

# BMJ Open Compassion fatigue in healthcare providers during the COVID-19 pandemic: a scoping review protocol

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**To cite:** Hui L, Garnett A, Oleynikov C, *et al.* Compassion fatigue in healthcare providers during the COVID-19 pandemic: a scoping review protocol. *BMJ Open* 2023;**13**:e069843. doi:10.1136/bmjopen-2022-069843

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2022-069843>).

Received 03 November 2022  
Accepted 15 May 2023



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## ABSTRACT

**Introduction** The COVID-19 pandemic has negatively impacted the psychological health and well-being of healthcare providers. An amplification in chronic stressors, workload and fatalities may have increased the risk of compassion fatigue and disrupted the quality of patient care. Although current studies have explored the general psychological status of healthcare providers during the COVID-19 pandemic, few have focused on compassion fatigue. The purpose of this review is to explore the impacts of the COVID-19 pandemic on compassion fatigue in healthcare providers and the repercussions of compassion fatigue on patient care.

**Methods and analysis** This scoping review will follow Joanna Briggs Institute and Arksey and O'Malley scoping review methodology. Comprehensive searches will be conducted in the following relevant databases: MEDLINE (Ovid), PsycINFO (Ovid), Embase (Ovid), CINAHL, Scopus, Web of Science. To expand the search, reference lists of included studies will be handsearched for additional relevant studies. Included studies must report on the impact of COVID-19 pandemic on compassion fatigue in healthcare providers and have been published in English since January 2020.

**Ethics and dissemination** This review does not require research ethics board approval. By examining the impacts of the COVID-19 pandemic on compassion fatigue in healthcare providers, this scoping review can offer important insight into the possible risks, protective factors and strategies to support healthcare providers' psychological health and patient care amidst persisting stressful conditions.

## INTRODUCTION

On the 30 January 2020, the novel COVID-19 outbreak was declared a global health emergency.<sup>1</sup> As of 17 August 2022, there have been approximately 600 million confirmed cases and 6.4 million deaths globally due to COVID-19.<sup>2</sup> The constant influx of patients infected with COVID-19 into acute care hospitals presented a great challenge for healthcare and long-term care systems due to limitations in capacities, staff and resources.<sup>3</sup> Healthcare providers (HCPs) experienced a sudden and unprecedented increase in chronic stressors. Many hospitals had

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This scoping review will be a novel exploration of the impacts of the COVID-19 pandemic on the development of compassion fatigue in healthcare providers (HCPs) and the quality of patient care.
- ⇒ Findings from this review will be timely and support the development of individual and system-wide strategies to improve HCP's psychological health and alleviate compassion fatigue.
- ⇒ A rigorous methodology developed by the Joanna Briggs Institute will be followed in summarising existing literature on compassion fatigue in HCPs during the COVID-19 pandemic.
- ⇒ A limited time frame will be used to only include papers that were published during the COVID-19 pandemic, which may constrain the breadth and quality of the studies.
- ⇒ Only English language papers will be included in this review.

shortfalls of personal protective equipment for HCPs which aggravated the transmission of the virus.<sup>4 5</sup> This contributed to fears in contracting the virus and spreading it to other patients, and their family members.<sup>6 7</sup> As well, this fear led to an increase in sick leaves, absenteeism and turnovers.<sup>6 7</sup> The resulting staffing shortages added additional stress to the already stretched system. Moreover, HCPs were required to adjust to frequent fluxes in workflow, take on increasing workloads and repeatedly witness patients deteriorate and die from COVID-19.<sup>8 9</sup>

HCPs who are immersed in the treatment of severe COVID-19 cases, which involves extensive compassionate engagement, could be at risk for developing compassion fatigue—a reduced capacity for showing compassion to others, resulting from the prolonged exposure to witnessing the suffering of others without being able to relieve one's anguish despite having the desire to do so.<sup>10 11</sup> Compassion fatigue is defined as a composite of two dimensions: burn-out (chronic occupational stress which reduces the willingness

to work) and secondary trauma (the prolonged exposure to trauma in others which contributes to trauma symptoms in oneself).<sup>12</sup> Burn-out and secondary trauma are also mediated by compassion satisfaction—the pleasure that comes from helping behaviour.<sup>12</sup> Nevertheless, recent experiences of many HCPs raise considerable concerns over the psychological impact of this pandemic on HCP. The elevated and persistent mental stress related to the COVID-19 pandemic predisposed HCPs to an increased risk of developing psychological symptoms such as depression, anxiety, stress and post-traumatic stress disorder (PTSD).<sup>13</sup> In studies on earlier outbreaks (SARS-CoV-1, H1N1, MERS-CoV, Ebola), HCPs reported higher frequency of anxiety and depressive features as well as higher symptoms of burn-out, psychological distress and post-traumatic stress.<sup>14</sup> Recent studies on the COVID-19 pandemic have observed that insomnia, anxiety, PTSD, depression and stress were the most common mental health concerns among HCPs.<sup>13</sup> This decline in psychological health is not only harmful to the HCP but can also potentially disrupt their professional performance and the quality of patient care.<sup>15</sup> Compromises in HCPs' ability to provide optimal clinical care may have serious consequences, including the worsening of patient conditions and the increased transmission of the infection from patients to others within the clinical setting.<sup>15</sup> In addition, compassion fatigue may be exacerbated by the COVID-19 pandemic, potentially leading to moral injury, decreased productivity, increased turnover and reduced quality of care.<sup>10</sup> It is important to note that an increase in compassion satisfaction may counteract the negative emotional toll in the landscape of trauma and protect against compassion fatigue.<sup>16</sup> Individuals with high levels of compassion satisfaction, despite experiencing low to moderate levels of compassion fatigue, can fulfil their professional responsibilities without significant concerns.<sup>17</sup>

