibly could be due to lack of interest in this topic, or due to little time passed from the pandemic. Researchers might show interest in this in future. Overall, there is a sparsity of papers addressing this issue at hand.

Table 2: Availability of Papers:

<b>Date</b>	<b>Number of Papers (PubMed)</b>	<b>Number of Papers (EmBase)</b>	<b>Number of Papers (NU Library)</b>	<b>Total</b>
2019	0	0	0	0
2020	20	20	9	49
2021	31	22	14	67
2022	27	21	13	61
2023	25	18	10	53
2024	7	4	4	15
<b>Total</b>	<b>110</b>	<b>85</b>	<b>50</b>	<b>245</b>

Another possible research gap is a limited search, since a limited number of databases were used and focusing only on papers published only in English.



### ***Limitations***

The review may be subject to publication bias since it only includes studies published in peer-reviewed journals or those available in English. This may potentially lead to an incomplete picture of the available literature. Moreover, given the evolving nature of the COVID-19 pandemic and its impacts on mental health, there may be a temporal bias in the included studies. It is possible that future studies will have a broader and clearer scope. In addition to that, despite the efforts to ensure a comprehensive search strategy, sources were limited due to accessibility. Language bias as mentioned earlier is also a possibility.

### **Recommendations**

The recommendations that derive from this scoping review are suggestions for a comprehensive literature search in the future, such as conducting a systematic and thorough search of multiple electronic databases and other relevant organizational web-sites. This will help to ensure the inclusion of a broader range of studies addressing the research question. Moreover, the literature not limited to publications in English may provide a broader picture on this topic. Although the original intent of this review was to conduct a meta-analysis, the decision to defer this methodology to future investigations was due to the scarcity of studies available. Furthermore, the inclusion of only a few post-pandemic studies shows the predominance of research conducted during the acute phase of Covid-19 pandemic in 2020. For future research,

it is recommended to conduct a comprehensive Meta-Analysis with possible incorporation of post-pandemic studies to further validate the findings observed in the acute phase.

## **Conclusion**

In conclusion, the COVID-19 pandemic has profoundly impacted the mental health of healthcare workers worldwide, magnifying already existing challenges and introducing new stressors. This scoping review has highlighted the prevalence of mental health conditions among frontline medical workers in a post-pandemic period, with PTSD emerging as a prominent concern alongside burnout, anxiety, and depression. The literature reviewed underscores the urgent need for comprehensive support strategies tailored to the unique needs of healthcare professionals, encompassing regular mental health screening, access to counseling services, peer support groups, and resilience training. Additionally, organizational support and policy changes are essential to mitigate workplace stressors and foster a supportive environment conducive to mental health recovery.

Despite the importance of this topic, the available literature on post-pandemic mental health remains limited, with a noticeable dearth of studies compared to those conducted during the acute phase of the pandemic. To address this gap, future research should prioritize conducting comprehensive literature searches, including diverse

sources and languages, to ensure a broader representation of studies. Furthermore, there is a need for more extensive meta-analyses incorporating post-pandemic data to validate and contextualize findings from the acute phase.

Ultimately, addressing the mental health challenges faced by healthcare workers is crucial not only for their well-being but also for ensuring the delivery of high-quality care to patients. By implementing evidence-based interventions and policies, healthcare organizations can support the mental health recovery of their workforce and build resilience to better navigate future crises.

