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# Healthcare Provider Burnout

## A Rapid Scoping Review

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SPOR Evidence Alliance operates from the St. Michael's Hospital, Unity Health Toronto which is located on the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island.

COVID-END is housed within McMaster University which is located on the traditional territories of the Mississauga and Haudenosaunee nations, and within the lands protected by the "Dish With One Spoon" wampum, an agreement to peaceably share and care for the resources around the Great Lakes.

We are grateful to have the opportunity to work on these lands.

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## Abbreviations and Definitions

### Abbreviations

PPE	Personal Protective Equipment
WHO	World Health Organization
PTSD	Post-Traumatic Stress Disorder
MBI	Maslach Burnout Inventory
EE	Emotional Exhaustion
DP	Depersonalization
PA	Personal Accomplishment
PFI	Stanford Professional Fulfillment Index
IES	Impact of Event Scale
CBI	Copenhagen Burnout Inventory
PSS	Perceived Stress Scale 10 items
OLBI	Oldenburg Burnout Inventory
ProQOL	Professional Quality of Life
SBI	Spanish Burnout Inventory
WBI	Well-Being Index
PFA	Psychological First Aid
EMDR	Eye Movement Desensitisation and Reprocessing
APD	Anticipate, Plan, and Deter

### Key Definitions:

**Burnout:** A syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed (1).

**Direct Patient Care Provider:** An individual providing the provision of healthcare services directly to individuals being treated for or suspected of having physical or mental illnesses. Direct patient care includes preventative care and first line supervision.



## EXECUTIVE SUMMARY

**Objectives:** *To identify screening methods, interventions, and system level approaches related to burnout in direct patient care providers due to COVID-19.*

**Design:** *A rapid scoping review.*

**Method:** *Data sources include comprehensive searches of electronic databases (e.g., MEDLINE and CADTH). Study abstracts and full texts were screened for eligibility by two reviewers, independently. Data extraction of relevant studies were also done independently by two reviewers. All discrepancies were addressed through further discussion or adjudicated by a third reviewer. Presentation of the extracted data focuses on descriptive frequencies and thematic analysis and the results are presented in diagrammatic or tabular form, with a narrative summary of the findings.*

**Results:** *Direct patient care providers, or healthcare providers, face numerous challenges and multiple stressors in their work environment. Compounded, these stressors can culminate in burnout, a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed and added to the complexity of the work (1). Exacerbated by COVID-19, the prevalence of burnout in healthcare providers continues to rapidly increase with few solutions, putting the safety of patients and providers at risk.*

*The search strategies for identifying screening tools and interventions for burnout located a total of 1,237 citations. A total of 45 systematic reviews and scoping reviews were included to address burnout. The search strategies for identifying system-level approaches located a total of 1,290 citations. A total of 35 studies and reports were included to address system-level approaches. A total of 80 systematic reviews, scoping reviews and studies were included in this scoping review.*

*The results have been displayed in a diagrammatic or tabular form using charting methods in a way that meets the stated objective of this scoping review. Descriptive frequencies and thematic analysis have been included along with a narrative summary of the findings and how the results relate to the objectives of this review. As a result of this scoping review, gaps in the literature and areas for further research have been identified. The findings of this scoping review will be presented to all interested stakeholders, such as provincial authorities, provincial regulators, and researchers.*

**Conclusion:** *Though this scoping review does not provide direct recommendations, the data collected highlights some important insights. The experience of burnout among healthcare providers has been an ongoing issue. The unique circumstance of COVID-19 created a work overload crisis that exacerbated the situation; however, the take home messages from this scoping review are clear. It is important to measure, monitor, and address the issue of burnout. In this time of crisis, with frequent changes and problems providing resources or supplies, it is imperative to maintain and enhance communication in all dimensions of the healthcare system. As an approach to creating positive culture, flattening the hierarchy is most useful to facilitate collaboration between management and staff, increasing the ability of all concerns to be heard and addressed.*



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***Reflection on the review findings by provider partner Sam Belbin:***

Over the course of the COVID-19 pandemic, health care workers have been pushed to extremes in their working conditions, leading to an inevitable and unsurprising increase in burnout. This study highlights the importance of monitoring and addressing burnout to ensure health care systems continue to provide high quality care to patients. The insights noted in this review show that though burnout is not a new phenomenon, the drastic increase during the pandemic points to the importance of measuring, monitoring, and addressing the issue. It is instrumental to health care institutions that this research is continued, as providing appropriate and adequate support to front line workers will begin the process of rebuilding their faith in the system.



## Introduction

The onset of the coronavirus-19 (COVID-19) in 2019 pushed the global healthcare system to the brink of its capacity. Regardless of geographic region, healthcare systems felt the tremendous pressures of meeting the multifaceted demands of pandemic. From supply shortages to consistently changing policy landscapes, the competing pressures of the COVID-19 pandemic have placed unsustainable strains on healthcare systems and healthcare workers (2).

The physical implications of COVID-19 as a disease are apparent. Emerging research has been centric on the patient experience; however, the pandemic has undeniably caused a ripple effect in healthcare systems with lasting psychological implications (3). COVID-19 caused not only a strain on healthcare systems globally, but also on healthcare providers. Considerable changes in healthcare delivery have taken place to enhance public health, but these changes create tangible consequences for those working within healthcare systems. For direct patient care providers, from here on referred to as healthcare providers, these changes could entail working for longer or irregular hours, managing shortages in frontline staff due to public health restrictions, and supply restrictions (such as limiting PPE) – to name just a few (4). Further, when institutional shifts occur, healthcare providers are required to make shifts in their personal lives such finding alternate care for dependants, adapting their daily routines to mitigate public stigma, and adhering to quarantine restrictions – all while maintaining an increased workload in high stress, potentially dangerous work environment (5). The impact of the changing work conditions for healthcare providers on safety culture and psychological wellbeing due to COVID-19 are vital to maintaining functioning healthcare systems. These compounded workplace stressors have triggered elevated rates of psychological distress in healthcare providers, particularly burnout (6).

The World Health Organization (WHO) defines burnout as a “syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed” (1). Often studied within the healthcare profession, burnout is characterized by feelings of energy depletion or exhaustion, increased mental distance from one’s job or feelings negative towards one’s career, and a reduced professional productivity (1). Unlike compassion fatigue which affects many healthcare providers, burnout can occur without empathy and compassion (6). As stated by DeBrier (7): “Recent systematic reviews, identified through an abbreviated literature search and screening, clearly showed that especially occupational stress and burnout are already highly prevalent (even as high as 80%) among medical doctors and nurses in the pre-pandemic workplace,” (p.12). Prior to the onset of COVID-19, burnout was rampant in healthcare providers; the pandemic exacerbated an already extremely prevalent issue.

Burnout has been studied in terms of healthcare providers and COVID; however, research tends to treat depression, anxiety, Post-Traumatic Stress Disorder (PTSD), and decreased job satisfaction as interchangeable with burnout. Although some existing healthcare conditions contribute to the onset of burnout, there is a clear distinction between other mental health diagnoses and burnout as burnout is always job related (6). Some researchers have acknowledged that burnout mirrors several aspects of depression and anxiety, but very few use burnout as a specific variable of interest – especially when considering COVID-19. No existing review considered burnout as a standalone in terms of screening,





interventions, and the catalyst of positive organization culture change. A preliminary search of MEDLINE, the Cochrane Database of Systematic Reviews, and JBI Evidence Synthesis was conducted and no current or underway systematic reviews or scoping reviews on the topic were identified.

Further still, healthcare provider burnout has not been analysed in terms of preventative measures. When considering organizational culture change or focusing on the “people” side of an institution, system level approaches have the ability to support positive benefits within direct patient care delivery (8). Particularly in terms of the COVID-19 pandemic, organizational culture changes are necessary to protect healthcare providers from infection as well as psychological harm, such as burnout. It is essential to understand what aspects of organizational change may prevent burnout, such as personal support, managerial additions, autonomy in decision-making, and adequate working conditions and equipment (9).

The present review identifies the methods of screening that have been used to measure burnout within healthcare providers. Further, the review charts system level approaches that support those affected by burnout as well as positive culture changes that improved direct patient care delivery during the ongoing COVID-19 pandemic. The review has been conducted following JBI guidance for the conduct of scoping reviews (10).

The *population* of this review is direct patient care providers, or healthcare providers, with *outcomes* being a synthesis burnout screening tools and system level approaches that support positive culture change in the context of COVID-19. The *study design* is a narrative qualitative analysis based on the scoping review, with a *timeframe* of 2020 to 2021.

### Three questions guided this scoping review:

1. What approaches to screening have been reported to identify those direct patient care providers experiencing or at-risk of burn out related to COVID-19?

Sub-question: 1a. How can these screening approaches be used to prioritize services for those direct patient care providers experiencing or at-risk of burn out related to COVID-19?

2. What interventions/programs have been reported to assist and/or support those direct patient care providers with burnout or at risk for burnout related to COVID-19?
3. What system level approaches have been reported to support positive culture change related to direct patient care delivery in the context of COVID-19?

## Methods

**Eligibility Criteria** – The review focused on healthcare providers delivering patient care regardless of the setting. The concept explored is burnout, or chronic workplace stress that has not been successfully managed. Studies that focused on specific mental health conditions such as depression, anxiety and PTSD were excluded.



**Literature Search** – Information sources of interest include relevant electronic databases, grey literature sources, and web searches as listed in Appendix I. The search included experimental and quasi-experimental study designs including systematic reviews, randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies. In addition, analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies were considered for inclusion. This review also considered descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies for inclusion. We also scanned references of included articles and relevant systematic reviews, and any additional sources or articles provided by knowledge users and/or identified experts in the field. Qualitative studies were considered that focused on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography, qualitative description, action research, and feminist research. Due to the volume of literature to address questions 1, 1a and 2, only systematic reviews were considered. For question 3 both systematic reviews and primary studies were considered.

The context for this review was the period of January 2020 to the September 7, 2021, during which the COVID-19 pandemic has affected healthcare systems worldwide. There were no geographic, cultural, or sub-cultural limitations. No studies were excluded based on language.

**Study Selection** – To address research question 1 and 2, a three-step strategy was used to develop the search for how COVID-19 is affecting burnout healthcare providers. We used searches developed by both Ovid in-house information specialists and CADTH's information specialists as an initial limited search (11, 12), combined with the SIGN search hedge for systematic reviews and other meta-syntheses (13) and the CADTH search hedge for healthcare professionals (11) to create an initial search in the MEDLINE (OVID) database. The initial strategy was shared amongst the team for suggestions on additional keywords or controlled subject headings that should be included. Additional terms based on this initial search of the literature included occupational stress, moral injury, and moral distress. Once all members of the team were in agreement, the search strategy was run and translated into the following databases: Embase and PsycInfo (both on Ovid), CINAHL (EBSCO), and LitCovid (14). This step was completed August 27, 2021. The search was concluded by checking the citations of included studies. Full search strategies are included in Appendix I.

For question 3, a similar three-step strategy was used to develop the search to determine the impact of COVID-19 on organizational culture. Using the searches developed by both Ovid in-house information specialists and CADTH's information specialists as a starting point, we developed an initial search in the MEDLINE (OVID) database (11, 12). This initial strategy was shared amongst the team for suggestions on keywords or controlled subject headings that should be included. Once all members of the team agreed, the search strategy was run and translated into the following databases: Embase and PsycInfo (both on Ovid), CINAHL (EBSCO). Full search strategies are available in Appendix I. This step was completed August 31, 2021. The search was concluded by checking the citations of included studies and a grey literature search which searched Google Scholar using the Publish or Perish software and a search of the websites of known organizations for policy documents and other



materials. This step was completed the week of September 7, 2021. Studies published in any language were included.

All identified citations from the search were uploaded into Covidence, an online review software, after duplicates had been removed. Two independent reviewers screened titles and abstracts using the inclusion criteria developed for the review. The full texts of potentially relevant studies were retrieved and screened in duplicate independently by two reviewers. Reasons for exclusion was recorded and reported for studies that did not meet the inclusion criteria during the screening process. Studies were screened for those centric on healthcare providers, burnout, and COVID-19 settings published from 2020 onward. All disagreements between reviewers at every stage of the study selection process were resolved with the involvement of a third reviewer, or through further discussion. This process was piloted prior to the beginning of the data collection process.

**Data Extraction** – Two independent reviewers extracted all relevant data from papers included in the scoping review using a data extraction tool developed by the review team. The following are examples of the extracted data:

- General information (e.g., title, author, publication year, country in which the study conducted);
- Characteristics (e.g., aim, study design, study population, inclusion/exclusion criteria);
- Key terms (e.g., burnout, culture change, COVID-19);

Any conflicts within the extraction process were resolved by a third reviewer or a research team discussion. This process was piloted prior to the beginning of the data collection process. As per the PRISMA-ScR explanation and elaboration, the risk of bias and methodological quality of included studies was not appraised. This scoping review was conducted in accordance with the JBI methodology for scoping reviews (10).

## Results

**Study Selection** - The search strategies for questions 1 and 2 located a total of 1,237 citations. See Appendix II for the full PRISMA diagram. From this set, 282 citations were removed as duplicates. At the title and abstract screening stage, a total of 740 citations were excluded as off topic. Two hundred and fifteen citations were read at the full text screening stage and of this set, 170 were excluded (see Appendix III for the Data Extraction Templates and Appendix IV for the List of Excluded Studies). A total of 45 systematic reviews and scoping reviews were included to address questions 1 and 2.

The search strategy for question 3 located 1,290 citations. See Appendix II for the full PRISMA diagram. From this set, 212 citations were removed as duplicates. At the title and abstract screening stage, a total of 924 citations were excluded as off topic. One hundred and fifty-four citations were read at the full text screening stage and of this set, 119 were excluded (see Appendix III for the Data Extraction Templates and Appendix IV for the List of Excluded Studies). A total of 35 studies and reports were included to address question 3.



**Study Characteristics** - A total of 80 systematic reviews, scoping reviews and studies were included in this scoping review. (See Appendix V for the Characteristics of Included Studies Table) All of these were published between 2020 and 2021. Of this total set, and based upon the country of the lead author, the following countries were represented:

USA – 20; Canada – 11; Italy – 11; UK = 9; Spain – 4; France – 3; Australia – 2; Belgium – 2; Brazil – 2; Colombia – 2; Germany – 2; Iran – 2; Switzerland – 2; Finland – 1; Greece – 1; Hong Kong – 1; Ireland – 1; Israel – 1; Saudi Arabia – 1; Singapore – 1; and South Africa – 1.

The search strategy was not limited solely to studies published in English. Studies in other languages were screened using Google Translate. One Italian review was included and Google Translate was used to extract the data (15). One member of our review team speaks Spanish and was able to translate the Spanish study by Martinez Estalella et al. (16). Another member of the review team speaks French and was able to translate the study by Georger et al. (17). The other 77 reviews and studies were in English.

All healthcare providers were represented, and research designs included systematic reviews, an umbrella review, scoping reviews, case studies, and descriptive studies.

### **Question 1 – What approaches to screening have been reported to identify those direct patient care providers experiencing or at risk of burnout related to COVID-19?**

When considering the approaches to screening that have been reported to identify those direct patient care providers experiencing or at-risk of burn out related to COVID-19, the following screening tools were found (See Appendix VI for the full details on each screening instrument):

The Maslach Burnout Inventory is designed to measure emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). The MBI was the most frequently used tool, cited in 21 studies of the 25 included (18-37).

The Stanford Professional Fulfillment Index (PFI) measures burnout (work exhaustion and interpersonal disengagement) and professional fulfillment. It was used in 3 studies of the 25 included (18, 27, 32).

The Impact of Event Scale (IES) assesses subjective distress caused by traumatic events and was reported in 1 study of the 25 included (38).

The Copenhagen Burnout Inventory (CBI) tool measures personal (degree of physical and psychological fatigue and exhaustion), work (degree of physical and psychological fatigue and exhaustion related to work), and client-related (or a similar term such as patient, student, etc.) burnout. It was used in 3 studies of the 25 included (24, 27, 39).

The Perceived Stress Scale 10 items (PSS-10) is a shorter version of the 14-item PSS and captures perceived degree of stress in the “last month”. The PSS-10 instrument was used in one study of the 25 included (21).



The Oldenburg Burnout Inventory (OLBI) measures exhaustion (physical, cognitive, and affective aspects) and disengagement from work (negative attitudes toward work objects, work content, or work in general). The OLBI instrument was reported in 4 studies of the 25 included (7, 22, 24, 35).

The Professional Quality of Life (ProQOL) Scale version 5 measure of the negative and positive effects of helping others who experience suffering and trauma. The ProQOL has sub-scales for compassion satisfaction, burnout, and compassion fatigue. The ProQOL scale was used in 3 studies of the 25 included (24, 27, 28).

The Mini-Z (for Zero Burnout) was developed to measure burnout in physicians. The instrument was reported used in 2 studies of the 25 included (24, 28).

The Spanish Burnout Inventory (SBI) measures enthusiasm towards the job, psychological exhaustion, indolence, and guilt. It was used in one study of the 25 included (24).

The Well-Being Index (WBI) measures mental distress and well-being. It was reported by one study in the 25 included (27).

Two studies (5, 40) did not clearly report on the instruments used in individual studies included in their review of evidence.

### **Question 1a – How can the screening approaches be used to prioritize services for those direct patient care providers experiencing or at risk of burnout related to COVID-19?**

To prioritize services, it is important to identify those healthcare providers who are at greatest risk for burnout. In our scoping review we located five reviews that explored the risk factors associated with burnout (18, 31, 38, 41, 42). Notably, the following factors were identified as predictors or risk factors for burnout:

- Department of work (18)
- Female identifying (18)
- Increased work hours (18)
- Maladaptive coping strategies (avoidance, hostile confrontation, and self-blame) (38)
- Stigmatization, or the “perceived and anticipated stigma was related to higher levels of compassion fatigue and burnout” (31)
- Structural factors (staff and resource adequacy, workload and compensation, job roles and job security) (42)
- Human resources (female identifying, age/family status, safety, experience) (42)
- Symbolic (Patient care protocols, societal expectations, organisation culture) (42)





- Political (Public health guidance, infrastructure, pandemic preparedness, social isolation) (42)
- Fear of contagion and transmission to their patients and families (especially for home healthcare workers) (42)

Though female identifying is listed above (twice), the literature on screening clearly indicates that all healthcare providers are at risk for burnout regardless of profession, gender, age, years of experience or type of healthcare provided. However, stigma is of particular interest here. The nature of the COVID-19 pandemic has generated a great deal of stigma related to ethnicity as well as profession of a person, hence this is an important factor when considering the potential for burnout.

### **Question 2 – What interventions/programs have been reported to assist and/or support those direct patient care providers with burnout or at risk for burnout related to COVID-19?**

To address this question, nine papers were found. A wide range of intervention strategies to reduce emotional distress in healthcare workers exposed to the epidemic outbreaks emerged from the included studies. Of the studies reporting on burnout, interventions were focused on the individual level or the system level.

*Individual Level Interventions:* In terms of providing interventions to the healthcare providers in the settings, Barell et al. (19) found that healthcare providers need to be supported with all the personal protective equipment necessary to work safely and reduce their risk. Further, they identified that organizations should also promote workers personal coping strategies, such as altruism, acceptance, resilience, and humour. They noted the importance of psychological support before, during and after outbreak, by specially trained personnel, while recognizing the workers efforts by providing positive feedback. To promote a positive collaborative work climate, they identified that workers need access to accurate and timely information to reduce uncertainty and training and education about how to protect themselves and properly deal with infected patients.

Bertuzzi et al. (43) identified a psychological support intervention in promoting positive emotion was suggested to maintain teamwork efficiency and prevent burnout. The intervention consists of digital (online chat) and in person intervention, with five cognitive modules.

Hooper et al. (4) identified five interventions. The first one being psychological first aid (PFA), which they noted reduces the psychological effects of disasters through promoting adaptive functioning and coping and it involves empathic listening and information on psychosocial services. The second intervention noted was eye movement desensitisation and reprocessing (EMDR), which is a psychotherapy treatment designed to alleviate trauma-related symptoms. In this intervention, a trained EMDR practitioner guides the person to relive their original trauma memory in brief doses while making rapid eye movements, thus releasing unlocked memories. Another approach they noted was anticipate, plan, and deter (APD) which is a three-step action plan, with the 'anticipate' phase involving pre-event stress inoculation training to prepare healthcare personnel for the psychosocial impact of mass trauma events. In the 'plan' phase, staff develop a personal resilience plan, where they can identify and document their expected stress responses and challenges as well as support systems and coping strategies. The final 'deter' phase involves teaching staff how and when to activate their personal



resilience plan during stress exposure and encouraging them to use the Psychological Simple Triage and Rapid Treatment–Responder (PsySTART-R) self-triage system. PsySTART-R is a web-based mobile-friendly application and self-assessment tool that tracks daily exposure to traumatic stress, assesses psychological risk factors and gives confidential feedback. The APD model targets the whole organisation over time. The next items of this paper found that the Resilience at Work (RAW) mindfulness programme (aka Mindarma) which is an evidence-based programme that combines principles from mindfulness, CBT, acceptance and commitment therapy, and self-compassion approaches. Similarly, the paper by Kotera & Van Gordon (44) identified that healthcare workers should have six 2.5-hour sessions on compassionate mind training (CMT). The final intervention noted by Hooper et al. (4) is resilience and coping for the healthcare community (RCHC) which aims to foster healthy coping strategies for dealing with past, current, and future disasters and foster resilience through promoting support between colleagues. It combines psychoeducation and mindfulness practices in an interactive group format that uses solution-focused techniques and action learning theory.

Price, Becker-Haimes, & Benjamin Wolk (45) identified a MESH framework that proposes a continuum of services, including universal (e.g., self-help), selected (e.g., support from trained volunteers), and indicated (e.g., professional therapy, psychotropic medication management) interventions matched to individual need. As well, Sirois & Owens (34) suggest that third-wave cognitive behavioral therapeutic approaches, such as mindfulness, gratitude, and self-compassion could be beneficial for reducing burnout. Evidence from randomized controlled trials suggests that third-wave cognitive behavioral therapeutic approaches, are effective for reducing stress and burnout among healthcare professionals.

Stuijzand et al. (36) reported on the use of a one-day PFA (psychological first aid) training that was focused on 1. explaining important terms (mental health, mental disorder, psychosocial support and psychosocial disorder); 2. understanding reactions to traumatic and stressful events; 3. understanding PFA; 4. understanding sources and signs of stress; 5. self-care; 6. providing PFA-prepare for your role, look, listen and link; 7. ending your assistance; and 8. practicing PFA with role-play. This is an early intervention program in the acute aftermath of the outbreak and did not lead to improved professional quality of life.

Zhang et al. (37) reported on an intervention for eight physiotherapists suffering from burnout. The intervention entailed conducting Qigong for 20 min daily for one week followed by five minutes self-practice twice daily for two more weeks. Further, they identified that participating in a Yoga program for eight weeks for hospital nurses with significant stress reduction.