Accordingly, it is crucial to recognise how the COVID-19 pandemic has impacted HCPs and to implement individual and system-wide strategies to support HCPs' psychological health and well-being amidst persistent stressful circumstances.

Although several papers have been published on the psychological health status of HCPs over the COVID-19 pandemic, there is a limited body of literature on the concept of compassion fatigue, the psychological strain associated with compassion fatigue and its associated impact on patient care.<sup>11 13</sup> As the COVID-19 pandemic persists, there remains a need to explore and understand the associated risks, possible protective factors and optimal strategies to reduce compassion fatigue among HCPs.

### Review aim

The purpose of this scoping review is to synthesise and provide a synopsis of the current literature on compassion fatigue among HCPs and to understand its broader impact. The review will be guided by the following

question: What is the current state of knowledge on compassion fatigue among HCPs over the course of COVID-19?

## METHODS

### Study design

To address the research questions, a systematic scoping review strategy will be used to explore the available literature on the chosen topic. This type of review aims to identify existing literature on a topic and not necessarily focus on assessing the quality of research or an in-depth analysis of suitable studies as in systematic review.<sup>18</sup> Summarising existing literature may aid in the identification of current research gaps and identify areas of future research. This scoping review protocol has been registered in the Open Science Framework: <https://doi.org/10.17605/OSF.IO/F4T7N>.

Two methodological frameworks will guide this scoping review will be informed by two methodological frameworks: Arksey and O'Malley and Joanna Briggs Institute (JBI). The framework devised by Arksey and O'Malley will entail the following five stages: (1) identifying the research question, (2) identifying relevant studies, (3) study selection, (4) charting the data and (5) collating, summarising and reporting the results.<sup>18</sup> The methodology developed by JBI will be used for article appraisal.<sup>19</sup>

### Stage I: identifying the research question(s)

The authors (AG, LH, SAB, CO) drafted and developed the research questions. The formulated research objective and question can be found in the previous sections under 'Research aim'.

### Stage II: identifying relevant studies

The JBI methodology proposes a three-step search strategy for identifying relevant studies: (1) a preliminary search of at least two appropriate databases; (2) identification of keywords and index terms to be used in a secondary search of all selected databases and (3) handsearching reference lists of included articles for additional studies.<sup>17</sup>

### Preliminary literature search

An initial limited search was undertaken on the topic of interest to delineate the inclusion and exclusion criteria. The preliminary literature search was conducted on three scholarly electronic databases (MEDLINE (Ovid), Scopus, Web of Science), using 'compassion fatigue' as keywords and applying a time filter; this yielded 1519, 2489 and 2246 studies, respectively. These three databases were chosen as they are most likely to yield relevant results related to the research topic. A list of key words and index terms from the titles and abstracts of relevant articles were used to assist in developing a complete search strategy. The search strategy was further refined with the help of an experienced social science librarian.

### Structured search strategy

A systematic literature search will be carried out on six scholarly electronic databases, namely MEDLINE (Ovid),

**Table 1** Search strategy

| Search strategy criteria           | Search strategy  |
|------------------------------------|--|
| Databases                          | MEDLINE (Ovid), PsycINFO (Ovid), Embase (Ovid), CINAHL, Scopus, Web of Science   |
| Language filter                    | English  |
| Time filter                        | 2020—Current   |
| Geographic filter                  | None   |
| Keywords                           | <ol style="list-style-type: none"> <li>1. “coronavirus” OR “coronavirinae” OR “2019-nCoV” OR “2019nCoV” OR “nCoV2019” OR “nCoV-2019” OR “COVID-19” OR “COVID-19” OR “SARS-CoV-2” OR “SARSCoV-2” OR “SARSCoV2” OR “SARS-CoV2” OR “SARSCov19” OR “SARS-Cov19” OR “SARS-Cov-19” OR “severe acute respiratory syndrome” OR “NcovWuhan” OR “NcovHubei” OR “NcovChina” OR “NcovChinese”</li> <li>2. “compassion fatigue” OR “burnout” OR “secondary trauma” OR “secondary traumatic stress” OR “secondary traumatization” OR “vicarious trauma” OR “vicarious traumas” OR “vicarious traumatization”</li> <li>3. “healthcare providers” OR “healthcare provider” OR “health personnel” OR “medical staffs” OR “medical staff” OR “hospital staff” OR “hospital staff” OR “health personnel” OR “nurse” OR “nurses” OR “physicians” OR “practitioners” OR “practitioner” OR “clinician” OR “clinicians”</li> <li>4. “compassion satisfaction”</li> <li>5. AND 2. AND 3. AND 4.</li> </ol> |
| Inclusion criteria                 | Population: healthcare providers (physicians, nurses, etc)<br>Concept: compassion fatigue<br>Context: formal healthcare settings (hospitals, palliative care units, community clinics, etc)  |
| Exclusion criteria                 | Studies not meeting the above-stated PCC criteria<br>Study designs: editorial, letter to the editor, review  |
| PCC, Population, Concept, Context. |  |