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## Appendices

Prevalence and factors associated with post-traumatic stress disorder in healthcare workers exposed to COVID-19 in Wuhan, China: a cross-sectional survey	Pan, L., Xu, Q., Kuang, X., Zhang, X., Fang, F., Gui, L., Li, M., Tefsen, B., Zha, L., & Liu, H. (2021). Prevalence and factors associated with post-traumatic stress disorder in healthcare workers exposed to COVID-19 in Wuhan, China: a cross-sectional survey. <i>BMC psychiatry</i> , 21(1), 572. <a href="https://doi.org/10.1186/s12888-021-03589-1">https://doi.org/10.1186/s12888-021-03589-1</a>	China	Dec 2019 May 2021	cross-sectional survey	659 doctors and nurses (HCW)	8 months after the exposure of COVID-19, HCW exhibited prevalence of PTSD (13.7%) Risk factors: chronic illness, social isolation, job dissatisfaction. Protective factors: Supportive family environments and well-equipped hospitals.  PTSD among HWCs correlated with reduced sleep duration, feeling of loneliness, and diminished quality of life.
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<p>Risk and protection factors of mental stress among medical staff in the third year of the COVID-19 pandemic</p>	<p>Eichenberg, C., Schneider, R., Auvera, P., Aranyi, G., &amp; Huber, K. (2024). Risk and protection factors of mental stress among medical staff in the third year of the COVID-19 pandemic. <i>Frontiers in psychiatry</i>, 15, 1334552. <a href="https://doi.org/10.3389/fpsy.2024.1334552">https://doi.org/10.3389/fpsy.2024.1334552</a></p>	<p>Germany</p>	<p>Jun 2021-Feb 2022</p>	<p>cross-sectional survey</p>	<p>159 HCW</p>	<p>This study reveals that healthcare workers continue to experience significant mental stress even in the third year of the pandemic.</p> <p>Findings suggest the need for tailored protection strategies for the post-pandemic period.</p> <p>Collaboration among healthcare institutions, policymakers, and the community is essential.</p>
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<p>Moral injury and mental health among health-care workers during the COVID-19 pandemic: meta-analysis</p>	<p>Coimbra, B. M., Zylberstajn, C., van Zuiden, M., Hoeboer, C. M., Mello, A. F., Mello, M. F., &amp; Olf, M. (2024). Moral injury and mental health among health-care workers during the COVID-19 pandemic: meta-analysis. <i>European Journal of Psychotraumatology</i>, 15(1).  <a href="https://doi.org/10.1080/20008066.2023.2299659">https://doi.org/10.1080/20008066.2023.2299659</a></p>	<p>13 countries</p>	<p>July 2023</p>	<p>Systematic review and meta-analysis. The first to conduct meta-analysis.</p>	<p>31849 HCW, 33 studies</p>	<p>33 studies from 13 countries, 31,849 individuals</p> <p>Positive association between MI and all investigated mental health problems (<math>r_s = .30-.41</math>, all <math>p_s &lt; .0001</math>).</p> <p>The strongest effect between MI and PTSD was among US samples, while MI and anxiety and depressive symptoms was among nurses.</p> <p>Moral injury is moderately associated with symptoms PTSD, depression, anxiety, burnout, and suicidal ideation.</p>
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<p>The longitudinal study of subjective wellbeing and absenteeism of healthcare workers considering post-COVID condition and the COVID-19 pandemic toll</p>	<p>Nehme, M., Vieux, L., Kaiser, L., Chappuis, F., Chenaud, C., HealthCo Study Team, &amp; Guessous, I. (2023). The longitudinal study of subjective wellbeing and absenteeism of healthcare workers considering post-COVID condition and the COVID-19 pandemic toll. <i>Scientific reports</i>, 13(1), 10759. <a href="https://doi.org/10.1038/s41598-023-37568-1">https://doi.org/10.1038/s41598-023-37568-1</a></p>	<p>Switzerland</p>	<p>July 2021 - Dec 2021</p>	<p>longitudinal study</p>	<p>n=3083 participants n= 298 (nurses) n=133 (doctors) n=155 (administrative staff)</p>	<p>The main finding of this study is that among 3083 participants nine percent reported insomnia, one point four percent reported cognitive impairment, eight point eight percent feeling stress and burnout.</p>
<p>Healthcare Workers and COVID-19-Related Moral Injury: An Interpersonally -</p>	<p>D'Alessandro, A. M., Ritchie, K., McCabe, R. E., Lanius, R. A., Heber, A., Smith, P., Malain, A., Schielke, H., O'Connor, C., Hosseiny, F., Rodrigues, S., &amp; McKinnon, M. C. (2022). Healthcare Workers and COVID-19-Related Moral Injury: An Interpersonally-Focused Approach Informed by</p>	<p>Canada</p>	<p>2021</p>	<p>interpersonally focused approach</p>	<p>N/A</p>	<p>Paper suggests that interpersonally tailored approaches, communication strategies and targeted interventions need to be adapted as a coping strategy.</p>