*System Level Interventions:* In terms of the system level approaches, in the paper by Barello et al. (19) the authors identified that the policy-level interventions included developing a strategic plan for future outbreaks and ensuring favourable work conditions. As well, Sharifi et al. (32) demonstrated that workplace interventions were directly associated with a reduction in the burnout scores. Organizational strategies to create a capable environment to reduce burnout could include the following interventions: improving workflow management, organizing services with an emphasis on reducing workload, improving communication skills, arranging discussion meetings, increasing interoperability, providing the opportunity for having adequate rest and exercise, holding workshops on coping skills, decreasing

the clinical demand via schedule changes, and increasing teamwork. Developing clear and up-to-date guidelines and protocols for different situations, as well as practical training about protective interventions are among interventions that may increase the sense of safety, assurance, and control.

**Question 3 – What system level approaches have been reported to support positive culture change related to direct patient care delivery in the context of COVID-19?**

To expand our investigation for this question we included both primary studies as well as systematic reviews. Fifty-five papers contributed to the answers for this question: 20 systematic reviews and 35 primary studies or reports; however, 1 study provided recommendations only targeting the individual level and did not provide any data for system level approaches (46). Details for this question were divided into approaches that focus on the individual and approaches that focus on system level initiatives. Much of the data is reflected as recommendations or suggestions that have emerged from formal or informal investigations by the authors. Very limited evidence exists about the effectiveness of these approaches for either individuals or focused on the system level (42). However, in the rapid response to changing circumstances many of these approaches were implemented informally and some benefit accrued.

**Approaches focused on the individual:**

Typically, these approaches involve self-awareness on the part of the healthcare provider.

- Recommendations such as eating healthy, getting enough sleep, exercising, and drinking enough fluids helped to promote self-care, and were very common (46-48).
- Equally mindfulness-based approaches were frequently suggested to encourage providers to stop, take a break, even 5-10 minutes of uninterrupted time provides a good reset. Furthermore, mindfulness promotes positive thoughts, and increases kindness and overall acceptance (46).
- Notably, there was a strong emphasis on the fact that it is the healthcare provider's responsibility for developing their own healthy behaviours and coping measures to manage stress, decrease the risk of burnout and increase resiliency (46, 49, 50).
- However, some organizations understood that what they offered as resources to their healthcare providers could potentially increase the likelihood of self-care behaviours (49). For example, some organizations provided access to individual bioethics consultations, workplace wellness and employee assistance programs and consultations with the Department of Psychiatry or other resources (for e.g., family doctor, therapist, and spiritual care practitioner) (51).
- The importance of social support was highlighted, with emphasis on the need for increased social support mechanisms and regular contact with families (20).

**Approaches focused on system level changes (Appendix VII -Table 3)**





- The paper by Collins et al. (52) described three approaches including cognitive unloading, flattening hierarchy and organizational agility. “While difficult to quantify and likely multifactorial, the success of these education and well-being initiatives is supported by a staff sickness rate at the NHL of under 2%—one-tenth of that contemporaneously reported by existing NHS hospitals,” (p.3)
  - Cognitive unloading: To free up cognitive time on tasks, a process called ‘cognitive unloading’ was engaged so that certain tasks were transformed into pre-written prescriptions or downloaded from ICU nurses to more available staff, e.g., syringe infusions, blood gases and venepuncture.
  - Flattening the hierarchy: The delegation of tasks ‘down’ to the most invested stakeholder, rather than ‘up’ to the most responsible, epitomised by the ‘4pm clinical forum’—a daily, open-invite meeting attended by staff from all directorates. This provided a shared learning environment, and a unique opportunity for collaboration and improvement at a scale, speed and transparency rarely seen in existing hospitals.
  - Organizational agility – included strategies such as
    - To utilize non-ICU trained staff and reallocating duties away from staff in short supply, new position of Clinical Support Worker was created to record observations, change pre-prepared infusions, maintain patient hygiene, and assess pressure areas.
    - At induction, employees underwent ‘psychological PPE’ training, a novel educational programme created at the NHL to educate staff in self-reflection, anxiety management and mindfulness.
    - Before each shift, staff were paired with a colleague to monitor for signs of distress. Psychological support was available, including pathways for onward referral if indicated.
    - Physical well-being was supported by complimentary food, drink, parking, and accommodation.
    - Workforce support desk was established in rest areas to address clerical issues, including contracts, pay, transport and accommodation.
- Croke’s (49) paper on organizational strategies to support well-being and address burnout recommended the following approaches:
  - Develop and foster resilient individuals and work environments
  - Exhibit behaviours that empower teams
  - Create a positive work environment with a tool kit of evidence-based solutions



- Indicate value for team members
  - Compassionately and clearly convey best practices
  - Monitor and promote well-being among team members
  - Create a supportive culture free of blame
  - Encourage collaboration among leaders and staff members
  - Set up a central location for information updates
  - Ensure that team members are not required to work when there is a serious threat to their health until the organization has taken necessary actions to address safety.
  - Provide appropriate resources for compensation, rehabilitation, and treatment to team members who are affected by the health emergency while working
- William Rosa (53) in his paper on a blueprint for leadership during COVID-19: minimizing burnout and moral distress among nursing workforce, recommended the following five approaches:
    - Create a COVID-19 taskforce with a strong nursing presence
    - Make top leadership accessible to clinical nurses
    - Intelligently and safely redeploy clinical staff on the bench to units
    - Create a culture of transparent communication (bringing this information (virus transmission, updates on CDC recommendations for best practices, plans for rationing and allocation of PPE, etc.) directly to nurses increases transparency and helps alleviate fears about becoming sick or potentially infecting a family member.
    - Foster well-being with strategic advocacy (nurse managers and other leaders should document the ongoing prevalence of moral distress and burnout and use the results to focus resources and interventions)
- Recognition of the experience of burnout is important and suggestions to measure it and monitor it were also made by other papers (AHC Media)
  - The paper by Flynn (54) presented 'in their own words', responses from healthcare workers on what system level approaches would assist them during this time.
    - Hear me: respondents wanted the hospital to demonstrate that healthcare workers' views were respected.
    - Protect me: requests for protection from COVID-19 (PPE, increased staff testing, allowances for remote work)



- Prepare me: operational realities (new work needed, like COVID-19 screening, surge capacity planning) generated some unpredictability in hospital staffing needs, resulting in palpable anxiety among healthcare workers about when and to where they might be redeployed.
- Support me: for extreme workloads, family/personal needs, and mental health concerns; Leadership visibility in the workplace (or lack thereof) influenced healthcare workers' perceptions of being supported.
- Care for me: comments revealed the positive impact of having leaders who showed compassion and appreciation for healthcare workers.
- Saqib and Rampal (55) recommended the creation of 'a quiet room' away from clinical noise to enable and encourage mindfulness and psychological resilience through a calm and serene environment. The space comprised relaxed furniture, soft furnishings, and inspirational messages. In their informal application of this suggestion, they received excellent feedback from participants who enjoyed time in the quiet room.
- Finally, in their review on strategies adaptable from healthcare to public health settings, Public Health Ontario (56) list the following as a key finding:
  - "Organizational and management strategies include staffing and workload management, prevention and prioritization, communication, effective leadership and workplace cohesion. A recurring concept across the available literature is that organization-level strategies are beneficial for staff mental health and any individual-level supports should be supplemented with organizational responses or strategies," (p.1).

## Discussion

The Maslach Burnout Inventory (MBI) was the most frequently used tool, cited in 21 studies (18-37). The literature on screening clearly indicates that all healthcare providers are at risk for burnout regardless of profession, gender, age, years of experience, or type of healthcare provided (i.e., profession). However, the one factor of particular interest in this review is stigma. Stigma is essential when considering burnout as the nature of the COVID-19 pandemic has generated a great deal of stigmatization towards some ethnicities and professions.

There is very limited evidence on the effectiveness of interventions related to burnout syndrome, specifically within the context of the COVID-19 pandemic. The literature acknowledges that the pre-COVID environment maintained a very high rate of burnout rate; however, this review revealed that there are ongoing attempts to support healthcare providers with burnout or those at risk for burnout related to COVID-19. Interventions targeting individuals typically include a self-care focus such as mindfulness training, cognitive behavioural therapy, and exercise – with a particular focus on yoga. In contrast, interventions at the system level focused on generating a positive work environment – such as ensuring favourable work conditions to improve workflow.



Similar conditions exist when considering the approaches to support positive culture change related to direct patient care delivery in the context of COVID-19. Once again, although several approaches were proposed and suggested, very few (if any) have been formally evaluated. Typically, approaches targeting individuals focused on self-care by encouraging healthy/adequate eating, exercise, rest, and support from loved ones. In terms of system level changes, there were many more recommendations in comparison to individual targets. Notably, the paper by Collins et al. (52) highlighted three approaches that appear to have made a difference in the studied institution. The authors recommended a process of cognitive unloading. This consisted of reallocating tasks (while considering the skillsets of others), flattening of the employee-employer hierarchy which facilitated greater collaboration between management and staff, and increasing the agility of the organization to make changes that would support healthcare providers. Other recommendations focused on increasing system level awareness regarding burnout and calling for the additional monitoring of symptoms to ensure continued assistance for those suffering with the syndrome. Greater support for healthcare providers was also encouraged; these ideas ranged from free food to a quiet room for some well-earned, peaceful moments. Importantly, there was a call from the healthcare providers to be heard and for their concerns to be addressed. Finally, recommendations centric on the recognition and open acknowledgement of healthcare provider value as well as those focused on positive, supportive, and efficient work environments were encouraged.

In terms of the conduct of the scoping review, our target was healthcare providers. There is a possibility that the experience of burnout in other professions (i.e., teachers) may yield important and useful recommendations.

When considering the data collected, there may be some inaccuracies in the measurement of burnout and/or the responses to interventions. For example, the sudden onset of work overload due to the COVID-19 pandemic may have affected response rate and willingness to participate in either screening or interventions focused on burnout. Further, there is still a professional stigma attached to feeling anything less than perfect as a healthcare provider, and some providers may be reluctant to admit their feelings and reach out for assistance.

Given the rapidly evolving healthcare landscape and the constant shifts in day-to-day operations occurring due to COVID-19, it may be difficult to attribute the results as being due to any one change. Furthermore, accurately evaluating the impact of approaches and interventions may require more time.

The experience of burnout is, by definition, related to one's job or workplace environment. However, it is possible that people could experience burnout from other dimensions in their lives. This would confound the issue and the capacity to measure, monitor, and address the situation.

## Conclusion

Though this scoping review does not provide direct recommendations, the data collected highlights some important insights. The experience of burnout among healthcare providers has been an ongoing issue. The unique circumstance of COVID-19 created a work overload crisis that exacerbated the situation; however, the take home messages from this scoping review are clear:



It is important to measure, monitor, and address the issue of burnout while simultaneously ensuring that these efforts are embedded in routine practice. In this time of crisis, with frequent changes and problems providing resources or supplies, it is imperative to maintain and enhance communication in all dimensions of the healthcare system. As an approach to creating positive culture, flattening the hierarchy is most useful to facilitate collaboration between management and staff, increasing the ability of all concerns to be heard and addressed.

As Berkowitz et al. (57) asserts: “Although many factors propagate burnout, inherent to work satisfaction is a sense of community and of feeling valued and respected,” (p. 8). Acknowledging the value and contribution of healthcare providers greatly facilitates as sense of worth and belonging. Encouraging self-care, and even providing additional resources to facilitate self-care, are excellent approaches to encourage a positive culture. However, at the system level, committed support, as shown through resources such as real time mental health counselling, may enhance and maintain a positive work culture.

Additional research into the prevention of burnout would be most valuable. In addition, research into the potential for including self-care skills (such as mindfulness) into educational programs for healthcare providers would be worthwhile.

There is still a stigma attached to the experience of burnout. Changes need to be made at the practice level to encourage healthcare providers disclose their mental health issues and engage in the resources provided for their support. Results of this scoping review indicate that small acts of kindness went a long way to assist healthcare providers in their daily activities. Although not formally evaluated it did appear that kindness such as an offer of free food, kits that included essential oils and chocolate, and free parking all helped to mitigate the effects of burnout and exhaustion.

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## Appendix I: Search Strategy

### Question 1 and 2:

Database: Ovid MEDLINE(R), Ovid MEDLINE(R) Daily and Epub Ahead of Print, In-Process & Other Non-Indexed Citations <1946 to Present>

Search Strategy:

-----  
1 (coronavirus/ or betacoronavirus/ or coronavirus infections/) and (disease outbreaks/ or epidemics/ or pandemics/) (40057)

2 (nCoV\* or 2019nCoV or 19nCoV or COVID19\* or COVID or SARS-COV-2 or SARSCOV-2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,kf,nm,ot,ox,rx,px. (173268)

3 ((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus\* or corona virus\* or betacoronavirus\* or CoV or HCoV)).ti,ab,kf,ot. (52733)

4 ((coronavirus\* or corona virus\* or betacoronavirus\*) adj3 (pandemic\* or epidemic\* or outbreak\* or crisis)).ti,ab,kf,ot. (9665)

5 ((Wuhan or Hubei) adj5 pneumonia).ti,ab,kf,ot. (362)

6 or/1-5 (179511)

7 limit 6 to yr="2019 -Current" (178031)

8 exp Health Personnel/ or exp Attitude of Health Personnel/ or exp Patient Care Team/ or Caregivers/ (702806)

9 ((health care or healthcare or allied health or medical or clinic\* or hospital or hospitals or health facilit\* or health care facilit\* or healthcare facilit\* or health organization\* or nursing home\* or long-term care or hospice or acute care or community health center\* or community health centre\* or emergency room\* or health service\* or ambulance or ambulatory care or outpatient or operating room) adj3 (provider\* or worker\* or fieldworker\* or professional\* or staff or practitioner\* or employee\* or personnel or manager\* or administrator\* or technician\* or caregiver\*)).ti,ab,kf. (281347)

10 (doctor\* or physician\* or clinician\* or paramedic\* or nurs\* or pharmacist\* or surgeon\*).ti,ab,kf. (1426493)

11 or/8-10 (1954486)

12 stress, psychological/ or burnout, psychological/ or burnout, professional/ or caregiver burden/ or occupational stress/ or compassion fatigue/ (141578)

Healthcare Provider Burnout



13 (burnout or fatigue or exhaust\* or "emotional stress\*" or "workplace stress\*" or "psychological stress" or "quit\*").mp. (346463)

14 or/12-13 (461067)

15 7 and 11 and 14 (2188)

16 Meta-Analysis as Topic/ (20319)

17 meta analy\$.tw. (211359)

18 metaanaly\$.tw. (2317)

19 Meta-Analysis/ (142286)

20 (systematic adj (review\$1 or overview\$1)).tw. (217869)

21 exp Review Literature as Topic/ (17746)

22 or/16-21 (363182)

23 cochrane.ab. (103252)

24 embase.ab. (115896)

25 (psyclit or psyclit).ab. (916)

26 (psychinfo or psycinfo).ab. (44588)

27 (cinahl or cinhal).ab. (34994)

28 science citation index.ab. (3361)

29 bids.ab. (578)

30 cancerlit.ab. (635)

31 or/23-30 (187168)

32 reference list\$.ab. (19794)

33 bibliograph\$.ab. (19929)

34 hand-search\$.ab. (7618)

35 relevant journals.ab. (1253)

36 manual search\$.ab. (5064)

37 or/32-36 (48145)

Healthcare Provider Burnout



38 selection criteria.ab. (32685)

39 data extraction.ab. (25466)

40 38 or 39 (55700)

41 Review/ (2863925)

42 40 and 41 (30548)

43 Comment/ (930279)

44 Letter/ (1152847)

45 Editorial/ (581377)

46 animal/ (6924255)

47 human/ (19711200)

48 46 not (46 and 47) (4856037)

49 or/43-45,48 (6783306)

50 22 or 31 or 37 or 42 (434761)

51 50 not 49 (413136)

52 15 and 51 (109)

Database: Embase Classic+Embase <1947 to 2021 August 26>

Search Strategy:

-----  
1 exp burnout/ (22396)

2 mental stress/ (92010)

3 caregiver burden/ (8706)

4 compassion fatigue/ or job stress/ (11807)

5 (burnout or fatigue or exhaust\* or "emotional stress\*" or "workplace stress\*" or "psychological stress" or "quit\*").mp. (644549)

6 or/1-5 (733588)

7 sars-related coronavirus/ (476)

Healthcare Provider Burnout



- 8 (coronavirinae/ or betacoronavirus/ or coronavirus infection/) and (epidemic/ or pandemic/) (10816)
- 9 (nCoV\* or 2019nCoV or 19nCoV or COVID19\* or COVID or SARS-COV-2 or SARSCOV-2 or SARS-COV2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,kw,hw,ot. (166452)
- 10 ((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus\* or corona virus\* or betacoronavirus\* or CoV or HCoV)).ti,ab,kw,hw,ot. (151503)
- 11 ((coronavirus\* or corona virus\* or betacoronavirus\*) adj3 (pandemic\* or epidemic\* or outbreak\* or crisis)).ti,ab,kw,ot. (8981)
- 12 ((Wuhan or Hubei) adj5 pneumonia).ti,ab,kw,ot. (400)
- 13 coronavirus disease 2019/ (142060)
- 14 or/7-13 (180438)
- 15 exp health care personnel/ (1773452)
- 16 exp Attitude of Health Personnel/ (195299)
- 17 caregiver/ (91848)
- 18 ((health care or healthcare or allied health or medical or clinic\* or hospital or hospitals or health facilit\* or health care facilit\* or healthcare facilit\* or health organization\* or nursing home\* or long-term care or hospice or acute care or community health center\* or community health centre\* or emergency room\* or health service\* or ambulance or ambulatory care or outpatient or operating room) adj3 (provider\* or worker\* or fieldworker\* or professional\* or staff or practitioner\* or employee\* or personnel or manager\* or administrator\* or technician\* or caregiver\*)).ti,ab,kw. (379507)
- 19 (doctor\* or physician\* or clinician\* or paramedic\* or nurs\* or pharmacist\* or surgeon\* or "medical practitioner\*" or Allergist\* or Anesthesiologist\* or Anaesthesiologist\* or Cardiologist\* or Dermatologist\* or Endocrinologist\* or Gastroenterologist\* or "General Practitioner\*" or Geriatrician\* or Hospitalist\* or Nephrologist\* or Neurologist or Oncologist\* or Ophthalmologist\* or Otolaryngologist\* or Pathologist\* or Pediatrician\* or Psychiatrist\* or Psychologist\* Physiatri\* or Pulmonologist\* or Radiologist\* or Rheumatologist\* or Surgeon\* or Urologist\*).ti,ab,kw. (2361739)
- 20 or/15-19 (3375959)
- 21 exp Meta Analysis/ (224172)
- 22 ((meta adj analy\$) or metaanalys\$).tw. (272336)
- 23 (systematic adj (review\$1 or overview\$1)).tw. (263412)
- 24 or/21-23 (453229)



- 25 cancerlit.ab. (737)
- 26 cochrane.ab. (131123)
- 27 embase.ab. (143733)
- 28 (psychlit or psyclit).ab. (1003)
- 29 (psychinfo or psycinfo).ab. (42601)
- 30 (cinahl or cinhal).ab. (40571)
- 31 science citation index.ab. (3867)
- 32 bids.ab. (738)
- 33 or/25-32 (223537)
- 34 reference lists.ab. (21142)
- 35 bibliograph\$.ab. (29154)
- 36 hand-search\$.ab. (9254)
- 37 manual search\$.ab. (6028)
- 38 relevant journals.ab. (1489)
- 39 or/34-38 (60820)
- 40 data extraction.ab. (30841)
- 41 selection criteria.ab. (39865)
- 42 or/40-41 (68302)
- 43 review.pt. (2825410)
- 44 42 and 43 (32280)
- 45 letter.pt. (1187803)
- 46 editorial.pt. (700577)
- 47 animal/ (2018987)
- 48 human/ (23830556)
- 49 47 not (47 and 48) (1531683)

Healthcare Provider Burnout



50 or/45-46,49 (3402324)

51 24 or 33 or 39 or 44 (541220)

52 51 not 50 (527290)

53 6 and 14 and 20 and 52 (161)

54 ("occupational stress\*" or "moral distress\*" or "moral injur\*").mp. (5456)

55 dentist\*.ti,ab. (80471)

56 20 or 55 (3425847)

57 6 or 54 (735389)

58 14 and 52 and 56 and 57 (167)

59 58 not 53 (6)

Database: APA PsycInfo <1806 to August Week 4 2021>

Search Strategy:

-----  
1 COVID-19/ (2445)

2 exp Coronavirus/ (3132)

3 (coronavirus\* or corona virus\* or OC43 or NL63 or 229E or HKU1 or HCoV\* or ncov\* or covid\* or sarscov\* or sarscov\* or Sars-coronavirus\* or Severe Acute Respiratory Syndrome Coronavirus\*).mp. (8781)

4 ((pneumonia or covid\* or coronavirus\* or corona virus\* or ncov\* or 2019-ncov or sars\*).mp. or exp pneumonia/) and Wuhan.mp. (178)

5 (2019-ncov or ncov19 or ncov-19 or sars-cov2 or sars-cov-2 or sarscov2 or sarscov-2 or Sarscoronavirus2 or Sars-coronavirus-2 or coronavirus-19 or covid19 or covid-19 or covid 2019 or "2019-novel Cov" or ((novel or new or nouveau) adj2 (CoV or nCoV or covid or coronavirus\* or corona virus or Pandemi\*2)) or (coronavirus\* and pneumonia)).mp. (8487)

6 or/1-5 (9037)

7 exp occupational stress/ or emotional exhaustion/ or occupational health psychology/ or occupational neurosis/ (23699)

8 (burnout or fatigue or exhaust\* or "emotional stress\*" or "workplace stress\*" or "psychological stress" or "quit\*").mp. (115237)

Healthcare Provider Burnout



9 or/7-8 (126439)

10 exp health personnel/ or home care personnel/ (171945)

11 exp health personnel attitudes/ (24842)

12 ((health care or healthcare or allied health or medical or clinic\* or hospital or hospitals or health facilit\* or health care facilit\* or healthcare facilit\* or health organization\* or nursing home\* or long-term care or hospice or acute care or community health center\* or community health centre\* or emergency room\* or health service\* or ambulance or ambulatory care or outpatient or operating room) adj3 (provider\* or worker\* or fieldworker\* or professional\* or staff or practitioner\* or employee\* or personnel or manager\* or administrator\* or technician\* or caregiver\*).ti,ab,tw. (84952)

13 (doctor\* or physician\* or clinician\* or paramedic\* or nurs\* or pharmacist\* or surgeon\* or "medical practitioner\*" or Allergist\* or Anesthesiologist\* or Anaesthesiologist\* or Cardiologist\* or Dermatologist\* or Endocrinologist\* or Gastroenterologist\* or "General Practitioner\*" or Geriatrician\* or Hospitalist\* or Nephrologist\* or Neurologist or Oncologist\* or Ophthalmologist\* or Otolaryngologist\* or Pathologist\* or Pediatrician\* or Psychiatrist\* or Psychologist\* Physiatrist\* or Pulmonologist\* or Radiologist\* or Rheumatologist\* or Surgeon\* or Urologist\*).ti,ab,tw. (340024)