PsycINFO (Ovid), Embase (Ovid), CINAHL, Scopus and Web of Science. These six databases were chosen to capture the wide array of relevant results contained within the current body of knowledge on the topic. The systematic search of the literature will commence once the scoping review protocol has been peer reviewed and any identified revisions have been made by the authors. A string of relevant search terms will be based on selected vocabulary and Boolean connectors (table 1). The search strategy will be adapted for each included database (eg, Medical Subject Headings key terms will be used for MEDLINE (Ovid)). In the final stage of the search strategy, the reference lists of all included studies will be handsearched for additional studies relevant to the topic of interest.

### Stage III: study selection

Following a search using the full search strategy, all identified citations will be collated and uploaded into Covidence and duplicates will be automatically removed.

The titles and abstracts will be independently screened by at least two reviewers for assessment of eligibility based on the inclusion/exclusion criteria for the review. The full text of selected studies will be evaluated to obtain the final list of citations for data extraction. The reasons for exclusion of studies will be recorded. Any disagreements that arise at each stage of the study selection process will be resolved by discussion with a third reviewer.

The results of the study selection process will be reported in the final scoping review and summarised in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping review (PRISMA-ScR) flow diagram.<sup>20</sup> In addition, all included studies will be assessed for risk of bias (quality) using established critical appraisal tools from the JBI for Evidence Synthesis.<sup>21</sup> While not required for scoping reviews, appraisal of study quality will inform the subsequent implications and next steps arising from this scoping review.<sup>22</sup> The JBI has critical appraisal checklists for multiple study designs including experimental, quasi-experimental, randomised controlled trials, observational and qualitative study designs. All included studies will be evaluated by one reviewer and the evaluations will be checked by a second reviewer. Any discrepancies will be discussed and resolved by both reviewers. In line with scoping review methodology, no studies will be excluded based on the results of their quality assessments so that an extensive understanding of the current state of the literature on compassion fatigue among HCPs throughout COVID-19 can be achieved. The results of the quality assessments will be summarised and presented in the results section of the review and the full appraisals will be presented in an online supplemental appendix.

### Inclusion criteria

The Population, Concept, Context mnemonic devised by JBI will be used to guide the formulation of the inclusion criteria (table 1). The participants of this review will be HCPs who were employed across the healthcare sector during the COVID-19 pandemic (eg, physicians, nurses, allied health providers). The concept explored will be compassion fatigue in HCPs who worked in the healthcare system during the COVID-19 pandemic. The context of this study will be formal healthcare settings in which HCPs carry out their professional activities (eg, tertiary and primary hospitals and community clinics).

Furthermore, only articles published in English will be included. Studies were not limited based on geographical range. A time filter will be applied including only papers written between January 2020 to May 2023 to encompass the literature written from the start of the COVID-19 pandemic to present. The scoping review will consider experiments, quasi-experimental, analytical observational and descriptive observational study designs. Qualitative studies will also be considered for inclusion.



### Exclusion criteria

Studies that do not meet the inclusion criteria, or do not have full-text available, will be excluded. Editorials, letters to the editor, commentaries and reviews will be excluded as they provide non-measurable and insufficient information for exploring the research questions.

### Stage IV: data extraction

A data extraction template which reflects the research objectives will be created. The template will include information on study characteristics (ie, authors, year of publication, study populations, study country, study design, study aims, sample size, assessment instruments, risk factors and protective factors for compassion fatigue, consequences of compassion fatigue and measures to prevent/manage/reduce compassion fatigue). Two independent reviewers will extract data from studies included in the final list of citations using Covidence.

### Stage V: collating, summarising and reporting the results

To summarise and synthesise the findings, three steps will be followed as proposed by Levac *et al*: (1) collating and analysing the data; (2) reporting the results and outcome(s) to inform the study objectives and (3) discussing the potential implications that the findings have on future research and policy.<sup>20</sup> A table will be assembled to describe the main characteristics and relevant results of the included studies in relation to the study objective. The PRISMA-ScR checklist will guide the finding reports.<sup>18</sup>

### Patient and public involvement

There will be no patient or public involvement for the purposes of this scoping review.