<p>Focus d Approa ch Infor med by PTSD</p>	<p>PTSD. <i>Frontiers in psychiatry</i>, 12, 784523. <a href="https://doi.org/10.3389/fpsyt.2021.784523">https://doi.org/10.3389/fpsyt.2021.784523</a></p>					
<p>Mental health of healthc are provide rs needs support : prepari ng for the post- COVID -19 era</p>	<p>Kian, N., Samieefar, N., &amp; Akhlaghdoust, M. (2023). Mental health of healthcare providers needs support: preparing for the post-COVID-19 era. <i>Eastern Mediterranean health journal = La revue de sante de la Mediterranee orientale = al-Majallah al-sihhiyah li-sharq al-mutawassit</i>, 29(4), 236–237. <a href="https://doi.org/10.26719/emhj.23.028">https://doi.org/10.26719/emhj.23.028</a></p>	<p>Iran</p>	<p>July 2020 - March 2020</p>	<p>Syste matic revie w and meta- analy sis.</p>	<p>332 Iranian HCW (cross- section al study)</p>	<p>45.5% experience psychological disorders out of 332 HCW.  25.3% - generalized anxiety disorder  31.65 – PTSD</p>

Psychiatric symptoms and moral injury among US healthcare workers in the COVID-19 era	Amsalem, D., Lazarov, A., Markowitz, J.C. et al. Psychiatric symptoms and moral injury among US healthcare workers in the COVID-19 era. BMC Psychiatry 21, 546 (2021). <a href="https://doi.org/10.1186/s12888-021-03565-9">https://doi.org/10.1186/s12888-021-03565-9</a>	USA	Sep - Dec 2020	Cross-sectional Study	350 HCW	350 HCWs = 72% reported anxiety, depression, PTSD
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<p>The prevalence of mental health conditions in healthcare workers during and after a pandemic: Systematic review and meta-analyses</p>	<p>Hill, J. E., Harris, C., Danielle L, C., Boland, P., Doherty, A. J., Benedetto, V., Gita, B. E., &amp; Clegg, A. J. (2022). The prevalence of mental health conditions in healthcare workers during and after a pandemic: Systematic review and meta-analysis. <i>Journal of advanced nursing</i>, 78(6), 1551–1573.  <a href="https://doi.org/10.1111/jan.15175">https://doi.org/10.1111/jan.15175</a></p>	<p>N/A</p>	<p>March 2020'</p>	<p>Systematic review and meta-analysis.</p>	<p>43 studies</p>	<p>Most common mental health conditions:</p> <p>PTSD (21.7%)  Anxiety disorder (16.1%)  MDD (13.4%)  acute stress disorder (7.4%)</p> <p>Age, level of exposure and type of care professional were identified as important moderating factors.</p>
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<p>Psychological distress among healthcare workers post COVID-19 pandemic: from the resilience of individuals to healthcare systems</p>	<p>O'Donnell, S., Quigley, E., Hayden, J., Adamis, D., Gavin, B., &amp; McNicholas, F. (2022). Psychological distress among healthcare workers post COVID-19 pandemic: from the resilience of individuals to healthcare systems. <i>Irish Journal of Psychological Medicine</i>, 34(3), 1–5. <a href="https://doi.org/10.1017/ipm.2022.35">https://doi.org/10.1017/ipm.2022.35</a></p>	<p>N/A</p>	<p>November 2021</p>	<p>Scoping review</p>	<p>N/A</p>	<p>The study discusses the transition from individual resilience to systemic factors within healthcare systems that contribute to mental health challenges. Factors such as lack of personal protective equipment, increased workload, social isolation, and fear of infection were identified as key stressors.</p> <p>The study emphasizes the need for comprehensive support strategies tailored to the needs of healthcare workers.</p>
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Symptoms of Depression, Anxiety, Post-Traumatic Stress Disorder, and Suicidal Ideation Among State, Tribal, Local, and Territorial Public Health Workers During the COVID-19 Pandemic — United States, March–April 2021	Bryant-Genevier, J. (2021). Symptoms of Depression, Anxiety, Post-Traumatic Stress Disorder, and Suicidal Ideation Among State, Tribal, Local, and Territorial Public Health Workers During the COVID-19 Pandemic — United States, March–April 2021. MMWR. Morbidity and Mortality Weekly Report, 70(26). <a href="https://doi.org/10.15585/mmwr.mm7026e1">https://doi.org/10.15585/mmwr.mm7026e1</a>	USA	March – April 2021	Cross-sectional study	26174 people	The study highlights high prevalence rates of symptoms of depression, anxiety, post-traumatic stress disorder (PTSD), and suicidal ideation among this population. These findings underscore the substantial psychological toll of the pandemic on public health workers, emphasizing the urgent need for targeted interventions and support services to address their mental health needs.
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