14 or/10-13 (463865)

15 6 and 9 and 14 (246)

16 ("occupational stress\*" or "moral distress\*" or "moral injur\*").mp. (24533)

17 dentist\*.mp. (2796)

18 9 or 16 (127848)

19 14 or 17 (465266)

20 6 and 18 and 19 (284)

21 20 not 15 (38)

22 limit 21 to "reviews (maximizes specificity)" (1)

\*\*\*\*\*

CINAHL Tuesday, August 24, 2021 1:41:07 PM#

**Question 3:**

Database: Ovid MEDLINE(R), Ovid MEDLINE(R) Daily and Epub Ahead of Print, In-Process & Other Non-Indexed Citations <1946 to Present>

Healthcare Provider Burnout





Search Strategy:

---

1 organizational culture/ (18310)

2 exp Organizational Innovation/ (27331)

3 ("organizational culture" or "cultur\* change\*" or "organisational culture" or "organizational change\*" or "organisational change\*").mp. (25240)

4 or/1-3 (49137)

5 (coronavirus/ or betacoronavirus/ or coronavirus infections/) and (disease outbreaks/ or epidemics/ or pandemics/) (40057)

6 (nCoV\* or 2019nCoV or 19nCoV or COVID19\* or COVID or SARS-COV-2 or SARSCOV-2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,kf,nm,ot,ox,rx,px. (173268)

7 ((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus\* or corona virus\* or betacoronavirus\* or CoV or HCoV)).ti,ab,kf,ot. (52733)

8 ((coronavirus\* or corona virus\* or betacoronavirus\*) adj3 (pandemic\* or epidemic\* or outbreak\* or crisis)).ti,ab,kf,ot. (9665)

9 ((Wuhan or Hubei) adj5 pneumonia).ti,ab,kf,ot. (362)

10 or/5-9 (179511)

11 limit 10 to yr="2019 -Current" (178031)

12 4 and 11 (549)

\*\*\*\*\*

Database: Embase Classic+Embase <1947 to 2021 August 30>

Search Strategy:

---

1 organizational culture/ (2364)

2 ("organizational culture" or "cultur\* change\*" or "organisational culture" or "organizational change\*" or "organisational change\*").mp. (12565)

3 sars-related coronavirus/ (477)

Healthcare Provider Burnout



- 4 (coronavirinae/ or betacoronavirus/ or coronavirus infection/) and (epidemic/ or pandemic/) (10814)
- 5 (nCoV\* or 2019nCoV or 19nCoV or COVID19\* or COVID or SARS-COV-2 or SARSCOV-2 or SARS-COV2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,kw,hw,ot. (167314)
- 6 ((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus\* or corona virus\* or betacoronavirus\* or CoV or HCoV)).ti,ab,kw,hw,ot. (152229)
- 7 ((coronavirus\* or corona virus\* or betacoronavirus\*) adj3 (pandemic\* or epidemic\* or outbreak\* or crisis)).ti,ab,kw,ot. (9022)
- 8 ((Wuhan or Hubei) adj5 pneumonia).ti,ab,kw,ot. (401)
- 9 coronavirus disease 2019/ (142709)
- 10 or/3-9 (181443)
- 11 exp organizational culture/ or exp organizational structure/ or organizational theory/ (10920)
- 12 1 or 2 or 11 (20939)
- 13 10 and 12 (281)

\*\*\*\*\*

Database: APA PsycInfo <1806 to August Week 4 2021>

Search Strategy:

- 
- 1 exp organizational change/ or organizational climate/ or organizational crises/ (23761)
  - 2 ("organizational culture" or "cultur\* change\*" or "organisational culture" or "organizational change\*" or "organisational change\*").mp. (25432)
  - 3 1 or 2 (35558)
  - 4 (coronavirus/ or betacoronavirus/ or coronavirus infections/) and (disease outbreaks/ or epidemics/ or pandemics/) (1851)
  - 5 (nCoV\* or 2019nCoV or 19nCoV or COVID19\* or COVID or SARS-COV-2 or SARSCOV-2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).mp. (8468)
  - 6 ((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus\* or corona virus\* or betacoronavirus\* or CoV or HCoV)).mp. (1773)

Healthcare Provider Burnout



**SPOR Evidence Alliance**  
Strategy for Patient-Oriented Research  
**Alliance pour des données probantes de la SRAP**  
Stratégie de recherche axée sur le patient

Strategy for Patient-Oriented Research  
**SPOR**  
Putting Patients First



**COVID-END**  
COVID-19 Evidence Network  
to support Decision-making  
... in Canada

7 ((coronavirus\* or corona virus\* or betacoronavirus\*) adj3 (pandemic\* or epidemic\* or outbreak\* or crisis)).mp. (1716)

8 ((Wuhan or Hubei) adj5 pneumonia).mp. (8)

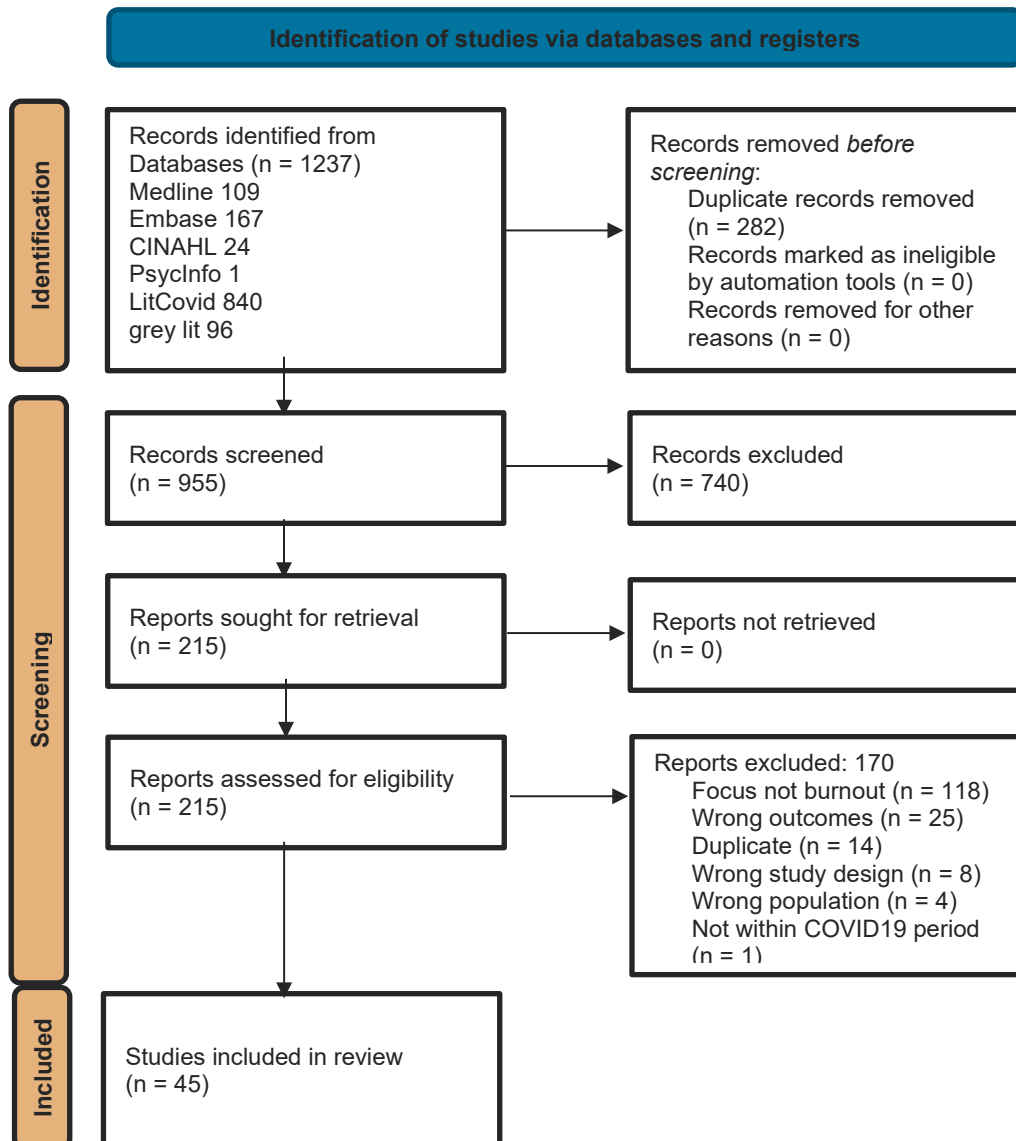
9 or/4-8 (8627)

10 3 and 9 (56)



## Appendix II: PRISMA

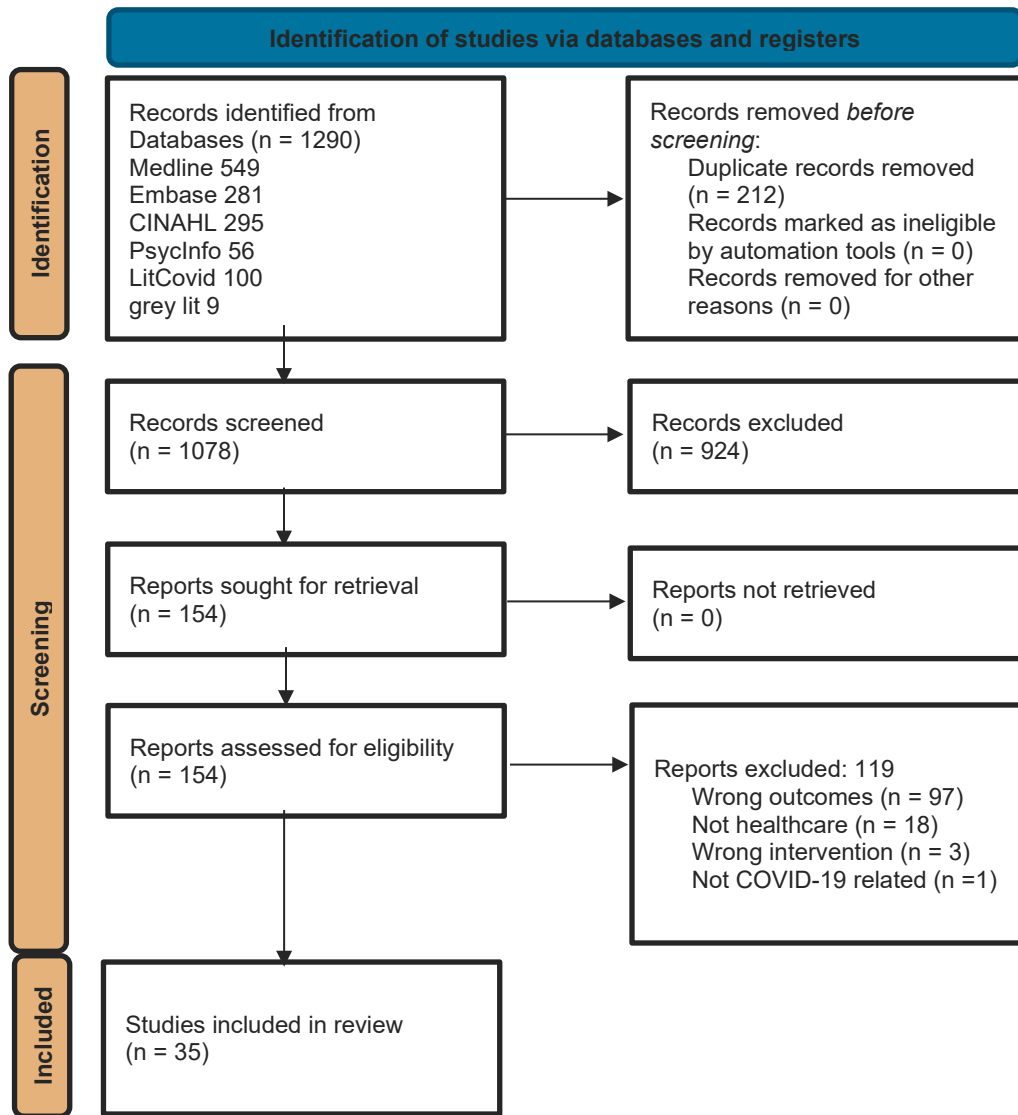
### Question 1 and 2:



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71 <http://www.prisma-statement.org/>



**Question 3:**



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71 <http://www.prisma-statement.org/>



## Appendix III: Data Extraction Template

### Question 1 and 2:

<b>Article ID #</b>	
Author list	
Study title	
Year published	
Journal published	
Type of participants	
Interventions/phenomena of interest	
Types of studies included	
Context (setting, cultural factors, geographic location, specific racial or gender-based interests)	
Search strategy + sources searched	
Data range of included studies	
Nb of studies/type of studies/country of origin of included studies	
Review question	
Assessment of methodological quality (methods/tools used)	
Types of review/method of analysis (e.g., random effects meta-analysis, fixed effect meta-analysis, meta-aggregative synthesis, or meta-ethnography)	
Outcomes measured	
Results	
Comments	

### Question 3:

<b>Article ID #</b>	
Author list	
Study title	
Year published	
Journal published	



Population of interest	
Setting	
Purpose of study/paper	
Type of article	
Outcomes	<input type="checkbox"/> <u>General recommendations/suggestions</u> to improve <b>care providers' well-being</b> / psychological well-being / mental well-being/ mental health/ personal wellness / morale / resilience / decrease mental stress / decrease pandemic related stressors / decrease psychological distress/ support staff / uplift employees <input type="checkbox"/> <u>Implemented approaches</u> to improve <b>care providers' well-being</b> / psychological well-being / mental well-being/ mental health/ personal wellness / morale / resilience / decrease mental stress / decrease pandemic related stressors / decrease psychological distress/ support staff / uplift employees <input type="checkbox"/> <u>General recommendations/suggestions</u> to reduce <b>burnout</b> <input type="checkbox"/> <u>Implemented approaches</u> to reduce <b>burnout</b>
Results	
Comments	



## Appendix IV: Excluded Studies

### Question 1 and 2:

Authors	Title	Journal	Year	Reasons for exclusion
Adibi A et al.	<i>The Prevalence of Generalized Anxiety Disorder Among Health Care Workers During the COVID-19 Pandemic: A Systematic Review and Meta-Analysis</i>	<i>Front Psychiatry</i>	2021	<i>Focus not on burnout</i>
Al Falasi B et al.	<i>Prevalence and Determinants of Immediate and Long-Term PTSD Consequences of Coronavirus-Related (CoV-1 and CoV-2) Pandemics among Healthcare Professionals: A Systematic Review and Meta-Analysis</i>	<i>Int J Environ Res Public Health</i>	2021	<i>Wrong outcomes</i>
Al Maqbali M et al.	<i>Prevalence of stress, depression, anxiety, and sleep disturbance among nurses during the COVID-19 pandemic: A systematic review and meta-analysis</i>	<i>J Psychosom Res</i>	2021	<i>Focus not on burnout</i>
Al Maqbali M et al.	<i>Prevalence of stress, depression, anxiety, and sleep disturbance among nurses during the COVID-19 pandemic: A systematic review and meta-analysis</i>	<i>J Psychosom Res</i>	2020	<i>Duplicate</i>
Al Samaraee A & Thwaini A.	<i>Early observations from the initial impact of the current COVID-19 pandemic on surgical services in the United Kingdom: a comprehensive review</i>	<i>Eur Rev Med Pharmacol Sci</i>	2020	<i>Focus not on burnout</i>
Alimoradi Z et al.	<i>Sleep problems during COVID-19 pandemic and its' association to psychological distress: A systematic review and meta-analysis</i>	<i>EClinicalMedicine</i>	2021	<i>Focus not on burnout</i>
Allan SM et al.	<i>The prevalence of common and stress-related mental health disorders in healthcare workers based in pandemic-affected hospitals: a rapid systematic review and meta-analysis</i>	<i>Eur J Psychotraumatol</i>	2020	<i>Focus not on burnout</i>
Almeda N et al.	<i>Mental health planning at a very early stage of the COVID-19 crisis: a systematic review of online international strategies and recommendations</i>	<i>BMC Psychiatry</i>	2021	<i>Wrong population</i>





Authors	Title	Journal	Year	Reasons for exclusion
Anyfantakis D et al.	COVID-19 pandemic and reasons to prioritize the needs of the health care system to ensure its sustainability: A scoping review from January to October 2020 (Review)	Exp Ther Med	2021	Focus not on burnout
Arora T et al.	The prevalence of psychological consequences of COVID-19: A systematic review and meta-analysis of observational studies	J Health Psychol	2020	Focus not on burnout
Barbarin O et al.	Psychological science and COVID-19: An agenda for social action	Am J Orthopsychiatry	2021	Focus not on burnout
Bareeqa SB et al.	Prevalence of depression, anxiety, and stress in china during COVID-19 pandemic: A systematic review with meta-analysis	Int J Psychiatry Med	2021	Focus not on burnout
Bareeqa S et al.	Prevalence of depression, anxiety, and stress in china during COVID-19 pandemic: A systematic review with meta-analysis	Int J Psychiatry Med	2020	Duplicate
Batista P et al.	Anxiety impact during COVID-19: a systematic review	J Infect Dev Ctries	2021	Focus not on burnout
Batra K et al.	Investigating the Psychological Impact of COVID-19 among Healthcare Workers: A Meta-Analysis	Int J Environ Res Public Health	2020	Focus not on burnout
Behan C.	The benefits of meditation and mindfulness practices during times of crisis such as COVID-19	Ir J Psychol Med	2020	Focus not on burnout
Bekele F et al.	Prevalence and associated factors of the psychological impact of COVID-19 among communities, health care workers and patients in Ethiopia: A systematic review	Annals of Medicine and Surgery	2021	Focus not on burnout
Bekele F & Hajure M	Magnitude and determinants of the psychological impact of COVID-19 among health care workers: A systematic review	SAGE Open Med	2021	Focus not on burnout
Bekele F et al.	Patterns and associated factors of COVID-19 knowledge, attitude, and practice among general population and health care workers: A systematic review	SAGE Open Med	2020	Focus not on burnout
Boden M et al.	Mental disorder prevalence among populations impacted by coronavirus pandemics: A multilevel meta-analytic study of COVID-19, MERS & SARS	Gen Hosp Psychiatry	2021	Focus not on burnout
Borges LM et al.	A commentary on moral injury among health care providers during the COVID-19 pandemic	Psychol Trauma	2020	Focus not on burnout



Authors	Title	Journal	Year	Reasons for exclusion
<i>Brito-Brito PR et al.</i>	<i>[Emotional management of the health crisis by coronavirus: A narrative review]</i>	<i>Enferm Clin (Engl Ed)</i>	2021	<i>Wrong outcomes</i>
<i>Caballol-Avendano F et al.</i>	<i>PNS69 Burnout Syndrome Prevention in Nursing at Pandemic (Covid-19): A Literature Review</i>	<i>Value in Health</i>	2021	<i>Wrong outcomes</i>
<i>Cabarkapa S et al.</i>	<i>Psychological impact of COVID-19 and other viral epidemics on frontline healthcare workers: A systematic review</i>	<i>Asia Pacific Psychiatry. Conference: 19th International Congress of the Pacific Rim College of Psychiatrists. Seoul South Korea</i>	2021	<i>Wrong outcomes</i>
<i>Caldas MP et al.</i>	<i>When helping hurts: COVID-19 critical incident involvement and resource depletion in health care workers</i>	<i>J Appl Psychol</i>	2021	<i>Wrong study design</i>
<i>Calo F et al.</i>	<i>Burden, risk assessment, surveillance, and management of SARS-CoV-2 infection in health workers: a scoping review</i>	<i>Infect Dis Poverty</i>	2020	<i>Focus not on burnout</i>
<i>Caputo EL &amp; Reichert FF.</i>	<i>Studies of Physical Activity and COVID-19 During the Pandemic: A Scoping Review</i>	<i>J Phys Act Health</i>	2020	<i>Focus not on burnout</i>
<i>Cartolovni A et al.</i>	<i>Moral injury in healthcare professionals: A scoping review and discussion</i>	<i>Nurs Ethics</i>	2021	<i>Wrong outcomes</i>
<i>Cascini F et al.</i>	<i>How health systems approached respiratory viral pandemics over time: a systematic review</i>	<i>BMJ Glob Health</i>	2021	<i>Focus not on burnout</i>
<i>Cenat JM et al.</i>	<i>Prevalence of symptoms of depression, anxiety, insomnia, posttraumatic stress disorder, and psychological distress among populations affected by the COVID-19 pandemic: A systematic review and meta-analysis</i>	<i>Psychiatry Res</i>	2020	<i>Focus not on burnout</i>
<i>Chandu VC et al.</i>	<i>Measuring the Impact of COVID-19 on Mental Health: A Scoping Review of the Existing Scales</i>	<i>Indian J Psychol Med</i>	2021	<i>Focus not on burnout</i>
<i>Chekole YA &amp; Abate SM</i>	<i>Global prevalence and determinants of mental health disorders during the COVID-19 pandemic: A systematic review and meta-analysis</i>	<i>Ann Med Surg (Lond)</i>	2021	<i>Wrong outcomes</i>
<i>Cheng JOS &amp; Li Ping Wah-Pun Sin E.</i>	<i>The effects of nonconventional palliative and end-of-life care during COVID-19 pandemic on mental health-Junior doctors' perspective</i>	<i>Psychol Trauma</i>	2020	<i>Wrong study design</i>