## ETHICS AND DISSEMINATION

The scoping review will not require ethics approval as it will be collecting data from publicly available publications. This protocol clearly and comprehensively describes the scoping review. Following the completion of the scoping review, the findings will be submitted to peer-reviewed journals for potential publication. The findings of this scoping review will have the potential to guide the health policy-making as well as individual and system-wide strategies pertaining to the promotion of HCPs' psychological health during the COVID-19 and beyond.

## DISCUSSION

### Potential implications

The results of the scoping review will provide a comprehensive summary of evidence on the impact of the COVID-19 pandemic on compassion fatigue in HCPs and its impacts on patient care. To date, exploring the psychological impacts of COVID-19 on HCPs have been conducted with a primary focus on burn-out.<sup>11</sup> Over the course of the pandemic, as many as 52% of the providers (frontline and non-frontline COVID-exposed HCPs) experienced

burn-out.<sup>23</sup> However, a comprehensive review of compassion fatigue among HCPs during the COVID-19 pandemic is missing. It is known that compassion is a cornerstone of quality healthcare improvement and increases successful medical outcomes.<sup>24–26</sup> Nevertheless, prolonged exposure to distressing events by HCPs, such as patient death and suffering, results in the absorption of negative emotional responses and leads to the development of compassion fatigue.<sup>27</sup> This may negatively impact the quality of care and patient outcomes.<sup>27</sup>

The scoping review will explore the geographical distribution of compassion fatigue risk during the COVID-19 pandemic. Compassion fatigue risk may exhibit country-dependent trends due to variability in environmental factors, public trust in the government and preparedness for infection containment.<sup>28</sup> Thus far a study investigating cross-country variation in COVID-19 infection rates observed that infections increased during winter and in countries located at higher altitudes.<sup>28</sup> In addition, higher levels of interpersonal and government trust were associated with decreased infection rates.<sup>28</sup> The propensity to adhere to public health guidance has been found to be associated with trust in the government<sup>29</sup>. Another study investigating preparedness of countries to face the pandemic crisis found that countries with smaller populations and better public governance were more resilient.<sup>30</sup>

This is a novel and timely review focused on synthesising knowledge about how the COVID-19 pandemic has impacted the development of compassion fatigue in HCPs and its subsequent ramifications on the quality of patient care. The data obtained in the course of the review may offer insights to inform potential strategies to support a range of HCPs. In order to effectively address compassion fatigue it is necessary to accurately identify psychological distress in HCPs. Polarising emotional reactions ranging from disengagement to overinvolvement may point to the presence of masked trauma.<sup>31</sup> As such, trauma informed education is crucial for early recognition and subsequent implementation of appropriate supports to address compassion fatigue in HCPs.<sup>32</sup> Currently, strategies to alleviate compassion fatigue focus primarily on the individual level such as promoting self-care by practising meditation as well as maintaining a healthy lifestyle.<sup>33</sup> However, meditation-related adverse effects such as trauma re-experiencing, anxiety and depersonalisation may implicate its inadequacy for remediating compassion fatigue.<sup>34</sup> Self-care practices including journaling, sufficient sleep, diet and exercise have been observed to be beneficial for HCPs experiencing compassion fatigue.<sup>35</sup> But, approaches to manage compassion fatigue must be multifactorial, such as early identification, education and include system-wide strategies that recognise and support HCP well-being.

On a systemic level, interventions could include flexible work hours, additional staffing and increased pay.<sup>33 36</sup> Furthermore, differences in normative culture across organisations may impact HCPs' attitude towards mental health illnesses and self-care.<sup>37</sup> Negative attitudes

towards mental illness acts as a barrier for help seeking.<sup>37</sup> Methods of emotional management and expected coping mechanisms are contingent on the working culture and organisational structures.<sup>31</sup> The type of professional contact and degree of emotional engagement between the HCP and patient are also prescribed by the normative rules of an organisational culture.<sup>31</sup>

Findings from this study may shed light into the influence of organisational culture on the expression and awareness of emotions. Moreover, the transition to telehealth during the pandemic also increased social isolation which may pose a risk to HCPs' psychological well-being by decreasing social supports that were more abundant pre-pandemic.<sup>38</sup> The aforementioned factors highlight the need to reduce potential stigma regarding mental health in healthcare settings and increase social support across a range of healthcare settings. However, the efficacy of many interventions which are not specific to the treatment of compassion fatigue remains to be studied. We anticipate that this scoping review will provide practical knowledge for health systems to implement preventative and rehabilitative strategies to reduce compassion fatigue and support HCPs' mental health and well-being.

### Strengths and limitations

Although some literature reviews have focused on the psychological health status of HCPs (eg, burn-out, anxiety, depression), very few studies have specifically explored compassion fatigue. Reviews that considered the impact of the COVID-19 pandemic on HCPs are even fewer. One of the strengths of this scoping review will be the extensive exploration of the current body of literature on compassion fatigue among HCPs during the COVID-19 pandemic. Another strength of this scoping review lies in the transparency and reproducibility of the review methodology. The present scoping review protocol has been submitted for review and registered with the Open Science Framework to establish high methodological standards for the final scoping review.