Authors	Title	Journal	Year	Reasons for exclusion
Chew QH et al.	<i>Psychological and Coping Responses of Health Care Workers Toward Emerging Infectious Disease Outbreaks: A Rapid Review and Practical Implications for the COVID-19 Pandemic</i>	<i>J Clin Psychiatry</i>	2020	Wrong outcomes
Cornelius T et al.	<i>The association of transmission concerns and social distance from loved ones with distress in medical professionals providing care during the COVID-19 pandemic in New York City</i>	<i>Families, systems &amp; health: the journal of collaborative family healthcare.</i>	2021	Focus not on burnout
Correia MI et al	<i>The surgeons and the COVID-19 pandemic</i>	<i>Rev Col Bras Cir</i>	2020	Focus not on burnout
Cote D et al.	<i>A rapid scoping review of COVID-19 and vulnerable workers: Intersecting occupational and public health issues</i>	<i>Am J Ind Med</i>	2021	Focus not on burnout
Crittenden PM et al.	<i>Caring for healthcare providers in COVID-19</i>	<i>Am J Orthopsychiatry</i>	2021	Focus not on burnout
Crowther S et al.	<i>New Zealand maternity and midwifery services and the COVID-19 response: A systematic scoping review</i>	<i>Women Birth</i>	2021	Focus not on burnout
Cuadra-Martinez D et al.	<i>[COVID-19 and psychological behavior: a systematic review of the psychological effects of 21st century pandemics]</i>	<i>Rev Med Chil</i>	2021	Wrong population
da Silva FCT, Barbosa CP.	<i>The impact of the COVID-19 pandemic in an intensive care unit (ICU): Psychiatric symptoms in healthcare professionals</i>	<i>Prog Neuropsychopharmacol Biol Psychiatry</i>	2021	Duplicate
da Silva FCT & Neto MLR	<i>Psychological effects caused by the COVID-19 pandemic in health professionals: A systematic review with meta-analysis</i>	<i>Prog Neuropsychopharmacol Biol Psychiatry</i>	2021	Focus not on burnout
da Silva FCT & Neto MLR	<i>Psychiatric symptomatology associated with depression, anxiety, distress, and insomnia in health professionals working in patients affected by COVID-19: A systematic review with meta-analysis</i>	<i>Prog Neuropsychopharmacol Biol Psychiatry</i>	2021	Focus not on burnout
da Silva FCT & Neto MLR	<i>Psychological effects caused by the COVID-19 pandemic in health professionals: A systematic review with meta-analysis</i>	<i>Prog Neuropsychopharmacol Biol Psychiatry</i>	2020	Duplicate
da Silva FCT & Neto MLR	<i>Psychiatric symptomatology associated with depression, anxiety, distress, and insomnia in health professionals working in patients affected by COVID-19: A systematic review with meta-analysis</i>	<i>Prog Neuropsychopharmacol Biol Psychiatry</i>	2020	Duplicate



Authors	Title	Journal	Year	Reasons for exclusion
Damiano RF et al.	<i>Mental health interventions following COVID-19 and other coronavirus infections: a systematic review of current recommendations and meta-analysis of randomized controlled trials</i>	<i>Braz J Psychiatry</i>	2021	<i>Focus not on burnout</i>
De Giorgi R & Dinkelaar BM.	<i>Strategies for preventing occupational stress in healthcare workers: Past evidence, current problems</i>	<i>BJPsych Advances</i>	2021	<i>Not within COVID-19 timeframe</i>
Della Monica A et al.	<i>The impact of Covid-19 healthcare emergency on the psychological well-being of health professionals: a review of literature</i>	<i>Ann Ig</i>	2021	<i>Focus not on burnout</i>
D'Ettore G et al.	<i>Post-traumatic stress disorder symptoms in healthcare workers: a ten-year systematic review</i>	<i>Acta Biomed</i>	2020	<i>Focus not on burnout</i>
Dong F et al.	<i>Immediate Psychosocial Impact on Healthcare Workers During COVID-19 Pandemic in China: A Systematic Review and Meta-Analysis</i>	<i>Front Psychol</i>	2021	<i>Focus not on burnout</i>
Duffy C et al.	<i>What Can We Learn from the Past? Pandemic Health Care Workers' Fears, Concerns, and Needs: A Review</i>	<i>J Patient Saf</i>	2020	<i>Focus not on burnout</i>
Dzinamarira T et al.	<i>Risk factors for COVID-19 among healthcare workers. A protocol for a systematic review and meta-analysis</i>	<i>PLoS One</i>	2021	<i>Focus not on burnout</i>
Etkind SN et al.	<i>The Role and Response of Palliative Care and Hospice Services in Epidemics and Pandemics: A Rapid Review to Inform Practice During the COVID-19 Pandemic</i>	<i>Journal of Pain and Symptom Management</i>	2020	<i>Focus not on burnout</i>
Fernandez R et al.	<i>Implications for COVID-19: A systematic review of nurses' experiences of working in acute care hospital settings during a respiratory pandemic</i>	<i>Int J Nurs Stud</i>	2020	<i>Focus not on burnout</i>
Fiest KM et al.	<i>Experiences and management of physician psychological symptoms during infectious disease outbreaks: a rapid review</i>	<i>BMC Psychiatry</i>	2021	<i>Wrong outcomes</i>
Fino E et al.	<i>Tending and mending: Affiliative responses to the COVID-19 pandemic by healthcare professionals in Italy</i>	<i>Psychol Trauma</i>	2020	<i>Focus not on burnout</i>
Fox MA et al.	<i>Cumulative Risks from Stressor Exposures and Personal Risk Factors in the Workplace: Examples from a Scoping Review</i>	<i>Int J Environ Res Public Health</i>	2021	<i>Focus not on burnout</i>
Gachabayov M et al.	<i>Current state and future perspectives of telemedicine use in surgery during the COVID-19 pandemic: A scoping review protocol</i>	<i>Int J Surg Protoc</i>	2020	<i>Focus not on burnout</i>



Authors	Title	Journal	Year	Reasons for exclusion
Garcia-Iglesias JJ et al.	[Impact of SARS-CoV-2 (Covid-19) on the mental health of healthcare professionals: a systematic review.]	Rev Esp Salud Publica	2020	Duplicate
Gautam M et al.	Current and Future Challenges in the Delivery of Mental Healthcare during COVID-19	SN Comprehensive Clinical Medicine	2020	Focus not burnout
Gebreheat G & Teame H	Ethical Challenges of Nurses in COVID-19 Pandemic: Integrative Review	J Multidiscip Healthc	2021	Wrong outcomes
Giri S et al.	Nursing homes during the COVID-19 pandemic: a scoping review of challenges and responses	Eur Geriatr Med	2021	Focus not on burnout
Gomez-Ochoa SA et al.	COVID-19 in Health-Care Workers: A Living Systematic Review and Meta-Analysis of Prevalence, Risk Factors, Clinical Characteristics, and Outcomes	Am J Epidemiol	2020	Focus not on burnout
Gross JV et al.	COVID-19 and healthcare workers: a rapid systematic review into risks and preventive measures	BMJ Open	2021	Focus not on burnout
Gupta N & Gupta PS.	COVID-19 pandemic-acute health challenges for the human beings: A systematic review	International Journal of Pharmaceutical Sciences Review and Research	2020	Focus not on burnout
Hao Q et al.	Prevalence and Risk Factors of Mental Health Problems Among Healthcare Workers During the COVID-19 Pandemic: A Systematic Review and Meta-Analysis	Front Psychiatry	2021	Focus not on burnout
Havsteen-Franklin D et al.	Arts-Based Interventions for Professionals in Caring Roles During and After Crisis: A Systematic Review of the Literature	Front Psychol	2021	Wrong outcomes
Horsch A et al.	Moral and mental health challenges faced by maternity staff during the COVID-19 pandemic	Psychological trauma: theory, research, practice, and policy	2020	Focus not on burnout
Hossain MM et al.	Prevalence of anxiety and depression in South Asia during COVID-19: A systematic review and meta-analysis	Heliyon	2021	Wrong outcomes
Irfan M et al.	Prevention of occupational stress in health-care workers during COVID-19 pandemic	Indian Journal of Psychiatry	2020	Wrong study design
Jacimovic J et al.	A bibliometric analysis of the dental scientific literature on COVID-19	Clin Oral Investig	2021	Focus not on burnout



Authors	Title	Journal	Year	Reasons for exclusion
Jahrami H et al.	<i>Sleep problems during the COVID-19 pandemic by population: a systematic review and meta-analysis</i>	<i>J Clin Sleep Med</i>	2020	<i>Focus not on burnout</i>
Jin H et al.	<i>Occupational risk factors of contracting COVID-19 among health workers: A systematic review</i>	<i>Work</i>	2021	<i>Focus not on burnout</i>
Johnson L et al.	<i>Scoping review of mental health in prisons through the COVID-19 pandemic</i>	<i>BMJ Open</i>	2021	<i>Wrong outcomes</i>
Joo JY, Liu MF	<i>Nurses' barriers to caring for patients with COVID-19: a qualitative systematic review</i>	<i>Int Nurs Rev</i>	2021	<i>Wrong outcomes</i>
Kalaitzaki A et al.	<i>From secondary traumatic stress to vicarious posttraumatic growth amid COVID-19 lockdown in Greece: The role of health care workers' coping strategies</i>	<i>Psychological trauma: theory, research, practice, and policy.</i>	2021	<i>Focus not on burnout</i>
Kar SK et al	<i>Mental health research in the lower-middle-income countries of Africa and Asia during the COVID-19 pandemic: A scoping review</i>	<i>Neurol Psychiatry Brain Res</i>	2020	<i>Focus not on burnout</i>
Keskin S, Ozkan B.	<i>Mental statuses of nursing students in the covid-19 pandemic period: A systematic review</i>	<i>Annals of Clinical and Analytical Medicine</i>	2021	<i>Wrong population</i>
Krishnamoorthy Y et al.	<i>Prevalence of psychological morbidities among general population, healthcare workers and COVID-19 patients amidst the COVID-19 pandemic: A systematic review and meta-analysis</i>	<i>Psychiatry Res</i>	2020	<i>Focus not on burnout</i>
Krishnamoorthy Y et al.	<i>Prevalence of psychological morbidities among general population, healthcare workers and COVID-19 patients amidst the COVID-19 pandemic: A systematic review and meta-analysis</i>	<i>Psychiatry Research</i>	2020	<i>Focus not on burnout</i>
Kroger C.	<i>Shattered social identity and moral injuries: Work-related conditions in health care professionals during the COVID-19 pandemic</i>	<i>Psychological trauma: theory, research, practice, and policy</i>	2020	<i>Focus not on burnout</i>
Kuek JTY et al.	<i>The impact of caring for dying patients in intensive care units on a physician's personhood: a systematic scoping review</i>	<i>Philos Ethics Humanit Med</i>	2020	<i>Focus not on burnout</i>
Kulkarni M et al.	<i>Combating the psychological impact of COVID-19 pandemic through yoga: Recommendation from an overview</i>	<i>J Ayurveda Integr Med</i>	2021	<i>Focus not on burnout</i>





Authors	Title	Journal	Year	Reasons for exclusion
Kunzler AM et al.	<i>Mental burden and its risk and protective factors during the early phase of the SARS-CoV-2 pandemic: systematic review and meta-analyses</i>	<i>Global health</i>	2021	Focus not on burnout
Kunzler AM et al.	<i>Mental health and psychosocial support strategies in highly contagious emerging disease outbreaks of substantial public concern: A systematic scoping review</i>	<i>PLoS One</i>	2021	Focus not on burnout
Labrague LJ.	<i>Psychological resilience, coping behaviours and social support among health care workers during the COVID-19 pandemic: A systematic review of quantitative studies</i>	<i>J Nurs Manag</i>	2021	Wrong outcomes
Lake EA et al.	<i>Knowledge, attitude, and practice towards COVID-19 among health professionals in Ethiopia: A systematic review and meta-analysis</i>	<i>PLoS One</i>	2021	Focus not on burnout
Lakhan R et al.	<i>Prevalence of Depression, Anxiety, and Stress during COVID-19 Pandemic</i>	<i>J Neurosci Rural Pract</i>	2020	Focus not on burnout
Lasheras I et al.	<i>Prevalence of anxiety in medical students during the covid-19 pandemic: A rapid systematic review with meta-analysis</i>	<i>International Journal of Environmental Research and Public Health</i>	2020	Wrong population
Lee Y et al.	<i>Government response moderates the mental health impact of COVID-19: A systematic review and meta-analysis of depression outcomes across countries</i>	<i>J Affect Disord</i>	2021	Focus not on burnout
Li Y et al.	<i>Prevalence of depression, anxiety, and post-traumatic stress disorder in health care workers during the COVID-19 pandemic: A systematic review and meta-analysis</i>	<i>PLoS ONE</i>	2021	Focus not burnout
Luo M et al.	<i>The psychological and mental impact of coronavirus disease 2019 (COVID-19) on medical staff and general public - A systematic review and meta-analysis</i>	<i>Psychiatry Res</i>	2020	Focus not burnout
Luo Y et al.	<i>A Systematic Review of the Impact of Viral Respiratory Epidemics on Mental Health: An Implication on the Coronavirus Disease 2019 Pandemic</i>	<i>Front Psychiatry</i>	2020	Focus not burnout
Maguen, S.; Price, M. A.	<i>Moral injury in the wake of coronavirus: Attending to the psychological impact of the pandemic</i>	<i>Psychological trauma: theory, research, practice, and policy</i>	2020	Focus not burnout





Authors	Title	Journal	Year	Reasons for exclusion
Mahmud S et al.	<i>The global prevalence of depression, anxiety, stress, and insomnia and its changes among health professionals during COVID-19 pandemic: A rapid systematic review and meta-analysis</i>	<i>Heliyon</i>	2021	<i>Focus not burnout</i>
Makino M et al.	<i>Mental health crisis of Japanese health care workers under COVID-19</i>	<i>Psychol Trauma</i>	2020	<i>Focus not burnout</i>
McCartan C et al.	<i>A scoping review of international policy responses to mental health recovery during the COVID-19 pandemic</i>	<i>Health Res Policy Syst</i>	2021	<i>Focus not burnout</i>
Moitra M et al.	<i>Mental Health Consequences for Healthcare Workers During the COVID-19 Pandemic: A Scoping Review to Draw Lessons for LMICs</i>	<i>Frontiers in Psychiatry</i>	2021	<i>Duplicate</i>
Monaghesh E, Hajzadeh A	<i>The role of telehealth during COVID-19 outbreak: a systematic review based on current evidence</i>	<i>BMC Public Health</i>	2020	<i>Focus not burnout</i>
Monroy-Fraustro D et al.	<i>Bibliotherapy as a Non-pharmaceutical Intervention to Enhance Mental Health in Response to the COVID-19 Pandemic: A Mixed-Methods Systematic Review and Bioethical Meta-Analysis</i>	<i>Front Public Health</i>	2021	<i>Focus not burnout</i>
Moreira WC et al.	<i>Mental health interventions implemented in the COVID-19 pandemic: what is the evidence?</i>	<i>Rev Bras Enferm</i>	2021	<i>Focus not burnout</i>
Morrison K et al.	<i>Wellbeing and burnout of theatre and intensive care unit staff during the COVID-19 pandemic in a district general hospital</i>	<i>Anaesthesia</i>	2021	<i>Wrong study design</i>
Muir K, Keim-Malpass J.	<i>Pns37 Assessing the Economic Impact of Registered Nurse Burnout-Attributed Turnover</i>	<i>Value in Health</i>	2020	<i>Wrong outcomes</i>
Muller AE et al.	<i>The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review</i>	<i>Psychiatry Research</i>	2020	<i>Focus not burnout</i>
Muller AE et al.	<i>The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review</i>	<i>Psychiatry Res</i>	2020	<i>Duplicate</i>
Nieto I et al.	<i>The quality of research on mental health related to the COVID-19 pandemic: A note of caution after a systematic review</i>	<i>Brain Behav Immun Health</i>	2020	<i>Focus not burnout</i>
Nochaiwong S et al.	<i>Mental health circumstances among health care workers and general public under the pandemic situation of COVID-19 (HOME-COVID-19)</i>	<i>Medicine (Baltimore)</i>	2020	<i>Wrong study design</i>



Authors	Title	Journal	Year	Reasons for exclusion
Nowrouzi-Kia B et al.	<i>Factors associated with work performance and mental health of healthcare workers during pandemics: a systematic review and meta-analysis</i>	<i>J Public Health (Oxf)</i>	2021	<i>Wrong outcomes</i>
Olaya B et al.	<i>Prevalence of Depression among Healthcare Workers during the COVID-19 Outbreak: A Systematic Review and Meta-Analysis</i>	<i>J Clin Med</i>	2021	<i>Wrong outcomes</i>
Paiano M et al.	<i>Mental health of healthcare professionals in China during the new coronavirus pandemic: an integrative review</i>	<i>Rev Bras Enferm</i>	2020	<i>Focus not burnout</i>
Pappa S et al.	<i>Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis</i>	<i>Brain Behav Immun</i>	2020	<i>Focus not burnout</i>
Phiri P et al.	<i>An evaluation of the mental health impact of SARS-CoV-2 on patients, general public and healthcare professionals: A systematic review and meta-analysis</i>	<i>EClinicalMedicine</i>	2021	<i>Focus not burnout</i>
Pollock A et al.	<i>Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review</i>	<i>Cochrane Database Syst Rev</i>	2020	<i>Focus not burnout</i>
Pollock A et al.	<i>Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review</i>	<i>Cochrane Database of Systematic Reviews</i>	2020	<i>Duplicate</i>
Pourdehghan P, Mostafavi SA	<i>The Most Psychological Impacts of Coronavirus Epidemics: A Protocol for Systematic Review and Meta-Analysis</i>	<i>Iran J Psychiatry</i>	2020	<i>Focus not burnout</i>
Qiu D et al.	<i>Policies to Improve the Mental Health of People Influenced by COVID-19 in China: A Scoping Review</i>	<i>Front Psychiatry</i>	2020	<i>Focus not burnout</i>
Rahman J et al.	<i>Neurological and Psychological Effects of Coronavirus (COVID-19): An Overview of the Current Era Pandemic</i>	<i>Cureus</i>	2020	<i>Focus not burnout</i>
Raofi S et al.	<i>Anxiety during the COVID-19 pandemic in hospital staff: systematic review plus meta-analysis</i>	<i>BMJ Support Palliat Care</i>	2021	<i>Focus not burnout</i>
Raphael J et al.	<i>Adapting practice in mental healthcare settings during the COVID-19 pandemic and other contagions: systematic review</i>	<i>BJPsych Open</i>	2021	<i>Focus not burnout</i>



Authors	Title	Journal	Year	Reasons for exclusion
Rieckert A et al.	<i>How can we build and maintain the resilience of our health care professionals during COVID-19? Recommendations based on a scoping review</i>	<i>BMJ Open</i>	2021	Focus not burnout
Russo B; Iudici M	<i>Interventions for healthcare professionals caring for COVID-19 patients (beyond vaccines): A systematic review</i>	<i>Infect Control Hosp Epidemiol</i>	2020	Duplicate
Russo Barbara, Iudici M	<i>Interventions for healthcare professionals caring for COVID-19 patients (beyond vaccines): A systematic review</i>	<i>Infection Control &amp; Hospital Epidemiology</i>	2021	Focus not burnout
Sahebi A et al.	<i>The prevalence of anxiety and depression among healthcare workers during the COVID-19 pandemic: An umbrella review of meta-analyses</i>	<i>Prog Neuropsychopharmacol Biol Psychiatry</i>	2021	Focus not burnout
Salari N et al.	<i>The prevalence of sleep disturbances among physicians and nurses facing the COVID-19 patients: a systematic review and meta-analysis</i>	<i>Global health</i>	2020	Focus not burnout
Salari N et al.	<i>The prevalence of stress, anxiety and depression within front-line healthcare workers caring for COVID-19 patients: a systematic review and meta-regression</i>	<i>Hum Resour Health</i>	2020	Focus not burnout
Salazar de Pablo G et al.	<i>Impact of coronavirus syndromes on physical and mental health of health care workers: Systematic review and meta-analysis</i>	<i>J Affect Disord</i>	2020	Wrong outcomes
Salehi M et al.	<i>The prevalence of post-traumatic stress disorder related symptoms in Coronavirus outbreaks: A systematic-review and meta-analysis</i>	<i>J Affect Disord</i>	2021	Focus not burnout
Santabarbara J et al.	<i>Prevalence of anxiety in health care professionals during the COVID-19 pandemic: A rapid systematic review (on published articles in Medline) with meta-analysis</i>	<i>Prog Neuropsychopharmacol Biol Psychiatry</i>	2021	Focus not burnout
Saragih ID et al.	<i>Global prevalence of mental health problems among healthcare workers during the Covid-19 pandemic: A systematic review and meta-analysis</i>	<i>Int J Nurs Stud</i>	2021	Focus not burnout
Sasidharan S et al.	<i>COVID-19 ARDS: A Multispecialty Assessment of Challenges in Care, Review of Research, and Recommendations</i>	<i>J Anaesthesiol Clin Pharmacol</i>	2021	Focus not burnout
Serrano-Ripoll MJ et al.	<i>Impact of viral epidemic outbreaks on mental health of healthcare workers: a rapid systematic review and meta-analysis</i>	<i>J Affect Disord</i>	2020	Wrong outcomes



Authors	Title	Journal	Year	Reasons for exclusion
Sharifi M et al.	<i>Burnout among Healthcare Providers of COVID-19; a Systematic Review of Epidemiology and Recommendations</i>	<i>Arch</i>	2021	Duplicate
Shaukat N et al.	<i>Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review</i>	<i>Int J Emerg Med</i>	2020	Focus not burnout
Sheraton M et al.	<i>Psychological effects of the COVID 19 pandemic on healthcare workers globally: A systematic review</i>	<i>Psychiatry Research</i>	2020	Duplicate
Sheraton M et al.	<i>Psychological effects of the COVID 19 pandemic on healthcare workers globally: A systematic review</i>	<i>Psychiatry Res</i>	2020	Focus not burnout
Shields M et al.	<i>How do employment conditions and psychosocial workplace exposures impact the mental health of young workers? A systematic review</i>	<i>Soc Psychiatry Psychiatr Epidemiol</i>	2021	Focus not burnout
Shorey S & Chan V	<i>Lessons from past epidemics and pandemics and a way forward for pregnant women, midwives, and nurses during COVID-19 and beyond: A meta-synthesis</i>	<i>Midwifery</i>	2020	Focus not burnout
Siegel A et al.	<i>Barriers, benefits, and interventions for improving the delivery of telemental health services during the coronavirus disease 2019 pandemic: a systematic review</i>	<i>Curr Opin Psychiatry</i>	2021	Focus not burnout
Silva DFO et al.	<i>[Prevalence of anxiety among health professionals in times of COVID-19: a systematic review with meta-analysis]</i>	<i>Cien Saude Colet</i>	2021	Focus not burnout
Singh RK et al.	<i>COVID-19 pandemic and psychological wellbeing among health care workers and general population: A systematic-review and meta-analysis of the current evidence from India</i>	<i>Clin Epidemiol Glob Health</i>	2021	Focus not burnout
Sirois FM & Owens J	<i>Factors Associated with Psychological Distress in Health-Care Workers During an Infectious Disease Outbreak: A Rapid Systematic Review of the Evidence</i>	<i>Front Psychiatry</i>	2021	Duplicate
Sklar M et al.	<i>COVID-related work changes, burnout, and turnover intentions in mental health providers: A moderated mediation analysis</i>	<i>Psychiatr Rehabil J</i>	2021	Wrong study design
Sohrabizadeh S et al.	<i>A systematic review of health sector responses to the coincidence of disasters and COVID-19</i>	<i>BMC Public Health</i>	2021	Focus not burnout



Authors	Title	Journal	Year	Reasons for exclusion
Soklaridis S et al.	<i>Mental health interventions and supports during COVID- 19 and other medical pandemics: A rapid systematic review of the evidence</i>	<i>Gen Hosp Psychiatry</i>	2020	Focus not burnout
Sun P et al.	<i>The Psychological Impact of COVID-19 Pandemic on Health Care Workers: A Systematic Review and Meta-Analysis</i>	<i>Front Psychol</i>	2021	Focus not burnout
Sun Z et al.	<i>Psychological Interventions for Healthcare Providers with PTSD in Life-Threatening Pandemic: Systematic Review and Meta-Analysis</i>	<i>Front Psychiatry</i>	2021	Focus not burnout
Thatrimontrichai A et al.	<i>Mental health among healthcare personnel during COVID-19 in Asia: A systematic review</i>	<i>J Formos Med Assoc</i>	2021	Focus not burnout
Thenral M & Annamalai A.	<i>Telepsychiatry and the Role of Artificial Intelligence in Mental Health in Post-COVID-19 India: A Scoping Review on Opportunities</i>	<i>Indian J Psychol Med</i>	2021	Focus not burnout
Thombs B et al.	<i>Curating evidence on mental health during COVID-19: A living systematic review</i>	<i>J Psychosom Res</i>	2020	Focus not burnout
Tolu LB et al.	<i>Managing Resident Workforce and Residency Training During COVID-19 Pandemic: Scoping Review of Adaptive Approaches</i>	<i>Adv Med Educ Pract</i>	2020	Focus not burnout
Torres-Munoz V et al.	<i>Mental health risks and damage in healthcare personnel due to treating patients with COVID-19. [Spanish]</i>	<i>Revista Mexicana de Urologia</i>	2020	Focus not burnout
Traylor AM et al.	<i>Helping healthcare teams save lives during COVID-19: Insights and countermeasures from team science</i>	<i>Am Psychol</i>	2021	Wrong outcomes
Troglio da Silva FC & Neto MLR.	<i>The impact of the COVID-19 pandemic in an intensive care unit (ICU): Psychiatric symptoms in healthcare professionals - A systematic review</i>	<i>Journal of Psychiatric Research</i>	2021	Duplicate
Uphoff EP et al.	<i>Mental health among healthcare workers and other vulnerable groups during the COVID-19 pandemic and other coronavirus outbreaks: A rapid systematic review</i>	<i>PLoS ONE</i>	2021	Wrong outcomes
Varghese A et al.	<i>Decline in the mental health of nurses across the globe during COVID-19: A systematic review and meta-analysis</i>	<i>J Glob Health</i>	2021	Focus not burnout
Velana M & Rinkenauer G	<i>Individual-Level Interventions for Decreasing Job-Related Stress and Enhancing Coping Strategies Among Nurses: A Systematic Review</i>	<i>Front Psychol</i>	2021	Wrong outcomes



Authors	Title	Journal	Year	Reasons for exclusion
Vindegaard N & Benros ME	COVID-19 pandemic and mental health consequences: Systematic review of the current evidence	Brain Behav Immun	2020	Focus not burnout
Vizheh M et al.	The mental health of healthcare workers in the COVID-19 pandemic: A systematic review	J Diabetes Metab Disord	2020	Wrong outcomes
Wang Z et al.	Moral injury in Chinese health professionals during the COVID-19 pandemic	Psychol Trauma	2021	Wrong study design
Weiser M et al.	Psychiatric challenges of COVID-19	Neuropsychopharmacology	2020	Wrong study design
Wright EM et al.	Cultivating Resilience Among Perinatal Care Providers During the Covid-19 Pandemic	J Perinat Neonatal Nurs	2021	Focus not burnout
Wu T et al.	Prevalence of mental health problems during the COVID-19 pandemic: A systematic review and meta-analysis	J Affect Disord	2020	Focus not burnout
Wynne R et al.	Workforce management and patient outcomes in the intensive care unit during the COVID-19 pandemic and beyond: a discursive paper	Journal of clinical nursing.	2021	Focus not burnout
Xia L et al.	Prevalence of Sleep Disturbances and Sleep Quality in Chinese Healthcare Workers During the COVID-19 Pandemic: A Systematic Review and Meta-Analysis	Front Psychiatry	2021	Focus not burnout
Xu H et al.	Psychosocial experiences of frontline nurses working in hospital-based settings during the COVID-19 pandemic - A qualitative systematic review	Int J Nurs Stud Adv	2021	Focus not burnout
Xu N et al.	Experiences of healthcare providers during the coronavirus pandemic and its impact on them: protocol for a mixed-methods systematic review	BMJ Open	2021	Wrong outcomes
Yan H et al.	Mental Health of Medical Staff During the Coronavirus Disease 2019 Pandemic: A Systematic Review and Meta-Analysis	Psychosom Med	2021	Focus not burnout
Yue J-L et al.	Mental health services for infectious disease outbreaks including COVID-19: a rapid systematic review	Psychol Med	2020	Focus not burnout
Zafar M & Magdi F.	Mental health consequence of covid 19 pandemic among health care workers: Systematic review	International Journal of Pharmaceutical Research	2020	Wrong outcomes





Authors	Title	Journal	Year	Reasons for exclusion
Zhang H et al.	<i>Prevalence and dynamic features of psychological issues among Chinese healthcare workers during the COVID-19 pandemic: a systematic review and cumulative meta-analysis</i>	<i>Gen Psychiatr</i>	2021	<i>Focus not burnout</i>

### Question 3:

Authors	Title	Journal	Year	Reason for exclusion
AHC MEDIA	<i>Kaizen: 'Change for the Better'.</i>	<i>Same-Day Surgery</i>	2021	<i>Wrong outcomes</i>
AHC MEDIA	<i>Keep Staff Healthy and Productive Using Leadership Techniques: Resilience is armor against crises.</i>	<i>Case Management Advisor</i>	2020	<i>Wrong outcomes</i>
Al-Azri NH	<i>Antifragility Amid the COVID-19 Crisis: Making healthcare systems thrive through generic organisational skills</i>	<i>Sultan Qaboos Univ Med J</i>	2020	<i>Wrong outcomes</i>
Albolino S et al.	<i>Human factors and ergonomics at time of crises: the Italian experience coping with COVID-19</i>	<i>Int J Qual Health Care</i>	2021	<i>Wrong outcomes</i>
Alegre TMA & Saavedra EFC	<i>Leadership style and attitude to organizational change among health professionals during the covid-19 pandemic</i>	<i>Revista Cubana de Investigaciones Biomedicas</i>	2021	<i>Wrong outcomes</i>
Alonazi WB	<i>Building learning organizational culture during COVID-19 outbreak: a national study</i>	<i>BMC Health Serv Res</i>	2021	<i>Wrong outcomes</i>
Amis JM & Janz BD	<i>Leading change in response to COVID-19</i>	<i>Journal of Applied Behavioral Science</i>	2020	<i>Not healthcare</i>
Athar HS	<i>The Influence of Organizational Culture on Organizational Commitment Post Pandemic Covid-19</i>	<i>International Journal of Multicultural and Multireligious</i>	2020	<i>Not healthcare</i>
Barcan M	<i>The impact of the COVID-19 pandemic on the level of individual consciousness and organizational culture in monospecial hospital</i>	<i>Journal of Defense Resources Management Vol</i>	2021	<i>Wrong outcomes</i>
Barkai J	<i>Coronavirus pandemic as a catalyst for organizational change</i>	<i>Connected World</i>	2020	<i>Not healthcare</i>





Authors	Title	Journal	Year	Reason for exclusion
Barnett P et al.	COVID-19: An Organizational-theory-guided Holistic Self-caring and Resilience Project	J Holist Nurs	2021	Wrong outcomes
Blake N	Caring for the Caregivers During the COVID-19 Pandemic.	AACN Advanced Critical Care	2020	Wrong outcomes
Brady M	Healthy culture is crucial for a healthy workplace.	Modern Healthcare	2020	Wrong outcomes
BrandActive	How organizational culture can provide comfort during the coronavirus pandemic	BrandActive	2020	Not healthcare
Brenner J et al.	Mayflower group benchmark on changes in work due to COVID-19: Now and in the future	Industrial and Organizational Psychology: Perspectives on Science and Practice	2021	Not healthcare
Bryant S	AMSN President's Message. The Only Constant Is Change.	MEDSURG Nursing	2020	Wrong outcomes
Campoe K	Interprofessional Collaboration During COVID-19.	MEDSURG Nursing	2020	Wrong outcomes
Casper C	Colorado Nurses Remain Strong.	Colorado Nurse	2021	Wrong outcomes
Catania G et al.	Lessons from Italian front-line nurses' experiences during the COVID-19 pandemic: A qualitative descriptive study.	Journal of Nursing Management (John Wiley & Sons, Inc.)	2021	Wrong intervention
Ceacir NI	Organizational culture during the pandemic period of coronavirus COVID-19	Yesterday's heritage -implications for the development	2021	Wrong outcomes
Chadha T	COVID-19: Impact on organizational culture	BWPeople.in	2020	Not healthcare
Chang WH	The influences of the COVID-19 pandemic on medical service behaviors	Taiwan	2020	Wrong outcomes
Chen HY et al.	Article post-pandemic patient safety culture: A case from a large metropolitan hospital group in Taiwan	International Journal of Environmental Research and Public Health	2021	Wrong outcomes
Cherepanov E	Responding to the Psychological Needs of Health Workers During Pandemic: Ten Lessons from Humanitarian Work	Disaster med	2020	Wrong intervention
Cho M et al.	Factors affecting frontline Korean nurses' mental health during the COVID-19 pandemic.	International Nursing Review	2021	Wrong outcomes
Chu CH et al.	Competing crises: COVID-19 countermeasures and social isolation among older adults in long-term care.	Journal of Advanced Nursing (John Wiley & Sons, Inc.)	2020	Wrong outcomes



Authors	Title	Journal	Year	Reason for exclusion
Croke L	<i>AORN finds innovative ways to support members during the COVID-19 pandemic</i>	<i>Aorn J</i>	2020	Wrong outcomes
Crosignani S et al.	<i>Frailty and Geriatric Medicine During the Pandemic</i>	<i>Frontiers in Medicine</i>	2021	Wrong outcomes
Daily A	<i>How One Healthcare Organization Is Creating a True System</i>	<i>Front Health Serv Manage</i>	2021	Wrong outcomes
Danielis M et al.	<i>How hospitals, Intensive Care Units and nursing care of critically ill patients have changed during the Covid-19 outbreak? Results from exploratory research in some European countries</i>	<i>Assist Inferm Ric</i>	2020	Wrong outcomes
Daum DL et al.	<i>The importance of culture in the era of COVID-19</i>	<i>Industrial and Organizational Psychology: Perspectives on Science and Practice</i>	2021	Not healthcare
Donaldson, C.	<i>Spotless Group: building WHS resilience.</i>	<i>OHS Professional</i>	2020	Not healthcare
Fassiotto M et al.	<i>Everyday Heroism: Maintaining Organizational Cultures of Wellness and Inclusive Excellence Amid Simultaneous Pandemics</i>	<i>Academic medicine: journal of the Association of American Medical Colleges. Publish Ahead of Print</i>	2020	Wrong outcomes
Ford EW	<i>We Saw It Coming - What Did We Get Right, and What Did We Miss?</i>	<i>Journal of Healthcare Management</i>	2020	Wrong outcomes
Gab Allah AR	<i>Challenges facing nurse managers during and beyond COVID-19 pandemic in relation to perceived organizational support</i>	<i>Nurs Forum</i>	2021	Wrong outcomes
Garg V	<i>Managing Organizational Culture and Shaping Human Resources Priorities During COVID 19</i>	<i>Future of Service Post-COVID-19 Pandemic</i>	2021	Not healthcare
Garvin G	<i>6 Tips for Communicating Organizational Change During COVID-19</i>	<i>Public Relations Society of America</i>	2019	Not healthcare
Gibbs Z	<i>Support nurses with job embeddedness: Use this model to promote nurse retention.</i>	<i>American Nurse Today</i>	2021	Wrong outcomes
Graham MM et al.	<i>Feel Better, Work Better: The COVID-19 Perspective</i>	<i>Can J Cardiol</i>	2020	Wrong intervention
Green S et al.	<i>COVID-19 and employee psychological safety: Exploring the role of signaling theory</i>	<i>Industrial and Organizational Psychology: Perspectives on Science and Practice</i>	2021	Not healthcare



Authors	Title	Journal	Year	Reason for exclusion
Gupta S & FedermanDG	<i>Hospital preparedness for COVID-19 pandemic: experience from department of medicine at Veterans Affairs Connecticut Healthcare System</i>	<i>Postgrad Med</i>	2020	Wrong outcomes
Hamouche S	<i>COVID-19, Physical Distancing in the Workplace and Employees' Mental Health: Implications and Insights for Organizational Interventions - Narrative Review</i>	<i>Psychiatr</i>	2021	Wrong outcomes
Haque A	<i>The COVID-19 pandemic and the role of responsible leadership in health care: thinking beyond employee well-being and organisational sustainability.</i>	<i>Leadership in Health Services (1751-1879)</i>	2021	Wrong outcomes
Hessler KL et al.	<i>Rapid Response to Ready RNs for the COVID-19 Pandemic</i>	<i>J Nurses Prof Dev</i>	2021	Wrong outcomes
Hiller M et al.	<i>One year with the COVID-19 pandemic - Lessons learnt? Intersectoral collaboration measures established during the crisis could benefit capacity and patient flow management in daily clinical practice</i>	<i>J Health Organ Manag</i>	2021	Wrong outcomes
Hoffman E et al.	<i>Respiratory Illness Presenteeism in Academic Medicine: A Conceivable COVID-19 Culture Change for the Better</i>	<i>J Hosp Med</i>	2021	Wrong outcomes
Hofmann PB	<i>Lessons for Health Care Executives and Other Leaders During COVID-19: Five Major Opportunities for Improvement</i>	<i>J Ambulatory Care Manage</i>	2021	Wrong outcomes
Holge-Hazelton B et al.	<i>Improving person-centred leadership: A qualitative study of ward managers' experiences during the covid-19 crisis</i>	<i>Risk Management and Healthcare Policy</i>	2021	Wrong outcomes
Ike S et al.	<i>COVID-19: Adapting to change, general surgery at a district general hospital in the United Kingdom</i>	<i>J Perioper Pract</i>	2019	Wrong outcomes
Inzitari M et al.	<i>How a Barcelona Post-Acute Facility became a Referral Center for Comprehensive Management of Subacute Patients With COVID-19</i>	<i>J Am Med Dir Assoc</i>	2020	Wrong outcomes
Ismael GY	<i>The Mediation Effect of Organizational Culture between Knowledge Management Processes and Creative Thinking: A Case of COVID 19 Healthcare Workers in Northern Iraq</i>	<i>Revista Argentina de Clinica Psicologica</i>	2021	Wrong outcomes
Jensen RD et al.	<i>Preparing an orthopedic department for COVID-19: Lessons learned from reorganization and educational activities</i>	<i>Acta Orthopaedica</i>	2020	Wrong outcomes



Authors	Title	Journal	Year	Reason for exclusion
Jesus TS et al.	<i>A 'new normal' following COVID-19 and the economic crisis: Using systems thinking to identify challenges and opportunities in disability, telework, and rehabilitation</i>	<i>Work</i>	2020	Wrong outcomes
Junnaid MH et al.	<i>Leadership and Organizational Change Management in Unpredictable Situations in Responding to Covid-19 Pandemic</i>	<i>Leadership</i>	2020	Not healthcare
Kaldy J	<i>Buoyancy Amid the Pandemic: Resilience in Rough Waters.</i>	<i>Caring for the Ages</i>	2021	Wrong outcomes
Karadal K et al.	<i>Managing Healthcare Organizational Change During Uncertainty: Perspective of COVID-19</i>	<i>Handbook of Research on Policies, Protocols, and Practices for Social Work in the Digital World</i>	2021	Wrong outcomes
Keeley C et al.	<i>Staffing Up for The Surge: Expanding The New York City Public Hospital Workforce During The COVID-19 Pandemic</i>	<i>Health Aff (Millwood)</i>	2020	Wrong outcomes
Kippen R et al.	<i>A national survey of COVID-19 challenges, responses, and effects in Australian general practice</i>	<i>Aust J Gen Pract</i>	2020	Wrong outcomes
Kleinhuber A & Hermann A.	<i>On the meaning of meaning as shared meaning-Leadership development in turbulent times</i>	<i>Gruppe Interaktion Organisation Zeitschrift fur Angewandte Organisationspsychologie (GIO)</i>	2020	Wrong outcomes
Kluger DM et al.	<i>Impact of healthcare worker shift scheduling on workforce preservation during the COVID-19 pandemic</i>	<i>Infect Control Hosp Epidemiol</i>	2020	Wrong outcomes
Koh SK et al.	<i>The impact of job demands and Organizational Culture on Work Performance, Burnout, and Job Satisfaction in Healthy Family and Multicultural Family Support Centers during the Covid-19 pandemic</i>	<i>Family and Environment Research</i>	2021	Not healthcare
Konda SR et al.	<i>COVID-19 Response in the Global Epicenter: Converting a New York City Level 1 Orthopedic Trauma Service into a Hybrid Orthopedic and Medicine COVID-19 Management Team</i>	<i>J Orthop Trauma</i>	2020	Wrong outcomes
Krol Z et al.	<i>Transformation of a large multi-specialty hospital into a dedicated COVID-19 centre during the coronavirus pandemic</i>	<i>Ann Agric Environ Med</i>	2020	Wrong outcomes
Labrague LJ & Santos, JA.	<i>COVID-19 anxiety among frontline nurses: Predictive role of organisational support, personal resilience, and social support.</i>	<i>Journal of Nursing Management (John Wiley &amp; Sons, Inc.)</i>	2020	Wrong outcomes



Authors	Title	Journal	Year	Reason for exclusion
Lai MM & Pabico CG	<i>Magnet and Pathway: Partners for Nursing Excellence</i>	<i>The Journal of nursing administration</i>	2021	Wrong outcomes
Lee ACK & Moring J	<i>Coronavirus disease 2019: emerging lessons from the pandemic</i>	<i>Public Health</i>	2020	Wrong outcomes
Lee GK et al.	<i>After the storm has passed: Translating crisis experience into useful knowledge</i>	<i>Organization Science</i>	2020	Wrong outcomes
Lega F	<i>Extraordinary lessons for reshaping the ordinary.</i>	<i>Health Services Management Research</i>	2020	Wrong outcomes
Liao JM	<i>COVID-19 Recovery Will Involve Strategy, Not Just Operational Effectiveness</i>	<i>J Am Coll Radiol.</i>	2020	Wrong outcomes
Lombe D et al.	<i>Silver linings: A qualitative study of desirable changes to cancer care during the COVID-19 pandemic</i>	<i>ecancermedalscience</i>	2021	Wrong outcomes
Lovell-Viggers B et al.	<i>COVID-19 pandemic and the hidden front line</i>	<i>J R Coll Physicians Edinb</i>	2021	Wrong outcomes
Martinez-Hollingsworth A et al.	<i>Supporting "Bleeders" and "Billers": How Safety-Net Administrators Mitigate Provider Burnout During the COVID-19 Pandemic and Beyond</i>	<i>J Ambulatory Care Manage</i>	2021	Not COVID-19 related
Mas FD et al.	<i>10 Healthcare and the Human Centered Organizational Culture during the COVID-19 Pandemic</i>	<i>Human centered organizational culture</i>	2021	Wrong outcomes
Mondoux S et al.	<i>Quality improvement in the time of coronavirus disease 2019 - A change strategy well suited to pandemic response</i>	<i>CJEM, Can</i>	2020	Wrong outcomes
Morici N et al.	<i>The other side of the coin: 'centralization' against 'optimization' in COVID-19 pandemic</i>	<i>ESC Heart Failure</i>	2021	Wrong outcomes
Mummery CJ & Kipps CM	<i>UK neurology response to the COVID-19 crisis.</i>	<i>Clinical Medicine</i>	2020	Wrong outcomes
Murashiki D	<i>Which wellbeing resources are helpful in managing stress during Covid-19?</i>	<i>Nursing Times</i>	2021	Wrong outcomes
Murphy AA et al.	<i>Challenges Experienced by Behavioral Health Organizations in New York Resulting from COVID-19: A Qualitative Analysis.</i>	<i>Community Mental Health Journal</i>	2021	Wrong outcomes

Healthcare Provider Burnout



Authors	Title	Journal	Year	Reason for exclusion
Nassar AH et al.	<i>Emergency Restructuring of a General Surgery Residency Program during the Coronavirus Disease 2019 Pandemic: The University of Washington Experience</i>	<i>JAMA Surgery</i>	2020	Wrong outcomes
No authorship, indicated	<i>Statement on mental health and the coronavirus pandemic</i>	<i>Archives of Psychiatric Nursing</i>	2020	Wrong outcomes
Norful AA et al.	<i>Primary drivers and psychological manifestations of stress in frontline healthcare workforce during the initial COVID-19 outbreak in the United States.</i>	<i>General Hospital Psychiatry</i>	2021	Wrong outcomes
Norwood F & Lynn J	<i>Taking long term care from crisis to thriving in the time of COVID-19</i>	<i>J Aging Stud</i>	2020	Wrong outcomes
Obrien N et al.	<i>COVID-19: leadership on the frontline is what matters when we support healthcare workers</i>	<i>Int J Qual Health Care</i>	2021	Wrong outcomes
Pate K et al.	<i>COVID-19 Pandemic: Clinical Nurse Specialist Practice Supporting Preparedness in the Spheres of Impact.</i>	<i>Clinical Nurse Specialist: The Journal for Advanced Nursing Practice</i>	2021	Wrong outcomes
Patel K et al.	<i>Changing the wa, we do things: An exploration of culture change in academic hospital-based clinical care and education in Portland, Oregon pre- COVID-19</i>	<i>Journal of General Internal Medicine</i>	2021	Wrong outcomes
Quah LJJ et al.	<i>Reorganising the emergency department to manage the COVID-19 outbreak.</i>	<i>International Journal of Emergency Medicine</i>	2020	Wrong outcomes
Rachman A & Ardini L	<i>THE INFLUENCE OF ORGANIZATIONAL CULTURE AND JOB SATISFACTION ON EMPLOYEE PERFORMANCE DURING THE COVID-19 PANDEMIC</i>	<i>1st International Conference of Business</i>	2020	Not healthcare
Rana A et al.	<i>Restructuring fetal medicine services in a low-resource setting during the COVID-19 pandemic: Experience from a tertiary care fetal medicine center</i>	<i>International Journal of Gynecology and Obstetrics</i>	2020	Wrong outcomes
Roney LN et al.	<i>Igniting Change: Supporting the Well-Being of Academicians Who Practice and Teach Critical Care.</i>	<i>Critical Care Nursing Clinics of North America</i>	2020	Wrong outcomes
Rycroft J	<i>Recruitment in the care sector.</i>	<i>British Journal of Healthcare Assistants</i>	2021	Wrong outcomes