The timeframe for study inclusion will focus on those published during the COVID-19 pandemic. A limitation rests in the short time frame for study inclusion as it may constrain the breadth and quality of the studies. For instance, longitudinal studies may not be captured in the review as their methodology requires a prolonged period of time to yield meaningful observations. In addition, this scoping review will only include literature published in English so studies published in other languages will not be assessed. While there are potential limitations, a comprehensive summary of existing literature may be useful to inform future research and practice.

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**Acknowledgements** We would like to acknowledge Marisa Tippet, Acting Head, Research and Scholarly Communication, Western University for her support in the development of the database search strategies used to conduct this scoping review.

**Contributors** AG provided the initial conceptualisation of protocol. LH drafted the first version of the protocol manuscript under the supervision of AG. AG and SAB critically reviewed the protocol manuscript, helped refine research questions

and provided guidance for the scoping review objective and methods. LH, AG and SAB collaborated on manuscript editing and revisions. LH, AG, SAB and CO made meaningful contributions to the conceptualisation, design and development of the study protocol through regular team meetings. All authors reviewed and approved the final version of the manuscript. AG and LH discussed and addressed requested revisions to the protocol. These were reviewed and approved by all authors.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.

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### REFERENCES

- World Health Organization. Coronavirus disease (COVID-19) pandemic. 2022. Available: <https://www.who.int/europe/emergencies/situations/covid-19>
- World Health Organization. WHO Coronavirus (COVID-19) dashboard, 2022. n.d. Available: <https://covid19.who.int/>
- Gristina GR, Piccinni M. COVID-19 pandemic in ICU: limited resources for many patients: approaches and criteria for Triage. *Minerva Anesthesiol* 2021;87:1367–79.
- Chaka EE, Mekuria M, Melesie G. Access to essential personal safety, availability of personal protective equipment and perception of Healthcare workers during the COVID-19 in public hospital in West Shoa. *Infect Drug Resist* 2022;15:2315–23.
- Gholami M, Khamis AH, Ho SB. COVID-19 and Healthcare workers: A systematic review and meta-analysis. *Int J Infect Dis* 2021;106:140–1.
- Schug C, Geiser F, Hiebel N, *et al*. Sick leave and intention to quit the job among nursing staff in German hospitals during the COVID-19 pandemic. *Int J Environ Res Public Health* 2022;19:1947.
- The Lancet. COVID-19: protecting health-care workers. *Lancet* 2020;395:S0140-6736(20)30644-9.
- Beck E, Daniels J. Intolerance of uncertainty, fear of contamination and perceived social support as predictors of psychological distress in NHS Healthcare workers during the COVID-19 pandemic. *Psychol Health Med* 2023;28:447–59.
- Nikeghbal K, Kouhnavard B, Shabani A, *et al*. Covid-19 effects on the mental workload and quality of work life in Iranian nurses. *Ann Glob Health* 2021;87:79.
- Amir K, Okalo P. Frontline nurses' compassion fatigue and associated predictive factors during the second wave of COVID-19 in Kampala, Uganda. *Nurs Open* 2022;9:2390–6.
- Lluch C, Galiana L, Doménech P, *et al*. n.d. The impact of the COVID-19 pandemic on burnout, compassion fatigue, and compassion satisfaction in Healthcare personnel: A systematic review of the literature published during the first year of the pandemic. *Healthcare*;10:364.
- Professional Quality of Life. Proqol manual. 2010. Available: <https://proqol.org/proqol-manual>