Authors	Title	Journal	Year	Reason for exclusion
Saver C	<i>Managing Moral Distress.</i>	<i>Arizona Nurse</i>	2021	Wrong outcomes
Seddighi H et al.	<i>Psychosocial Safety Climate of Employees during COVID-19 in Iran: A Policy Analysis</i>	<i>Disaster medicine and public health preparedness</i>	2020	Not healthcare
Shaffer J.	<i>From surge plans to a culture of readiness.</i>	<i>American Nurse Today</i>	2020	Wrong outcomes
Sharif NH et al.	<i>A model of nurses' intention to care of patients with COVID-19: Mediating roles of job satisfaction and organisational commitment.</i>	<i>Journal of Clinical Nursing (John Wiley &amp; Sons, Inc.)</i>	2021	Wrong outcomes
Singh H.	<i>Employee Energy and Engagement: Keys to Clinician and Organization Well-Being in a Crisis</i>	<i>Front Health Serv Manage</i>	2021	Wrong outcomes
Soto-Rubio A et al.	<i>Effect of Emotional Intelligence and Psychosocial Risks on Burnout, Job Satisfaction, and Nurses' Health during the COVID-19 Pandemic</i>	<i>Int J Environ Res Public Health</i>	2020	Wrong outcomes
Sova C et al.	<i>Answering the Call- adapting the Infection Prevention Department During the COVID-19 Pandemic...Association for Professionals in Infection Control and Epidemiology, Annual Conference (Virtual), 28-30 June 2021.</i>	<i>American Journal of Infection Control</i>	2021	Wrong outcomes
Spicer A	<i>Organizational culture and COVID-19</i>	<i>Journal of Management Studies</i>		Not healthcare
Stinehart KR et al.	<i>Code team restructuring during COVID-19: A modified pit-crew approach</i>	<i>Resuscitation</i>	2021	Wrong outcomes
Suprapti S et al.	<i>Leadership Style, Organizational Culture, and Innovative Behavior on Public Health Center Performance during Pandemic Covid-19</i>	<i>Journal of Industrial Engineering &amp; Management Research</i>	2020	Wrong outcomes
Tam CC et al.	<i>Psychological Distress Among HIV Healthcare Providers During the COVID-19 Pandemic in China: Mediating Roles of Institutional Support and Resilience.</i>	<i>AIDS &amp; Behavior</i>	2021	Wrong outcomes
Tan BYQ et al.	<i>Burnout and Associated Factors Among Health Care Workers in Singapore During the COVID-19 Pandemic</i>	<i>Journal of the American Medical Directors Association</i>	2020	Wrong outcomes
Tay KH et al.	<i>Reconfiguring the radiology leadership team for crisis management during the COVID-19 pandemic in a large tertiary hospital in Singapore</i>	<i>European Radiology</i>	2021	Wrong outcomes
Tector K & White K	<i>Managing large-scale organizational change resulting from COVID-19</i>	<i>National</i>	2020	Wrong outcomes





Authors	Title	Journal	Year	Reason for exclusion
Umer HM et al.	<i>Applying changes made during the COVID-19 pandemic to the future: trauma and orthopaedics.</i>	<i>British Journal of Healthcare Management</i>	2021	Wrong outcomes
Ventura-Silva JMA & Ribeiro OMPL	<i>The organizational culture in times of COVID-19 pandemic: repercussions on specialist nurses and nurse managers</i>	<i>Rev Enferm</i>	2021	Wrong outcomes
Vogel S & Flint B.	<i>Compassionate leadership: how to support your team when fixing the problem seems impossible.</i>	<i>Nursing Management - UK</i>	2021	Wrong outcomes
Waldeck A et al.	<i>Emerging Stronger from the COVID-19 Crisis: Recover, Reposition, and Redesign</i>	<i>Popul Health Manag</i>	2020	Wrong outcomes
Walji S	<i>Organizational Culture: Seeing People Through COVID-19</i>	<i>Brookline Public Relations</i>	2020	Not healthcare
Walker G	<i>Burned Out Even Before COVID-19, Nurses Now Thinking of Leaving the ED.</i>	<i>Emergency Medicine News</i>	2021	Wrong outcomes
Ward B	<i>How to be a high reliability organization during a crisis.</i>	<i>Patient Safety Monitor Journal</i>	2021	Wrong outcomes
Whitwell K et al.	<i>Strategic planning and response to COVID-19 in a London emergency department</i>	<i>Emerg Med J</i>	2020	Wrong outcomes
Wu CP et al.	<i>Management of patients with COVID-19 in the MICU</i>	<i>Cleve Clin J Med</i>	2020	Wrong outcomes
Xiao Y	<i>Tools for Distributed Teamwork and Rapid Adaptation to Change: COVID-19 and Frontline Learning</i>	<i>Joint Commission Journal on Quality and Patient Safety</i>	2021	Wrong outcomes
Yates HS et al.	<i>The Response to a Pandemic at Columbia University Irving Medical Center's Department of Obstetrics and Gynecology</i>	<i>Semin Perinatol</i>	2020	Wrong outcomes
Yau B et al.	<i>Lived experiences of frontline workers and leaders during COVID-19 outbreaks in long-term care: A qualitative study.</i>	<i>American Journal of Infection Control</i>	2021	Wrong outcomes
Zandi G et al.	<i>Supporting Role of Society and Firms to COVID-19 Management among Medical Practitioners</i>	<i>Int J Environ Res Public Health</i>	2020	Wrong outcomes
Zine-Eddine I et al.	<i>A Moroccan plastic surgery department approach during COVID-19 pandemic</i>	<i>J Plast Reconstr Aesthet Surg</i>	2021	Wrong outcomes



## Appendix V: Characteristics of Included Studies

Authors	Year published	Country of lead author	Purpose or research question	Participants / targeted population	Research design
AHC MEDIA.	2021	USA	Illustrate practical and evidence-based steps that leaders can take to help employees shore up their resiliency to deal with pandemic-related stressors	Case managers and healthcare workers	Descriptive article
Amanullah S & Ramesh Shankar R	2020	Canada	Measure the impact of the pandemic on physician burnout and provide a detailed analysis of the various identified and potential factors contributing to physician burnout.	Health care professional involved in the clinical care of patients.	Cross-sectional design to assess the impact and contributing factors. Review to support recommendations
Anstey DE et al.	2020	USA	Describe the changes to the cardiac intensive care unit and the evolving role of critical care cardiologists and other clinicians in the care of these complex patients affected by the COVID-19 pandemic	Critical care cardiologists and other clinicians	Descriptive article
Barden A & Gianmarinaro N	2021	USA	Discuss the creation and implementation of Northwell Health's Team Lavender (TL) to support staff during times of ongoing stress such as the COVID-19 pandemic.	Healthcare staff	Descriptive article
Barello S et al.	2020	Italy	Measure the psychosocial impact on HCWs or interventions for supporting HCWs during the pandemics.	Health care workers (nurses = 28 studies) and physicians (n=23 studies)	Rapid systematic review with narrative synthesis
Bashkin O et al.	2021	Israel	Examine the organizational atmosphere in Israeli hospitals by evaluating workers' perceptions and concerns about the COVID-19 crisis and its management.	Healthcare workers	Descriptive study with cross-sectional survey
Berkhout SG et al.	2021	Canada	Explore the range of concerns and the sources of distress among health care workers in Canada as the COVID-19 pandemic evolves	Healthcare workers	Critical discourse analysis
Bertuzzi V et al.	2021	Italy	Summarize the evidence on available psychological support interventions and strategies, and their impact on psychological health, for both HCPs and informal caregivers, during the first and second waves of the COVID-19 pandemic.	Healthcare workers and informal caregivers	Systematic review with narrative synthesis
Berkowitz LR et al.	2021	USA	Illustrate the value of building an "educational peloton" to optimize learning and team performance	Healthcare workers & learners	Descriptive study – case report
Bohnenkamp, S	2021	USA	Illustrate the impact of organization culture on nurses' well-being and interventions to promote self-care	Healthcare providers	Editorial
Brunet F et al.	2021	Canada	Describe a model of agile organization to better manage the COVID-19 crisis	University health centre	Descriptive study – case report
Busch IM et al.	2021	Italy	Evaluate the psychological and psychosomatic symptoms among frontline medical staff caring for patients with severe acute respiratory syndrome, H1N1, Ebola, Middle East respiratory syndrome, or COVID-19	Healthcare workers	Systematic review of cross-sectional and longitudinal studies
Cabarkapa S et al.	2020	Australia	Evaluate the psychological impact on HCWs facing epidemics or pandemics (COVID-19, SARS, Ebola, MERS)	Healthcare workers	Rapid systematic review of quantitative and qualitative studies.



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Carmassi C et al.	2020	Italy	Identify the risk and resilience factors for PTSD and PTSS during SARS, MERS, and COVID-19	Healthcare workers	Systematic review with narrative synthesis
Ceccarelli G et al.	2021	Italy	Describe the risk assessment, risk management, and occurrence rate of PTSS in healthcare workers during COVID pandemic.	Health care workers	Systematic review of original quantitative (cross-sectional) studies
Chau SWH et al.	2021	Hong Kong	Examine the prevalence of adverse mental health outcomes, both short-term and long-term, among SARS patients, healthcare workers and the general public of SARS-affected regions, and to examine the protective and risk factors associated with these mental health outcomes	SARS patients, healthcare workers and the general public in the five key outbreak regions (Mainland China, Hong Kong, Canada, Taiwan and Singapore)	Systematic review and meta-analysis of observational and interventional studies.
Chigwedere OC et al.	2021	Ireland	Examine the impact of epidemics and pandemics on the mental health of HCWs"	Healthcare workers	Systematic review with narrative synthesis
Collins GB et al.	2021	UK	Share the process and lessons learned from the creation of the Nightingale Hospital London (NHL) in response to COVID-19	Healthcare workers	Descriptive study – case report
Croke L	2020	USA	Describe organizational and personal strategies to support well-being and address burnout	Nurses	Expert opinion
Danet Danet A.	2021	Spain	Assess the emotional and psychological impact of COVID on frontline healthcare workers	Frontline healthcare workers	Systematic review with narrative synthesis
da Silva FCT & Barbosa CP	2021	Brazil	Understand the impact of COVID-19 on the front-line clinical team in the ICU environment, and identify proposals made to mitigate the clinical and psychological impacts.	Healthcare workers in Intensive Care Units	Systematic review with narrative synthesis
De Brier N et al.	2020	Belgium	Describe the risk and protective factors for the mental health of HCWs during a coronavirus disease outbreak, epidemic or pandemic.	Health care workers	Rapid systematic review with narrative synthesis
Denning M et al.	2020	UK	Assess the relationship between safety attitudes and psychological outcomes	Healthcare workers	Experimental
Dewey C et al.	2020	USA	Provide practical suggestions to encourage a culture that will sustain the clinician workforce during the pandemic.	Clinicians	Ideas and Opinions article
Ferrara M et al.	2021	USA	Identify the risk factors for, symptoms of, prevention and treatment of mental health consequences in health care workers of caring during an epidemic	Health care workers	Rapid review with narrative synthesis
Flynn A & Dickey CC.	2021	Canada	Identify healthcare workers' pandemic-related anxieties and needs.	Healthcare workers	Experimental - qualitative
Franklin P & Gkiouleka A.	2021	Belgium	Collate the categories of psychosocial risks, the related health outcomes, interventions, and data gaps for health workers during the COVID-10 pandemic	Health workers	Scoping review
Galanis P & et.	2021	Greece	Examine the nurses' burnout and associated risk factors during the COVID-19 pandemic.	Nurses	Systematic review and meta-analysis
Galli F et al.	2020	Italy	Quantify the effects of frontline work on mental health of HCWs during SARS and MERS	Health care workers	Systematic Review and Provisional Metanalysis
Garcia-Iglesias JJ et al. C.	2020	Spain	Measure the levels of burnout, stress, anxiety, and depression prior to and during the COVID-19 pandemic	Health care workers	Systematic review



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Gavigan M et al.	2020	USA	Describe the Advocate Aurora Health (AAH)'s workforce management strategy	Healthcare workers	Descriptive – case study
Geerts JM et al.	2021	Canada	Create an evidence- and expertise-informed framework of leadership imperatives to serve as a resource to guide health and public health leaders during the post-emergency stage	Healthcare setting	Consensus Statement
Georger F et al.	2020 [French]	France	Assess the perception by all hospital workers of the changes induced in their professional activity by the pandemic	Hospital staff	Descriptive – case study
Gierlinger S et al.	2020	USA	Describe the role of Patient Experience Leaders in ensuring the health and well-being of patients, families, and employees within the Northwell Health organization	Northwell workforce	Descriptive – case study
Gourret Baumgart J et al.	2021	France	Document the early impacts of the COVID-19 health crisis on psychiatry and mental health sectors	Health care workers	Systematic review
Gualano MR et al.	2021	Italy	Evaluate the burnout prevalence among healthcare workers (HCWs) in intensive care units (ICUs) and emergency departments (EDs) during the COVID-19 pandemic, and identify factors associated with burnout in this population	Health care workers in Intensive Care Unit & Emergency Department	Systematic review with narrative synthesis
Herranz-Alonso A et al.	2020	Spain	Describe the main organizational changes implemented to the Department of Hospital Pharmacy of Hospital GU Gregorio Marañón.	Healthcare workers	Descriptive – case study
Hofmeyer A et al.	2020	UK	Explain the relevance of empathic healthcare cultures to sustain wellbeing, resilience, and effectiveness.	Healthcare workers	Contemporary issues
Hooper JJ et al.	2021	Australia	Identify early psychological intervention programmes to prevent or reduce mental health impact	Health care workers	Systematic review
Hurst H et al.	2020	UK	Highlight changes in practice, with a focus on the challenges encountered during the COVID-19 pandemic, lessons learned and considerations for preparation for the future.	Lead nurses in renal unit practices	Experimental - survey
Jeffs L et al.	2021	Canada	Describe an Academic Health Sciences Centre's Strategy to Enhance Nurse Resilience and Psychological Safety	Healthcare workers, specifically nurses	Descriptive
Jothishanmugam A et al.	2020	Saudi Arabia	Measure the prevalence of and the risk factors for psychological problems in a population of nurses during outbreaks of COVID-19.	Nurses	Rapid systematic review with narrative synthesis
Juvet TM et al.	2021	Switzerland	Describe problematic real-world situations experienced by healthcare workers and their managers during the pandemic's first wave, and highlight the anticipatory and adaptive strategies implemented by institutions, teams and individuals.	Healthcare workers	Mixed methodology
Kotera Y & Van Gordon W	2021	UK	Describe the evidence that support and assess the effectiveness of self-compassion on work-related well-being outcomes.	Health care workers	Systematic review with narrative synthesis
Kunz M & al.	2021	Germany	Compare the psychological impact of the COVID-19 pandemic in medical doctors and nurses, and identify which aspects of mental health are especially affected in nurses	Nurses and medical doctors	Systematic review
Lie JJ et al.	2020	Canada	Present the unique and systematic	Surgical residents	Descriptive – case study



Authors	Year published	Country of lead author	Purpose or research question	Participants / targeted population	Research design
			approach to wellness for surgical residents implemented by the University of British Columbia's General Surgery Program during a pandemic.		
Lorello GR et al.	2021	Canada	Assess the impact of the intersection of anaesthesia and gender on burnout and mental health, illustrated by the COVID-19 pandemic	Anaesthetists	Review article
Low TY and al.	2020	Singapore	Describe the implementation a military concept (close air support) to augment ED operations for the fever facility (FF) at National University Hospital, Singapore.	Healthcare workers (ER teams)	Descriptive – case report
Magill E et al.	2020	USA	Identify the anticipated mental health sequelae for frontline health workers and best practices during health emergencies to address the mental health needs of these workers	Front line health care providers	Rapid review of literature
Magnavita N et al.	2021	Italy	Assess the occurrence of burnout in HCWs during or after SARS, MERS, and COVID-19 outbreaks	Health care workers	Umbrella review
Martinez E et al.	2021 [Spanish]	Spain	Describe the nursing management strategies and experience of the Hospital Clinic de Barcelona to following national and international guidelines to alleviate the pandemic, protect health and prevent the spread of the outbreak.	Nursing	Descriptive – case study
Marvaldi M et al.	2021	France	Estimate the prevalence of mental health problems among healthcare workers during this pandemic	Health care workers	Systematic review and meta-analysis
Moitra M et al.	2021	USA	Measure the mental health consequences for healthcare workers during the COVID-19 pandemic	Health care workers	Scoping review
Moukaddam N et al.	2020	USA	Review how the Covid pandemic has affected drivers of burnout among physicians and provide personal and organizational strategies to prevent or overcome burnout.	Physicians	Review
Nafar H et al.	2021	Iran	Examine the strategies of enhancing the willingness to work among the health workforce and reduce their absence in the time of emergency or disaster.	Health manpower	Systematic mapping review
Price J et al.	2021	USA	Propose the Matched Emotional Supports in Health Care (MESH) to guide institutions in implementing a tiered, or "stepped care" model for deploying sustainable emotional support programs for HCWs for COVID-19 and beyond	Healthcare workers	Evidence synthesis
Public Health of Ontario	2021	Canada	Summarize evidence-based interventions and strategies to support the mental health and resilience of the public health workforce following the prolonged Coronavirus Disease 2019 (COVID-19) pandemic response	Public health workforce	Review report
Rangachari, P.; J, L. Woods	2020	USA	Review the potential impact of a stoic approach to healthcare worker support on resilience, patient safety and staff retention within a hospital ICU context, during the COVID-19 pandemic.	Healthcare workers	Discussion article



Authors	Year published	Country of lead author	Purpose or research question	Participants / targeted population	Research design
Rolandi S et al.	2021	Italy	Highlight the management strategies for the health care staff subsequent to the pandemic intense workload in San Raffaele Scientific Institute	Nurses	Descriptive – case study
Robertson LJ et al.	2020	South Africa	Assess the psychological impact of the COVID-19 outbreak on HCWs and identify interventions to protect and support the mental health and wellbeing of HCWs during the crisis	Healthcare workers	Rapid scoping review
Rosa, William E	2020	USA	Discuss burnout and moral distress among nurses during the COVID-19 pandemic and suggest institutional policy recommendations to support nurses during this crisis and during future pandemics and health disasters, to promote health system resilience and maintain quality patient outcomes	Nurses	Review
Ruta F et al.	2021 [Italian]	Italy	Analyze the literature relating to the impact on the mental health of nurses engaged in the management and care of Covid-19 patients	Nurses	Systematic review
Sanghera J et al.	2020	UK	Determine the impact of SARS-CoV-2 on mental health outcomes of hospital-based HCWs and formulate recommendations for future action.	Healthcare professionals	Systematic review with narrative synthesis
Saqib, A.; Rampal, T.	2020	UK	Describe the implementation of a staff well-being hub—a designated 'positive space' for staff to help them detox and recuperate during the COVID-19 pandemic	Healthcare workers	Quality improvement report
Schneider J et al.	2021	Finland	Review mediators of psychological well-being among healthcare workers responding to pandemics	Healthcare workers	Systematic review with narrative synthesis
Schubert M et al.	2021	Germany	Provide a comprehensive overview of COVID-19-related stigmatization across occupational classes, and summarize health consequences of work-related stigmatization from COVID-19 exposure	Varied (e.g., physicians, clinical oral HCWs, non-clinical oral HCWs, medical residents, nurses, government/ public institutions)	Systematic review with descriptive synthesis and meta-analysis
Sharifi M et al.	2020	Iran	Review the epidemiology of burnout and the strategies and recommendations to prevent or reduce it among HCPs of COVID-19 wards	Healthcare professionals	Systematic review with narrative synthesis
Sinsky C & Linzer M.	2020	USA	Outline some of the policy and practice changes that should endure after the COVID-19 crisis has passed and recommend additional changes to further reduce administrative burden by physicians.	Physicians	Review
Sirois FM & Owens J	2020	UK	Identify the risk factors and the factors associated with reduced risk for psychological distress among HCW during an infectious outbreak	Healthcare workers	Rapid systematic review
Shreffler J et al.	2020	USA	Provide a review of current publications measuring the effects of COVID-19 on wellness of the HCWs to inform interventional strategies	Healthcare workers	Scoping review with narrative synthesis
Sriharan A, West KJ et al	2021	Canada	Summarize the empirical research on COVID-19-related burnout and moral distress in nurses and interventions to mitigate these adverse outcomes and identify recommendations for nurse	Nurses	Rapid review with narrative synthesis

Healthcare Provider Burnout





Authors	Year published	Country of lead author	Purpose or research question	Participants / targeted population	Research design
			leaders to support nurses' psychological needs and minimize their burnout and moral distress.		
Sriharan A, Ratnapalan S et al.	2021	Canada	Explore the triggers of occupational stress and burnout faced by women in healthcare during the COVID-19 pandemic and identify interventions that can support their well-being	Women in healthcare	Rapid review with thematic synthesis using thematic analysis & Bolman and Deal's four frame model of leadership.
Stuijzand S et al.	2020	Switzerland	Synthesize the evidence on the psychological impact of pandemics/epidemics on the mental health of HCPs, identify the factors that predict this impact and the evidence of prevention/intervention strategies to reduce this impact	Healthcare workers	Rapid review with narrative synthesis
Troglio da Silva FC & Neta MLR	2021	Brazil	Assess the impacts of Covid-19 on frontline teams in an ICU environment	Healthcare workers in ICU	Systematic review with narrative synthesis
Turner S, Botero-Tovar N et al.	2021	Colombia	Depict the experiences and perceptions of organisations and actors at multiple levels of health systems internationally in responding to COVID-19	Healthcare workers (clinical and non-clinical)	Systematic review with narrative synthesis
Turner S, Nino N et al.	2021	Colombia	Characterise the organisational actions regarding the coordination of human resources in healthcare within Bogotá, Colombia, to respond to the COVID-19 pandemic.	Managerial actors who have been directly involved in the planning of guidelines oriented to face the pandemic or in the implementation of health services for COVID-19	Qualitative case study
Walton H et al.	2020	UK	Outlines EDs' operational experience within England during the COVID-19 pandemic and highlight innovative solutions employed to overcome this unprecedented challenge.	ED clinical leads from across England	Phenomenological study
Yaffee AQ et al.	2020	USA	Describe how a decentralized, quaternary-care department of emergency medicine prepared for and adapted to this pandemic, and provide recommendations based on their experience.	Healthcare workers	Descriptive – case study
Zace D et al.	2021	Italy	Identify and summarize the implemented interventions to deal with mental health issues of HCWs during infectious disease outbreaks and report their effectiveness.	Healthcare workers	Systematic review with narrative synthesis
Zhang M et al.	2021	USA	Determine the effects of yoga, massage therapy, progressive muscle relaxation, and stretching on alleviating stress and improving physical and mental health in healthcare workers	Healthcare workers	Systematic review and network meta-analysis





## Appendix VI: Screening Tools

Instrument	Developed by	Instrument released	Outcomes	Reliability & validity	Validation	Available versions	Comments
Maslach Burnout Inventory (MBI)	Christina Maslach and Susan E. Jackson	1981 (USA)	Emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA).	Cronbach alpha ratings of 0.90 for emotional exhaustion, 0.76 Depersonalization, and 0.76 for Personal accomplishment (Iwanicki & Schwab, 1981). More information on reliability and validity available in the MBI manual (Maslach C, Jackson SE, Leiter MP (2018) Maslach Burnout Inventory: Manual 4th Menlo Park, CA: Mind Garden, Inc.)	Validated in human services populations, educator populations and general work populations	Human Services Survey (MBI-HSS), Human Services Survey for Medical Personnel (MBI-HSS (MP)), Educators Survey (MBI-ES), General Survey (MBI-GS), and General Survey for Students (MBI-GS [S])	A common approach considers individuals as presenting at least one symptom of burnout if they have high scores on either the EE (total score of 27 or higher) or DP (total score of 10 or higher) subscales. An alternative approach considers individuals to have burnout if they have a high EE score plus either a high DP score or a low PA score (PA score less than 33)



Instrument	Developed by	Instrument released	Outcomes	Reliability & validity	Validation	Available versions	Comments
Stanford Professional Fulfillment Index (PFI)	(©Board of Trustees of the Leland Stanford Jr. University)	2016 (USA)	Measures burnout (work exhaustion and interpersonal disengagement) and professional fulfillment	Test-retest reliability estimates were 0.82 for professional fulfillment ( $\alpha = 0.91$ ), 0.80 for work exhaustion ( $\alpha = 0.86$ ), 0.71 for interpersonal disengagement ( $\alpha = 0.92$ ), and 0.80 for overall burnout ( $\alpha = 0.92$ ). PFI burn-out measures correlated highly ( $r \geq 0.50$ ) with their closest related MBI equivalents.	Validated in adult physicians.	-	Dichotomous burnout categories are determined from the average item score (range 0 to 4) of all 10 burnout items (work exhaustion and interpersonal disengagement), using a cut-point of 1.33. Dichotomous professional fulfillment is recommended at an average item score cut point of $>3.0$ .
Impact of Event Scale (IES)	Horowitz, Wilner & Alvarez	1979 (USA)	Assesses subjective distress caused by traumatic events	Reported Cronbach alpha rating of .79-.91 (Intrusion) and .82-.90 (Avoidance) dependent on studies from Zilberg (1982), Weiss & Marmar (1997), Classen (1998), and Briere & Elliott (1998).	Validate in various populations (e.g., bereaved individuals, veterans, women with breast cancer, drug users)	A revised version (IES-R) (Weiss & Marmar, 1996) contains seven additional items related to the hyperarousal symptoms of PTSD.	-



Instrument	Developed by	Instrument released	Outcomes	Reliability & validity	Validation	Available versions	Comments
Copenhagen Burnout Inventory (CBI)	Kristensen, Borritz, Villadsen, Christensen	2005 (Denmark)	Measures personal (degree of physical and psychological fatigue and exhaustion), work (degree of physical and psychological fatigue and exhaustion related to work), and client-related (or a similar term such as patient, student, etc.) burnout.	High internal reliability (Cronbach alpha 0.85-0.87) in a sample of 1914 individuals from seven different workplaces.	Validated in human service sector (e.g., social workers, nurses, teachers, midwives)		
Oldenburg Burnout Inventory (OLBI)	Demerouti, Nachreiner (1998)	2002 (Germany)	Measures exhaustion (physical, cognitive, and affective aspects) and disengagement from work (negative attitudes toward work objects, work content, or work in general)	Cronbach alpha ratings of 2.32 for Exhaustion and 2.23 for Disengagement (	Validated in adults of any occupational groups, in any settings	-	-



Instrument	Developed by	Instrument released	Outcomes	Reliability & validity	Validation	Available versions	Comments
Professional Quality of Life Scale version 5	Stamm	2009	Measure the positive and negative effects of working with people who have experienced extremely stressful events. The ProQol contains three subscales measuring Compassion Fatigue, Burnout and Compassion Satisfaction.	Good construct validity with over 200 published papers	Various (e.g., health care settings, social service workers, teachers, police officers, firefighters, or other first responders)	-	Originally called the Compassion Fatigue Self-Test and developed by Charles Figley in the late 1980s.
Mini-Z	Linzer et al.	2000	Assesses satisfaction, stress, burnout, work control, chaos, values alignment, teamwork, documentation time pressure, excess electronic medical record (EMR) use at home, and EMR proficiency.	Cronbach's alpha of 0.8	Validated externally against the full MBI.	Version 2.0 now available	-



Instrument	Developed by	Instrument released	Outcomes	Reliability & validity	Validation	Available versions	Comments
Spanish Burnout Inventory (SBI)	Gil-Monte	2005	Measures 1) enthusiasm towards the job, 2) psychological exhaustion, 3) indolence, and 4) guilt.	Cronbach's alpha coefficient > 0.70 for the four scales of the instrument	Validated in numerous population (e.g., Spanish professionals working with intellectually disabled people, Mexican doctors, Mexican teachers, Brazilian teachers)	-	Low scores on Enthusiasm towards the job, together with high scores on Psychological Exhaustion and Indolence, as well as on Guilt, indicate high levels of burnout.
Perceived Stress Scale (10 items; PSS-10)	Cohen & Williamson	1988	Measures the perception of stress and was designed for use in community samples with at least a junior high school education	Good internal reliability (Cronbach's alpha 0.84), and good construct validity with anxiety (r=0.68), depression (r=0.57), and mental/physical exhaustion (r=0.71)	Numerous languages and cultures (e.g., Swedish, Turkish, Thai, Chinese)	14-item version	The original PSS Scale (14 items) was developed by Cohen et al (1983)
Well-being Index (WBI)	Dyrbye & Shanfelt (Mayo Clinic)	2016	Measures 6 dimensions of distress and well-being (burnout, mental and physical QOL, depression, fatigue, and stress)		Validated in multiple populations (e.g., physicians, residents, nurse, medical students)		Six clinically validated versions: Advanced Practice Provider, Employee, Medical Student, Nurse, Physician, Resident/Fellow



### Appendix VII: Table 3 - System level approaches reported in the literature (n=54)

Author /Year/Title	System Level Approaches
AHC MEDIA. 2021 <i>Methods for Case Managers to Build and Enhance Resilience.</i>	Strategies for the case management leaders to implement: 1. Measure burnout (using Maslach Burnout Inventory) 2. Empowerment: Employees experience more burnout when they feel as though they have no control over their working conditions 3. Reward: Leaders should commend their employees' achievements and be specific in their praise. 4. Support: Employees become more resilient when they have a supportive relationship at work. 5. Fairness: Employees are more content at their jobs when management gives everyone equal and fair consideration 6. Values: Employees experience stress and burnout when the organization outwardly expresses values with which they agree but behaves differently in the day-to-day work environment. (For example, value of caring for patients and employees but not providing PPE as needed)
Amanullah S and Ramesh Shankar R. 2020 <i>The Impact of COVID-19 on Physician Burnout Globally: A Review.</i>	1. A formalized burnout reduction program offered within the institution or by the organization in a safe and comfortable external space. 2. Online or telephone access to helplines operated in rotation by trained mental health professionals 3. Support programs for spouses and dependents
Anstey D, et al. 2020 <i>The cardiac intensive care unit and the cardiac intensivist during the COVID-19 surge in New York City.</i>	Effective team leadership requires ensuring the team is organized, communicating clinical plans and team goals, giving, and encouraging feedback, facilitating conflict resolution, and encouraging teamwork. 1. At our institution, wellness support resources for all employees including peer support groups are readily available. 2. In addition, weekly debriefing sessions with the cardiac intensivist, advanced care providers, and nurses are done to review challenging cases and to address well-being issues with staff. 3. Prior to the beginning of each new rotation, the house staff met with leadership from the Division to address expectations and updated CICU protocols during the COVID-19 pandemic. 4. There are also multiple nursing specific meetings to discuss acute changes occurring in the CICU, anticipate challenges, and provide an opportunity for staff feedback.
Barden A and Gianmarinaro N. 2021 <i>Team Lavender: Supporting employee well-being during the COVID-19 pandemic.</i>	1. The Team Lavender (TL) approach provides dedicated time and space for initial emotional peer support, offering team members a moment of pause, reflection, and teamwork. Does not replace services of an Employee Assistance Program (EAP) or mental health and psychiatric counseling 2. Utilize techniques such as active listening, appreciative inquiry, meditation, guided imagery, self-reflection, breathing exercises, and interfaith prayer 3. Any staff member can activate TL and initiate two types of responses: reactive (immediate response to a time-sensitive issue) and proactive (a planned and scheduled response to anticipated situations). In both



Author /Year/Title	System Level Approaches
	<p>reactive and proactive responses, TL can offer additional resources or programs such as the EAP or Northwell Health’s Center for Traumatic Stress Resilience and Recovery</p> <ol style="list-style-type: none"> <li>4. Collaboration between the human resources, wellness, patient experience, EAP, system chaplaincy, and behavioral health departments offered staff a comprehensive array of wellness programming. These included emotional support call centers, onsite EAP, interfaith prayer hotlines, virtual education, app-based resources, and leadership tool kits designed to connect employees and their families with the appropriate wellness resources.</li> <li>5. Team Member Resource Tranquility Tents (TMRTTs) were one innovative offering that created a devoted space for onsite wellness liaisons to promote and raise awareness of resources and programs for the hospital staff. Partnering with the human resources department, TL was incorporated in the TMRTTs.</li> <li>6. Similarly, OPCE (Office of Patient and Customer Experience) offered support with more than 20,000 handmade self-care bags, which included respite items such as lavender hand lotion, herbal tea, mints, and dark chocolate, as well as an informational card with tips on mentally transitioning from work to home.</li> <li>7. OPCE disseminated a refreshed TL tool kit that incorporated the Stress First Aid (SFA) model and core concepts.</li> </ol>
<p>Bashkin O, et al.            2021  <i>The Organizational Atmosphere in Israeli Hospital during COVID-19: Concerns, Perceptions, and Burnout.</i></p>	<p>General recommendations:            Importance of acknowledging (medical staff) needs and considering their expertise as an important part of the organizational and systemic preparedness strategies for confronting the crisis. Managers have a vital role in addressing of medical staff relating to COVID-19 by providing supportive organizational plans and maintaining a safe work environment that assists healthcare workers facing the unique challenges imposed by the COVID-19 pandemic.</p> <p>Recent research suggested three dimensions of moderators which may reduce adverse mental outcomes such as emotional exhaustion and burnout among healthcare workers:</p> <ol style="list-style-type: none"> <li>1. Organizational moderators such as occupational safety and health management,</li> <li>2. Institutional moderators such as government programs that aim to provide financial and psychological support to workers,</li> <li>3. Individual moderators such as social support and wellbeing. These include developing a supportive organizational culture, providing a psychosocial support plan for frontline workers, ensuring their safety and health while they provide medical care for patients, and preventing burnout.</li> </ol>
<p>Berkhout Suze G, et al.            2021  <i>Individual- and Institutional-level Concerns of Health Care Workers in Canada During the COVID-19 Pandemic: A Qualitative Analysis.</i></p>	<p>The most notable concerns included the ways in which institutional practices conferred or denied value to health care workers and the intersection of fears about worker safety with broader concerns regarding institutional transparency.</p>





Author /Year/Title	System Level Approaches
Berkowitz LR, et al. 2021 <i>Building Your "Educational Peloton:" Cycling Together for Success During Uncertain Times.</i>	<p><b>Strategies for rapid engagement enhancement:</b></p> <ol style="list-style-type: none"> <li>1. Maximize learning opportunities, particularly small ones</li> <li>2. Ensure quality feedback</li> <li>3. Facilitate collegiality</li> </ol> <p><b>During COVID, the organization instated additional measures:</b></p> <ol style="list-style-type: none"> <li>1. To ensure quality feedback, daily brief update emails and weekly Zoom town halls with the department chief with robust chat and Q&amp;A utilization were used.</li> <li>2. To facilitate collegiality, twice weekly Zoom support meetings comprising unstructured conversations with departmental faculty were facilitated by the Vice-Chair for Education.</li> <li>3. Finally, to maximize learning opportunities, a closed WhatsApp group for clinician-educators to ask advice, share resources, and stay connected was instituted. This fostered psychological safety and permitted real-time peer engagement with group—or peloton—support.</li> </ol> <p>Authors also highlighted that leaders must also pay attention to self-care for their workforce, consider offering access to virtual wellness apps, providing enhanced access to telepsychiatry services, and disseminating updated information on rapidly changing clinical and educational resources. Flexible work scheduling may include adjusting shift-time and protecting time for personal and professional development activities.</p>
Brunet F, et al. 2021 <i>A model of an agile organization designed to better manage the COVID-19 crisis.</i>	<p>To counter fear:</p> <ol style="list-style-type: none"> <li>1. Leadership—from senior leaders to frontline managers—made sure to constantly communicate transparently and authentically to all frontline workers and the CHUM community. Different communication strategies were utilized, such as weekly live webinars with the CEO, weekly meetings with unions, and a web platform for all frontline managers and doctors to diffuse information and answer questions in real time. Psychological impact and infection rates were mitigated by this approach (no deaths among our employees and less than 1% infected).</li> <li>2. Supported by a research project, we deployed a mobile application where employees could self-screen their level of stress and anxiety. This app also informed employees of support services, such as the COVID psychological phone line.</li> <li>3. We offered mental health prevention and intervention services for all employees and teams that felt high levels of stress and anxiety.</li> <li>4. Multiple supportive actions and means were deployed to protect and support employees, such as the ones previously described, plus the opening of a daycare for children of staff, free parking, bonuses, and in-hospital COVID screening</li> <li>5. The Importance of pre-existing coping mechanisms to fight crisis, which strengthened resilience</li> </ol>
Busch I, et al. 2021 <i>What We Have Learned from Two Decades of Epidemics and Pandemics: A Systematic</i>	<p>Recommendations:</p> <p>Acknowledge and address healthcare providers' psychological distress.</p> <p>Clear, transparent crisis communication by leadership and supervisors offering accurate, updated information and provision of psychological support, which gives healthcare workers the chance to work through traumatic memories, may help to reduce uncertainty, restore a sense of control, and strengthen self-efficacy.</p>



Author /Year/Title	System Level Approaches
<p><i>Review and Meta-Analysis of the Psychological Burden of Frontline Healthcare Workers.</i></p>	<p>This may ultimately lead to improved personal and professional well-being and positive functioning, and thus also to better quality of care and patient safety.</p>
<p>Cabarkapa S, et al. 2020  <i>The psychological impact of COVID-19 and other viral epidemics on frontline healthcare workers and ways to address it: A rapid systematic review.</i></p>	<p>Highlighted the importance of social support, with emphasis on the need for increased social support mechanisms, and regular contact with families. Many recommendations focused on enhanced awareness amongst authorities or hospital administrators of their employees' mental health.</p>
<p>Collins GB, et al. 2021  <i>Lessons in cognitive unloading, skills mixing, flattened hierarchy and organisational agility from the Nightingale Hospital London during the first wave of the SARS-CoV-2 pandemic.</i></p>	<p><b>Staff training and welfare</b>          A well-being directorate was established alongside normal hospital directorates, including a Director of Well-being on the Leadership Board and a committee of psychologists, occupational health specialists, human resource managers and a psychiatrist.</p> <ol style="list-style-type: none"> <li>1. Employees underwent 'psychological PPE' training, a novel educational programme created at the NHL to educate staff in self-reflection, anxiety management and mindfulness.</li> <li>2. Before each shift, staff were paired with a colleague to monitor for signs of distress.</li> <li>3. Psychological support was available, including pathways for onward referral if indicated.</li> <li>4. Physical well-being was supported by complimentary food, drink, parking and accommodation.</li> <li>5. A workforce support desk was established in rest areas to address clerical issues, including contracts, pay, transport and accommodation.</li> </ol> <p><b>Other measures to improve staff welfare:</b>          The organisational agility, as illustrated by the 'learning hospital', 4pm clinical forum and <b>flattened hierarchy</b> decreased bureaucracy and delays. Transparency in decision-making combined with a system of rapid delegated authority to the most invested stakeholder, and systems of rapid in situ audit, improvement, and re-audit, helped encourage staff autonomy and continuous improvement.</p> <p><b>Fluid approach to staffing to reduce burnout:</b>  <b>Cognitive unloading</b> became an institutional priority extending to all staff, both on and off the wards:</p>



Author /Year/Title	System Level Approaches
	<p>Cognitive unloading was supported by identifying staff with supply-demand mismatches, deconstructing their responsibilities, and reallocating transferable duties to equally appropriate but more available staff. If required, staff duties were modified, or entirely new roles created. This allowed those at risk of cognitive overload, such as ICU nurses and consultants, to focus on their specialist non-transferable skills, as well as the piloting of innovative healthcare roles, with a new range of duties that were sometimes performed by non-clinical staff. Translating this fluid approach to staffing and duty allocation into existing hospitals could reduce staff burnout by supporting those in either high-demand or hard-to-fill roles.</p>
<p>Croke L.            2020  <i>Organizational and personal strategies to support well-being and address burnout.</i></p>	<p><b>Strategies to manage burnout at organizational level</b></p> <ol style="list-style-type: none"> <li>1. Develop and foster resilient individuals and work environments             <ul style="list-style-type: none"> <li>o Programs that help nurses manage stress and promote resiliency, such as employee assistance programs that provide counseling or other coping resources, the 45-second pause, or a RISE (Resilience in Stressful Events) team</li> </ul> </li> <li>2. Leaders that exhibit behaviors that empower their teams             <ul style="list-style-type: none"> <li>o That give meaning to the work of their team members, allow the team members to participate in the decision-making process and share their opinions, demonstrate confidence in the team members' abilities and recognize them for their work, improve the skills and knowledge of the team members, and reduce the constraints of rules to better encourage efficient and creative work</li> </ul> </li> <li>3. Creating a positive work environment with a tool kit of evidence-based solutions             <ul style="list-style-type: none"> <li>o Meaningful recognition (e.g., gratitude board, thank-you card program),</li> <li>o Including nurses in decision making (e.g., suggestion box, addition of staff member feedback during huddles), and</li> <li>o Increasing leadership support and involvement (e.g., daily leader rounding).</li> <li>o This resulted in statistically significant decreases in exhaustion, disengagement, and overall burnout in the 30 nurses included in the study, as identified by the Oldenburg Burnout Inventory.</li> </ul> </li> <li>4. Clearly indicate value for their team members.</li> <li>5. Compassionately and clearly convey best practices; this may include managing expectations of team members, creating appropriate work schedules, and providing adequate resources (e.g., masks, gloves).</li> <li>6. Monitor and promote well-being among team members, such as outlining counseling options and addressing safety concerns.</li> <li>7. Create a supportive culture free from blame that allows open discussions of barriers to wellbeing and encourages incident reporting.</li> <li>8. Encourage collaboration among leaders and staff members.</li> <li>9. Set up a central location for information updates; infection prevention recommendations; and tools to evaluate, triage, test, and treat patients.</li> <li>10. Ensure that team members are not required to work when there is a serious threat to their health until the organization has taken necessary actions to address safety.</li> <li>11. Provide appropriate resources for compensation, rehabilitation, and treatment to team members who are affected by the health emergency while working.</li> </ol>



Author /Year/Title	System Level Approaches
Denning M, et al. 2020 <i>Determinants of burnout and other aspects of psychological well-being in healthcare workers during the Covid-19 pandemic: A multinational cross-sectional study.</i>	Burnout as a precursor of depression: benefit may be seen from interventions to address burnout before the onset of depression or anxiety. At the organizational level, quality improvement projects that improve organizational communication and streamline workflows can reduce burnout rates.
Dewey C, et al. 2020 <i>Supporting Clinicians During the COVID-19 Pandemic.</i>	Recommendations: 1. Organizational leaders should provide clear messages that clinicians are valued and that managing the pandemic together is the goal. 2. Leaders must communicate current best practices clearly and compassionately, manage expectations, clarify work hours, and provide sufficient resources and effective personal protective equipment. 3. Leaders should aim to monitor clinician wellness and proactively address concerns related to the safety of clinicians and their families. 4. Leaders should aim for work schedules that promote physical resilience by enabling adequate sleep and providing access to call rooms for hospital-based clinicians working long or multiple shifts. 5. Leaders should also take initiatives to provide basic provisions during work hours, such as easy access to water, healthy snacks, chargers for phones and other devices, and toiletries. 6. Leaders must also designate times for clinicians to take breaks, eat, and take medications. It may also be helpful to advise clinicians working such shifts to bring at least 3 days of their own medications to work and designate a source for emergency refills. 7. Clinicians should also continue using wellness activities that have worked for them in the past and make efforts to support each other during this challenging time. 8. Reduction of noncritical work activities may help to promote mental well-being. Examples include rescheduling preventive and routine patient follow-up visits and eliminating nonessential administrative tasks. 9. Anxiety can be reduced by providing a central source for updated information and clear communication of well-defined protocols, expectations, and such resources as childcare via e-mails, tweets, and automated calls.
Ferrara M, et al. 2021 <i>The cost of caring during recent epidemics: a rapid review of risk factors, psychological manifestations, and</i>	At the system level, provision of enhanced support training might reduce burnout. For example: Mount Sinai Health System early during the COVID-19 outbreak in New York City created a multidisciplinary team, composed of leaders from human resources, behavioral health, and well-being from across the health system. They used a rapid needs assessment model to capture HCWs' worries and necessities, focused on meeting basic needs (e.g., transportation, food, personal safety, childcare), communication (town halls, website, email), and psychosocial support (mindfulness, support groups, individual mental health services voluntary and offsite, 24/7 mental health crisis support, and mental health professionals deployed to units either virtually or in person).