- 13 Ghahramani S, Kasraei H, Hayati R, *et al.* Health care workers' mental health in the face of COVID-19: a systematic review and meta-analysis. *Int J Psychiatry Clin Pract* 2022;1–10:1–10.
- 14 Danet Danet A. Psychological impact of COVID-19 pandemic in Western frontline Healthcare professionals. A systematic review. *Med Clin (Engl Ed)* 2021;156:449–58.
- 15 Nie A, Su X, Zhang S, *et al.* Psychological impact of COVID-19 outbreak on frontline nurses: A Cross-Sectional survey study. *J Clin Nurs* 2020;29:4217–26.
- 16 Pérez-Chacón M, Chacón A, Borda-Mas M, *et al.* Sensory processing sensitivity and compassion satisfaction as risk/protective factors from burnout and compassion fatigue in Healthcare and education professionals. *Int J Environ Res Public Health* 2021;18:611.
- 17 Li WW, West C, Xie G. The reflective risk assessment model of professional quality of life in Chinese nurses. *J Nurs Manag* 2021;29:767–75.
- 18 Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;8:19–32.
- 19 Peters MDJ, Godfrey C, Mclnerney P. Chapter 11: Scoping reviews (2020 version). In: Aromataris E, Munn Z, eds. *JBI manual for evidence synthesis*. JBI, 2020. Available: <https://synthesismanual.jbi.global>
- 20 Tricco AC, Lillie E, Zarin W, *et al.* PRISMA extension for Scoping reviews (PRISMA-SCR): checklist and explanation. *Ann Intern Med* 2018;169:467–73.
- 21 Joanna Briggs Institute. Critical appraisal tools. n.d. Available: <https://jbi.global/critical-appraisal-tools>
- 22 Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci* 2010;5:69.
- 23 Ghahramani S, Lankarani KB, Yousefi M, *et al.* A systematic review and meta-analysis of burnout among Healthcare workers during COVID-19. *Front Psychiatry* 2021;12:758849.
- 24 Gupta N, Dhamija S, Patil J, *et al.* Impact of COVID-19 pandemic on Healthcare workers. *Ind Psychiatry J* 2021;30:S282–4.
- 25 Menon GR, Yadav J, Aggarwal S, *et al.* Psychological distress and burnout among Healthcare worker during COVID-19 pandemic in India-A cross-sectional study. *PLoS One* 2022;17:e0264956.
- 26 Nishimura Y, Miyoshi T, Sato A, *et al.* Burnout of Healthcare workers amid the COVID-19 pandemic: A follow-up study. *Int J Environ Res Public Health* 2021;18:11581.
- 27 Jemal K, Hailu D, Mekonnen M, *et al.* The importance of compassion and respectful care for the health workforce: a mixed-methods study. *Z Gesundh Wiss* 2023;31:167–78.
- 28 Bollyky TJ, Hurland EN, Barber RM, *et al.* Pandemic preparedness and COVID-19: an exploratory analysis of infection and fatality rates, and Contextual factors associated with preparedness in 177 countries. *Lancet* 2022;399:1489–512.
- 29 Levitt EE, Gohari MR, Syan SK, *et al.* Public health guideline compliance and perceived government effectiveness during the COVID-19 pandemic in Canada: findings from a longitudinal cohort study. *Lancet Reg Health Am* 2022;9:100185.
- 30 Coccia M. Preparedness of countries to face COVID-19 pandemic crisis: strategic positioning and factors supporting effective strategies of prevention of pandemic threats. *Environ Res* 2022;203:S0013-9351(21)00972-5.
- 31 Missouridou E. Secondary Posttraumatic stress and nurses' emotional responses to patient's trauma. *J Trauma Nurs* 2017;24:110–5.
- 32 Grossman S, Cooper Z, Buxton H, *et al.* Trauma-informed care: recognizing and resisting re-Traumatization in health care. *Trauma Surg Acute Care Open* 2021;6:e000815.
- 33 Goldberg SB, Lam SU, Britton WB, *et al.* Prevalence of meditation-related adverse effects in a population-based sample in the United States. *Psychother Res* 2022;32:291–305.
- 34 La Mott J, Martin LA. Adverse childhood experiences, self-care, and compassion outcomes in mental health providers working with trauma. *J Clin Psychol* 2019;75:1066–83.
- 35 Lopez J, Bindler RJ, Lee J. Cross-sectional analysis of burnout, secondary traumatic stress, and compassion satisfaction among emergency nurses in Southern California working through the COVID-19 pandemic. *J Emerg Nurs* 2022;48:366–75.
- 36 Kaya ŞD, Mehmet N, Şafak K. Professional commitment, satisfaction and quality of life of nurses during the COVID-19 pandemic in Konya, Turkey. *Ethiop J Health Sci* 2022;32:393–404.
- 37 Knaak S, Mantler E, Szeto A. Mental illness-related stigma in Healthcare: barriers to access and care and evidence-based solutions. *Healthc Manage Forum* 2017;30:111–6.
- 38 Austin EJ, Blacker A, Kalia I. Watching the tsunami come": A case study of female Healthcare provider experiences during the COVID-19 pandemic. *Appl Psychol Health Well Being* 2021;13:781–97.

**MEDLINE (Ovid):**

Ovid MEDLINE(R) ALL <1946 to June 15, 2022>

- 1 exp coronavirus/ 141835
- 2 ((corona\* or corono\*) adj1 (virus\* or viral\* or virinae\*)).ti,ab,kw. 4596
- 3 (coronavirus\* or coronovirus\* or coronavirinae\* or Coronavirus\* or Coronovirus\* or Wuhan\* or Hubei\* or Huanan or "2019-nCoV" or 2019nCoV or nCoV2019 or "nCoV-2019" or "COVID-19" or COVID19 or "CORVID-19" or CORVID19 or "WN-CoV" or WNCov or "HCoV-19" or HCoV19 or CoV or "2019 novel\*" or Ncov or "n-cov" or "SARS-CoV-2" or "SARSCoV-2" or "SARSCoV2" or "SARS-CoV2" or SARSCov19 or "SARS-Cov19" or "SARSCov-19" or "SARS-Cov-19" or Ncovor or Ncorona\* or Ncorono\* or NcovWuhan\* or NcovHubei\* or NcovChina\* or NcovChinese\*).ti,ab,kw. 276502
- 4 (((respiratory\* adj2 (symptom\* or disease\* or illness\* or condition\*)) or "seafood market\*" or "food market\*") adj10 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw. 874
- 5 ((outbreak\* or wildlife\* or pandemic\* or epidemic\*) adj1 (China\* or Chinese\* or Huanan\*)).ti,ab,kw. 426
- 6 "severe acute respiratory syndrome\*".ti,ab,kw. 33623
- 7 or/1-6 288018
- 8 limit 7 to yr="2020 -Current" 265741
- 9 exp Compassion Fatigue/ 780
- 10 compassion fatigue.mp. 1476
- 11 exp Burnout, Professional/ 15416
- 12 burnout.mp. 22851
- 13 (secondary trauma\* or secondary trauma or secondary traumatic stress or secondary traumatization or secondary traumatizations).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 1103
- 14 (vicarious trauma\* or vicarious trauma or vicarious traumas or vicarious traumatization).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 343
- 15 or/9-14 23984
- 16 limit 15 to yr="2020 -Current" 7598
- 17 ("healthcare providers" or "healthcare provider").mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 29645
- 18 exp Health Personnel/ 584722
- 19 ("medical staffs" or "medical staff" or "hospital staff" or "hospital staffs" or "health personnel" or "nurse" or "nurses" or "physician" or "physicians" or "practitioners" or "practitioner" or "doctor" or "doctors" or "clinician" or "clinicians").mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 1502387
- 20 exp Nurses/ 95561
- 21 exp Physicians/ 166889
- 22 or/17-21 1698347



23 limit 22 to yr="2020 -Current" 234915  
 24 8 and 16 and 23 1240

### PsychINFO (Ovid):

APA PsycInfo <1806 to June Week 2 2022>

1 exp coronavirus/ 12356  
 2 ((corona\* or corono\*) adj1 (virus\* or viral\* or virinae\*)).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 149  
 3 (coronavirus\* or coronovirus\* or coronavirinae\* or Coronavirus\* or Coronovirus\* or Wuhan\* or Hubei\* or Huanan or "2019-nCoV" or 2019nCoV or nCoV2019 or "nCoV-2019" or "COVID-19" or COVID19 or "CORVID-19" or CORVID19 or "WN-CoV" or WNCov or "HCoV-19" or HCoV19 or CoV or "2019 novel\*" or Ncov or "n-cov" or "SARS-CoV-2" or "SARSCoV-2" or "SARSCoV2" or "SARS-CoV2" or SARSCov19 or "SARS-Cov19" or "SARSCov-19" or "SARS-Cov-19" or Ncovor or Ncorona\* or Ncorono\* or NcovWuhan\* or NcovHubei\* or NcovChina\* or NcovChinese\*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 19066  
 4 (((respiratory\* adj2 (symptom\* or disease\* or illness\* or condition\*)) or "seafood market\*" or "food market\*") adj10 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 22  
 5 ((outbreak\* or wildlife\* or pandemic\* or epidemic\*) adj1 (China\* or Chinese\* or Huanan\*)).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 12  
 6 exp Severe Acute Respiratory Syndrome/ 313  
 7 exp COVID-19/ 10191  
 8 or/1-7 19304  
 9 limit 8 to yr="2020 -Current" 18615  
 10 exp Compassion Fatigue/ or compassion fatigue.mp. 1590  
 11 burnout.mp. or exp Occupational Stress/ 30896  
 12 ("secondary trauma\*" or "secondary trauma" or "secondary traumatic stress" or "secondary traumatization" or "secondary traumatizations").mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 1681  
 13 ("vicarious trauma\*" or "vicarious trauma" or "vicarious traumas" or "vicarious traumatization").mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 1120  
 14 or/10-13 32503  
 15 limit 14 to yr="2020 -Current" 4402  
 16 ("healthcare providers" or "healthcare provider").mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 7988  
 17 Health Personnel.mp. or exp Health Personnel/ 200726  
 18 ("medical staffs" or "medical staff" or "hospital staff" or "hospital staffs" or "health personnel" or "nurse" or "nurses" or "physician" or "physicians" or "practitioners" or "practitioner" or "doctor" or "doctors" or "clinician" or "clinicians").mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 393367  
 19 exp Nurses/ 35548  
 20 exp Physicians/ 46975



21 or/16-20 462858  
 22 limit 21 to yr="2020 -Current" 44172  
 23 9 and 15 and 22 329

**Embase (Ovid):**

Embase Classic+Embase <1947 to 2022 June 15>

1 coronavirus.mp. or exp Coronavirinae/ 283008  
 2 ((corona\* or corono\*) adj1 (virus\* or viral\* or virinae\*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 4397  
 3 (coronavirus\* or coronovirus\* or coronavirinae\* or Coronavirus\* or Coronovirus\* or Wuhan\* or Hubei\* or Huanan or "2019-nCoV" or 2019nCoV or nCoV2019 or "nCoV-2019" or "COVID-19" or COVID19 or "CORVID-19" or CORVID19 or "WN-CoV" or WNCov or "HCoV-19" or HCoV19 or CoV or "2019 novel\*" or Ncov or "n-cov" or "SARS-CoV-2" or "SARSCoV-2" or "SARSCoV2" or "SARS-CoV2" or SARSCov19 or "SARS-Cov19" or "SARSCov-19" or "SARS-Cov-19" or Ncovor or Ncorona\* or Ncorono\* or NcovWuhan\* or NcovHubei\* or NcovChina\* or NcovChinese\*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 328020  
 4 (((respiratory\* adj2 (symptom\* or disease\* or illness\* or condition\*)) or "seafood market\*" or "food market\*") adj10 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 1105  
 5 ((outbreak\* or wildlife\* or pandemic\* or epidemic\*) adj1 (China\* or Chinese\* or Huanan\*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 177  
 6 exp severe acute respiratory syndrome/ 10836  
 7 exp coronavirus disease 2019/ 225756  
 8 or/1-7 336124  
 9 limit 8 to yr="2020 -Current" 303185  
 10 Compassion Fatigue.mp. or exp compassion fatigue/ 1901  
 11 burnout/ or exp professional burnout/ or burnout.mp. 29269  
 12 ("secondary trauma\*" or "secondary trauma" or "secondary traumatic stress" or "secondary traumatization" or "secondary traumatizations").mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 1311  
 13 ("vicarious trauma\*" or "vicarious trauma" or "vicarious traumas" or "vicarious traumatization").mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 438  
 14 or/10-13 30679  
 15 limit 14 to yr="2020 -Current" 9615  
 16 ("healthcare providers" or "healthcare provider").mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 41268

17 Health Personnel.mp. or exp health care personnel/ 1909332  
 18 ("medical staffs" or "medical staff" or "hospital staff" or "hospital staffs" or "health personnel" or "nurse" or "nurses" or "physician" or "physicians" or "practitioners" or "practitioner" or "doctor" or "doctors" or "clinician" or "clinicians").mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 1993138  
 19 exp nurse/ 208524  
 20 exp physician/ 917939  
 21 or/16-20 2916796  
 22 limit 21 to yr="2020 -Current" 431271  
 23 9 and 15 and 22 2136

**CINAHL:**

((((MH "Coronavirus") OR "coronavirus" OR (MH "SARS-CoV-2") OR (MH "COVID-19+")) OR ""SARS-CoV-2"")) AND (((MH "Compassion Fatigue") OR "Compassion Fatigue") OR ((MH "Burnout, Professional+") OR "burnout") OR ("secondary trauma") OR ((MH "Compassion Fatigue") OR "secondary traumatic stress") OR ((MH "Compassion Fatigue") OR "secondary traumatization") OR ("vicarious trauma") OR ("vicarious traumatization")) AND ("health care providers") OR ("healthcare providers") OR ("healthcare professionals") OR "clinicians" OR ((MH "Nurses+") OR "nurses") OR ("doctors" OR (MH "Physicians+")) OR ((MH "Health Personnel+") OR "health personnel") OR ((MH "Medical Staff+") OR "medical staff" OR (MH "Medical Staff, Hospital+") OR (MH "Nursing Staff, Hospital")) OR ((MH "Staff Nurses")) OR ((MH "Personnel, Health Facility+") OR "hospital staff"))

**Scopus:**

( TITLE-ABS-KEY ( "COVID 19" OR covid19 OR corona OR coronavirus OR sarscov2 OR 2019ncov OR "coronavirus disease 2019" OR "2019 novel coronavirus" OR 2019ncov ) AND TITLE-ABS-KEY ( "healthcare providers" OR "healthcare provider" OR "medical staffs" OR "medical staff" OR "hospital staffs" OR "hospital staff" OR nurses OR "health personnel" OR "health personnels" OR physicians OR physician OR practitioners OR practitioner OR doctors OR doctor OR health AND workforce OR healthcare AND workers OR health AND workers OR providers OR clinicians ) AND TITLE-ABS-KEY ( "compassion fatigue" OR burnout OR "secondary traumatic stress" OR "secondary trauma\*" OR "secondary traumatic stress" OR "secondary traumatization" OR "vicarious trauma\*" OR "vicarious traumatization" OR "vicarious traumas" OR "secondary post-trauma" ) ) AND PUBYEAR > 2019 AND PUBYEAR > 2019

**Web of Science:**

"COVID 19" OR covid19 OR corona OR coronavirus OR saratov OR 2019ncov OR "coronavirus disease 2019" OR "2019 novel coronavirus" OR 2019ncov (All Fields) and "healthcare providers" OR "healthcare provider" OR "medical staffs" OR "medical staff" OR "hospital staffs" OR "hospital staff" OR nurses OR "health personnel" OR "health personnels" OR physicians OR physician OR practitioners OR practitioner OR doctors OR doctor OR "healthcare workers" OR "health workers" OR clinicians (All Fields) and "compassion fatigue" OR burnout OR "secondary traumatic stress" OR "secondary trauma\*" OR "secondary traumatic stress" OR "secondary traumatization" OR "vicarious trauma\*" OR "vicarious traumatization" OR "vicarious traumas" OR "secondary post-trauma" (All Fields)