Author /Year/Title	System Level Approaches
<i>strategies for its treatment.</i>	
Flynn A and Dickey CC. 2021 <i>In Their Own Words: What Do Healthcare Workers Want from Their Organization during the COVID-19 Pandemic?</i>	Responses reflected HCWs' desires to be heard, protected, prepared, supported, and cared for by the organization <ol style="list-style-type: none"> <li>1. Hear me: respondents wanted the hospital to demonstrate that HCWs' views were respected. Respondents expressed disappointment when they felt that their perspectives on pandemic-related issues were not heard or that the organization was not addressing their concerns.</li> <li>2. Protect me: requests for protection from COVID-19 (PPE, increased staff testing, allowances for remote work)</li> <li>3. Prepare me: operational realities (new work needed, like COVID-19 screening, surge capacity planning) generated some unpredictability in hospital staffing needs, resulting in palpable anxiety among HCWs about when and to where they might be redeployed. Also, at the time of re-opening services when employees were unsure what their tasks moving forward.</li> <li>4. Support me: for extreme workloads, family/personal needs, and mental health concerns; Leadership visibility in the workplace (or lack thereof) influenced HCWs' perceptions of being supported. HCWs' comments suggested that adequate information about pandemic developments and access to wellness resources helped them feel supported; however, these steps were sometimes insufficient in instilling feelings of support if leaders were not visible and responsive to HCWs' needs in their day-to-day work contexts.</li> <li>5. Care for me: comments revealed the positive impact of having leaders who showed compassion and appreciation for HCWs</li> </ol>
Franklin P and Gkiouleka A. 2021 <i>A Scoping Review of Psychosocial Risks to Health Workers during the Covid-19 Pandemic.</i>	Practical support is deemed necessary, such as space for rest and relaxation in the hospital, accommodation solutions for HCW who cannot stay at their homes for safety reasons, free meals, free parking services, and childcare. These measures should be coupled with psychological interventions, such as psychological support inside the healthcare settings, peer support groups, and psychological hotlines. <ol style="list-style-type: none"> <li>1. Emergency Departments include among others clear, consistent and regular leadership and communication; staff safety, in terms of virus exposure; safe rest areas; rostering (1 week annual leave per 4–5 weeks through the peak of the pandemic has been recommended to ensure optimal recovery time for staff, and for them to maintain their capacity to fulfil their role); huddles in the beginning and debriefing at the end of a shift; training and education; peer supporters; and well-being drop in sessions.</li> <li>2. Organising childcare was recommended as a form of support for HCWs, and work-life balance was reported to decrease the extent of the psychological consequences of the pandemic on HCWs.</li> <li>3. A top-down workplace culture that enables bullying in response to HCWs' concerns about safety at work culminates into a loss of trust in leadership, while consultation and engagement with HCWs, inclusive leadership, organisational support and 'organisational justice' (e.g., manageable workloads; work-life balance; ensuring staff is valued and heard; staff autonomy and control of their work) prevent psychosocial risks at the organisational level.</li> </ol> Recommendations for financial stress prevention include staff support hotlines providing financial counselling and HCWs' right to reimbursement if they are diagnosed with Covid-19 through contact at



Author /Year/Title	System Level Approaches
	<ol style="list-style-type: none"> <li>1. Recommendations for workers in work. Staff motivation and retention may be enhanced through carefully managed risk 'allowances', or compensation. Health systems and providers should also ensure casual nurses are equally supported and protected to other staff during pandemics. This should include offering ongoing, permanent, or fixed-term work during the pandemic, paid sick leave and allowance for self-quarantine if necessary.</li> <li>2. The studies highlight that material and psychological resources should be provided across all the stages of the pandemic and during its aftermath to prevent posttraumatic symptoms and to enable the processing of difficult experiences among HCWs.</li> </ol>
<p>Gavigan M, et al. 2020  <i>Leveraging size while remaining nimble with a workforce management strategy.</i></p>	<p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. Creation of a virtual system labor pool command center (co-led by the vice president for talent acquisition and nursing, the command center includes team members from human resources (HR), HR analytics, ambulatory, and the system float pool, along with a project manager and the contingent labor director). The command center developed a 24/7 online process for sites to request and reassign staff. The system command center team helps optimize the use of all available, qualified staff. Success strategies include:             <ul style="list-style-type: none"> <li>o allowing team members to volunteer for reassignment</li> <li>o hiring more than 100 zero-assigned nursing students; nurses; and respiratory therapy, environmental services, and hospitality staff (all managed through the system labor pool) to support site needs</li> <li>o partnering with contingent labor companies to hire and onboard agency nurses</li> <li>o leveraging the relaxation of licensing requirements at the state level to send nurses between state lines</li> <li>o reassigning more than 5,000 team members to new roles</li> <li>o matching prior work experience with work-from-home or furloughed team members to meet site needs</li> <li>o conducting twice daily system calls to address immediate and anticipatory staffing needs</li> <li>o redeploying team members with medical restrictions to nonclinical areas, such as managing department of health data requests</li> <li>o creating a database of all available team members for potential staffing support.</li> </ul> </li> <li>2. Ensuring nurses have the support they need for reassignments is a priority: the team developed a virtual surge orientation staffing and critical care program that focuses on helping furloughed nurses from the OR, post-anesthesia care unit, and clinics return to the med-surg unit or ICU bedside for clinical reassignment. The nursing department also moved the orientation and new graduate residency program to a virtual format for more than 3,000 nurses. The system team created COVID-19 educational videos and regularly updates personal protective equipment (PPE) guides.</li> <li>3. The site-based teams help share new daily information and updates, provide support for proper PPE donning and doffing, and, in many cases, provide direct care staffing or are reassigned to areas of high need such as employee health.</li> <li>4. An educational program supports implementing a team-based nursing model and helps reassigned nursing education and professional development staff feel comfortable in their new roles.</li> </ol>





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	<ol style="list-style-type: none"> <li>5. daily communication updates provide information about quickly evolving practices, policies, and procedures. Site metrics and issues are shared through daily huddles.</li> <li>6. special innovative payment models have been initiated by creating two different COVID-19 pay models:               <ul style="list-style-type: none"> <li>o Continuity pay. This is identified by trigger factors such as census and COVID-19 prevalence in the community. If the triggers are met, team members receive an increase in hourly rate based on role.</li> <li>o COVID-19 pay. This applies to the emergency department and units where more than 50% of patients have COVID-19. An increase in hourly rate is provided based on role.</li> </ul> </li> </ol>
<p>Geoger F, et al. 2020  <i>COV IMPACT: Stress exposure analysis among hospital staff in 2 hospitals in France during the COVID-19 pandemic</i></p>	<p>Organizations responded with services such as childcare, support in procuring groceries, transportation, hairstyling/haircuts and massages, PCR tests, information, etc.</p>
<p>Geerts JM, et al. 2021  <i>Guidance for Health Care Leaders During the Recovery Stage of the COVID-19 Pandemic: A Consensus Statement.</i></p>	<p>This is a consensus document with 10 leadership imperatives that position (leaders) to address urgent needs and inequalities in health systems and to cocreate with their organizations a future that best serves stakeholders and communities.</p> <p>Set in a novel model of 4 overlapping progressive stages: 1) escalation, 2) emergency, 3) recovery, and 4) resolution:</p> <ol style="list-style-type: none"> <li>1. Acknowledge Staff and Celebrate Successes.</li> <li>2. Provide Support for Staff Well-being.</li> <li>3. Develop a clear understanding of the current local and global context, along with informed projections.</li> <li>4. Prepare for future emergencies (personnel, resources, protocols, contingency plans, coalitions, and training).</li> <li>5. Reassess priorities explicitly and regularly and provide purpose, meaning, and direction.</li> <li>6. Maximize team, organizational, and system performance and discuss enhancements.</li> <li>7. Manage the backlog of paused services and consider improvements while avoiding burnout and moral distress.</li> <li>8. Sustain learning, innovations, and collaborations, and imagine future possibilities.</li> <li>9. Provide regular communication and engender trust; and in consultation with public health and fellow leaders, provide safety information and recommendations to government, other organizations, staff, and the community to improve equitable and integrated care and emergency preparedness systemwide.</li> </ol>
<p>Gierlinger S, et al. 2020  <i>Turned Upside Down: The Role of New York Patient Experience Leaders During COVID-19.</i></p>	<ol style="list-style-type: none"> <li>1. Executive Command Center daily meetings began by sharing a positive patient story, grounding the senior leader operationalization team on the ultimate goal.</li> <li>2. Through overhead hospital speakers, site leadership shared daily words of hope and inspirational quotes and performed gratitude rounding.</li> <li>3. By personally expressing deep appreciation for coming to work, providing quality compassionate care, and hearing firsthand of barriers and/or innovative ideas, staff expressed feeling cared for and supported.</li> </ol>





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	<ol style="list-style-type: none"> <li>4. Human Resources, Employee Wellness, Employee Assistance Program (EAP), OPCE, System Chaplaincy, and site leadership partnered to develop holistic programs to supporting the (...) frontline team members.</li> <li>5. Team Resource Tranquility Tents offered on-site emotional support, provided resource information and small respite items.</li> <li>6. Team Lavender (internal care for the caregiver program) was and continues to provide timely, emotional support to interdisciplinary teams.</li> <li>7. An Emotional Resource Call Center was launched through a collaboration between the EAP and behavioral health service line for personalized assistance.</li> <li>8. Hospital cafeterias were revamped to serve as markets, allowing staff to purchase food, household items, and ready-to-go meals before leaving work.</li> <li>9. Chalk drawings of inspirational words, quotes, and images were hand-drawn on employee entry sidewalks and pathways.</li> <li>10. Members of Fire Department New York (FDNY) and New York Police Department (NYPD) lined outside hospitals and post-acute facilities, applauding health care workers during change of shift. All of New York participated within their local communities, with people cheering and applauding from their apartment balconies, building rooftops, and house front porches</li> <li>11. Children wrote letters of thanks and drew pictures of our health care heroes—doctors, nurses, therapists, and workers all proudly wearing capes.</li> </ol>
<p>Gourret BJ, et al.            2021  <i>The Early Impacts of the COVID-19 Pandemic on Mental Health Facilities and Psychiatric Professionals.</i></p>	<p>Recommend the natural role of psychiatry workers in supporting front-line HCWs            Consultation-liaison psychiatry and employee assistance programs make sense in the context of the COVID-19 pandemic, as they can bring innovative solutions to reduce significantly stress levels and help to prevent burnout</p>
<p>Herranz-Alonso A, et al.            2020  <i>Pharmacy Department management and organization.</i></p>	<p>Humanization program: Care for professionals (emotion management, involvement in decisions, sharing good news, taking care of rest, psychological support, etc.) in the Pharmacy Service</p> <ol style="list-style-type: none"> <li>1. Activating emotional intelligence to reduce fears and uncertainties.</li> <li>2. Reorganization: changes in working hours and teleworking to facilitate work-life balance, ensure social distancing and reduce exposure to the virus.</li> <li>3. Making everyone feel involved in decision-making. The perspective of the professionals who faced the risk most directly was crucial.</li> <li>4. Identifying people who could promote a climate of serenity and create a favorable environment, for example, by recording and sharing videos of the Pharmacy Service with other professionals to give visibility to the role of the Pharmacy Service in the crisis or thanking donations.</li> <li>5. Celebrating every success achieved in the hospital (e.g., the first extubated patient).</li> <li>6. Communicating to the professionals the gratitude received.</li> </ol>



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	<ol style="list-style-type: none"> <li>7. Offering a break or taking care of the health of our professionals (e.g., bringing breakfast and drinks to the Pharmacy Service, or food trucks in the courtyard).</li> <li>8. Offering psychological support to professionals.</li> </ol>
<p>Hofmeyer A, et al. 2020  <i>Fostering compassion and reducing burnout: How can health system leaders respond in the Covid-19 pandemic and beyond?</i></p>	<p>Suggestions for leaders:</p> <ol style="list-style-type: none"> <li>1. To treat staff grief, sadness and burnout with patience, kindness, empathy, and compassion</li> <li>2. Advise your staff to access public health and professional websites for trusted updates about self-protection and information to maintain wellbeing.</li> <li>3. Implement relevant organizational interventions to reduce caregiver burnout and promote engagement and compassionate practice during the Covid-19 pandemic, and beyond</li> </ol>
<p>Hurst H, et al. 2020  <i>UK survey of renal unit practices and experiences of the COVID-19 pandemic.</i></p>	<ol style="list-style-type: none"> <li>1. Regular meetings for briefing and updates</li> <li>2. Access to free car parking</li> <li>3. Free tea and coffee and free meals</li> <li>4. Additional changing facilities were provided</li> <li>5. Access to counselling services</li> <li>6. Free groceries</li> <li>7. Gift bags and</li> <li>8. Welfare packs</li> <li>9. Arrangements for NHS staff to access supermarkets and a variety of NHS staff discounts.</li> </ol>
<p>Jeffs L, et al. 2021  <i>An Academic Health Sciences Centre's Strategy to Enhance Nurse Resilience and Psychological Safety.</i></p>	<ol style="list-style-type: none"> <li>1. Ongoing, timely and transparent communication used to enhance situational awareness.</li> <li>2. Also, free tea and coffee, reduced parking, and emergency dental services</li> </ol> <p><b>Support at the clinical team level:</b></p> <ol style="list-style-type: none"> <li>1. Real-time support is provided with the help of in-services and huddles facilitated by the nurse unit administrators (NUAs) in collaboration with psychiatrists, bioethicists, spiritual care practitioners, social workers, and infection control experts.</li> <li>2. Regular resiliency coaching sessions that focus on the emerging issues faced by nurses, physicians and staff, and these sessions provide in-the-moment support and strategies to manage issues and cultivate resiliency.</li> <li>3. NUAs are also offered weekly group support to navigate the stresses of pandemic leadership.</li> <li>4. The academic practice portfolio is also providing a series of training and refreshers using a coaching model aimed at increasing nursing staff 's confidence and competence to acquire a new skill and/or a skill not recently practiced (e.g., tracheostomy care).</li> </ol> <p><b>Support at the unit level:</b></p> <ol style="list-style-type: none"> <li>1. Support service created for the neonatal intensive care unit (NICU) entitled Care and Reflective Ethics Dialogue (CARED). CARED offers biweekly interactions with a team consisting of a bioethicist, a social worker and the NICU staff (i.e., nurse clinicians), providing the clinical team the opportunity to take an ethics pulse check and identify items for discussion or follow-up.</li> </ol>



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	2. Failure-mode effect analysis and quality improvement method employed with nurses and staff to iteratively design, implement and evaluate a team-based model of care in our intensive care unit
Juvet TM, et al. 2021 <i>Adapting to the unexpected: Problematic work situations and resilience strategies in healthcare institutions during the COVID-19 pandemic's first wave.</i>	<p><b>Reported resilience strategies at the organizational level:</b></p> <ol style="list-style-type: none"> <li>1. Reorganisation of tasks, services, and spaces; triage and prioritisation of activities</li> <li>2. Implementation of protection measures</li> <li>3. Assigning extra qualified personnel; strengthening of internal and external resources (using army or civil protection units); staff increases and reassignments</li> <li>4. Increased activity rates, performance, and shift lengths</li> <li>5. New rules and protocols for patient care</li> <li>6. Quarantine and patient isolation</li> <li>7. Implementation of working from home</li> <li>8. <i>Support to employees: free meals, free parking, grocery delivery at home, accommodation and certificates for cross-border employees, hypnosis sessions, and outreach psychologists</i></li> </ol> <p><b>Reported team strategies (that may be appropriate):</b></p> <ol style="list-style-type: none"> <li>1. Information, communication, and training</li> <li>2. Interdisciplinary collaboration and collaboration with families</li> <li>3. Management support: management availability, listening and encouragement; support by clinical nurses and hygiene departments; designation of supervisors; adaptation of employees' schedules to their personal needs</li> <li>4. Emotional and on-task peer support</li> <li>5. Support for patients</li> </ol>
Lie JJ, et al. 2020 <i>Optimizing Resident Wellness During a Pandemic: University of British Columbia's General Surgery Program's COVID-19 Experience.</i>	<ol style="list-style-type: none"> <li>1. Efficiency of practice (optimization of resources and time)               <ol style="list-style-type: none"> <li>a. Information sharing</li> <li>b. Collaboration</li> <li>c. Limited exposure to patients</li> </ol> </li> <li>2. Culture of wellness (encourages normalizing attitudes and behaviors that promote self-care to foster a sense of community)               <ol style="list-style-type: none"> <li>a. Resident restructuring and reserve unit</li> <li>b. Ensure proper safety equipment</li> <li>c. Burnout = illness = stay home</li> </ol> </li> </ol>
Lorello GR, et al. 2021 <i>Impact of the intersection of anaesthesia and gender on burnout and mental health, illustrated by the COVID-19 pandemic.</i>	<p><b>Institutional level:</b></p> <ol style="list-style-type: none"> <li>1. Duty hour restrictions</li> <li>2. Set up peer and non-peer support systems</li> <li>3. Focus on enhancing teamwork</li> <li>4. Organize "thankfulness events"</li> <li>5. Offer webinars on burnout prevention</li> </ol> <p><b>Government level:</b></p> <ol style="list-style-type: none"> <li>1. Thankfulness events</li> <li>2. Increased healthcare funding for increased human resources</li> </ol>



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Low TY, et al. 2020 <i>Close air support: enhancing emergency care in the COVID-19 pandemic.</i>	The Close Air Support (CAS) was implemented to augment ER operations while protecting staff. It was done by limiting contact with patients by redesigning teams and schedules, responsibilities, and tasks. <ol style="list-style-type: none"> <li>1. Having an “outpatient team” to provide real-time support to the inpatient team, in a remote manner, reduced junior burn-out rates by obviating the need for the inpatient team to arrive earlier to pre-round and increased efficiency while preserving geographical segregation between teams.</li> <li>2. All teams were composed of junior and senior staff, therefore tapping into a less-accessed population of trainees (students or junior staff) in times of crisis/pandemic.</li> <li>3. The implementation of CAS translated into an improvement in the time to patient disposition (effect size not reported).</li> </ol>
Magill E, et al. 2020 <i>The Mental Health of Frontline Health Care Providers During Pandemics: A Rapid Review of the Literature.</i>	Recommendations: Training, access to necessary equipment, clear communication, and outward praise from hospital leadership were all noted across studies as particularly supportive of health workers’ mental health. It is important to anticipate which health care providers are at greater risk for higher levels of adverse psychological outcomes during a pandemic. The overall trend across all pandemics and epidemics studied here is that workers who had direct contact with infected patients had a higher prevalence and severity of mental health symptoms than those who did not.
Magnavita N, et al. 2021 <i>SARS/MERS/SARS-CoV-2 Outbreaks and Burnout Syndrome among Healthcare Workers. An Umbrella Systematic Review.</i>	Recommendations: <ol style="list-style-type: none"> <li>1. Individual coping strategies, such as seeking social support, positive thinking, problem solving, and avoidance, added to institutional intervention that included guidance and training on infection control and the use of equipment; leadership support at the workplace and psychosocial support in terms of psychiatric help, monitoring, or clinical supervision; or a staff buddy system provided by the hospital administration, were found to boost lower rates of emotional exhaustion.</li> <li>2. Improving work schedules, providing counseling support meetings that promote self-management, and mindfulness-based stress control activities are among the suggested techniques to prevent or reduce burnout syndrome in HCWs during the COVID-19 pandemic</li> <li>3. In conjunction with institutional measures, numerous interventions for enhancing individual coping responses have been put forward to prevent the onset of burnout syndrome.</li> <li>4. Workplace health programs could include individual interventions, based on psychoeducation, adequate sleep and rest in between workplace duties and shifts, the maintenance of social relationships, and improvements in problem-solving skills. To prevent burnout syndrome and other mental outcomes, healthcare policymakers could also consider the importance of providing organizational support, such as clear communication of changes, access to resources for psychological support, the empowerment of self-help groups, and the early identification of “at-risk” individuals.</li> </ol>
Martinez EG, et al. 2020 <i>Management and leadership of nursing services in the</i>	<b>Staff support</b> <ol style="list-style-type: none"> <li>1. Nurses and other health professionals are supported on the front line, both working as a quarantine, ensuring that they have adequate periods of rest, as well as sufficient personal protective equipment and psychological assistance</li> </ol>



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<i>emergency plan for the pandemic COVID-19: the experience of the Clinic Hospital of Barcelona.</i>	<ol style="list-style-type: none"> <li>2. Adequate recognition of the services provided by the staff is shown, volunteers, external staff and donors during response and recovery from disasters</li> <li>3. The initiatives of support, recognition, positive expression on the part of any member of the collective. All initiatives are published on the intranet</li> <li>4. Internal support measures are identified for the personnel who request it (vacancies parking, hotel rooms, meals, and snacks).</li> </ol> <p><b>Other support reported:</b></p> <ol style="list-style-type: none"> <li>1. Psychological support is offered to professionals who request it in relation to the stress derived from the current healthcare situation.</li> <li>2. The municipal initiative of free parking for professionals who need it.</li> </ol>
Moitra M, et al. 2021 <i>Mental Health Consequences for Healthcare Workers During the COVID-19 Pandemic: A Scoping Review to Draw Lessons for LMICs.</i>	<p>Recommendations for policy and practice, to improve mental health of HCWs:</p> <ol style="list-style-type: none"> <li>1. Addressing emerging disparities by worker role, age, sex, socioeconomic status, race, and ethnic identity; Policies focused on equity and more egalitarian workplace culture</li> <li>2. Developing strategies to deal with protracted stress, grief, bereavement and using team science principles to improve organizational climate and leadership skills in managers and senior staff; routine assessment of stress, burn out and other mental health indicators and provision of timely, holistic support</li> <li>3. Decision support system to help HCW address mental health and well-being of diverse at-risk populations and those with multimorbidity; inclusion of self-care modules to attend to their own stress and strains; especially enhanced support for the well-being and work performance of HCWs in humanitarian settings and those working directly with COVID-19 response and with key populations</li> <li>4. Human rights-based and social justice services and training of HCWs who are embedded within ongoing emergency response</li> <li>5. Development of brief, low intensity interventions addressing resilience, emergency preparedness and improved mental health outcomes, looking at short and long-term mental health outcomes</li> <li>6. Social and family needs of HCWs to be addressed at health systems level</li> </ol>
Moukaddam N, et al. 2020 <i>Burnout and suicide among physicians during times of stress.</i>	<p>Suggestions of organizational level approaches:</p> <ol style="list-style-type: none"> <li>1. “Wellness programs” and appointed “chief wellness officers”</li> <li>2. Assessing physician stress and identifying specific drivers,</li> <li>3. Paying attention to workload redistribution,</li> <li>4. Providing social support through “connection groups” via video conferencing tools, and</li> <li>5. Providing mental health support hotlines</li> </ol>
Nafar H, et al. 2021 <i>A systematic mapping review of factors associated with willingness to work under emergency condition.</i>	<p>Key considerations for health policy makers:</p> <ol style="list-style-type: none"> <li>1. Rewards, safety, and high-level care make employees committed</li> <li>2. Psychological care and improving the working conditions of healthcare providers play an important role in staff sustainability</li> <li>3. Ensure that personal protective equipment/vaccines and antiviral drugs are available to hospital staff &amp; Risk assessment and designing training programs to respond to emergency</li> <li>4. Counseling and providing supportive and psychiatric care to health care providers and their family members</li> </ol>



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	<ol style="list-style-type: none"> <li>5. Increase cooperation between governments and health service providers in attracting and retaining human resources for health</li> <li>6. Providing welfare and support facilities to the children of health workers</li> <li>7. Effective leadership, providing the necessary resources in the shortest possible time</li> <li>8. Empowering health workers, especially nurses, in the face of emergency condition (crisis maneuvers)</li> <li>9. Existence of specific instructions for providing services in crisis situations Existence of a crisis plan in a hospital or medical center               <ul style="list-style-type: none"> <li>o Supporting the career development of nurses Increasing the authority and participation of nurses in critical situations</li> <li>o Existence of protocols for attracting and supporting volunteers and students</li> </ul> </li> </ol>
<p>Ontario Agency for Health Protection and Promotion (Public Health Ontario)            2021  <i>COVID-19 – Strategies Adaptable from Healthcare to Public Health Settings to Support the Mental Health and Resilience of the Workforce during the COVID-19 Pandemic Recovery</i></p>	<p>Healthcare workers commonly cited effective institutional and organizational support and leadership as being critical to reducing mental distress and burnout, allaying anxiety, and fear, and increasing confidence.</p> <p><b>Organization and management-level strategies</b></p> <p><b>A. Staffing and workload management</b></p> <ol style="list-style-type: none"> <li>1. Healthcare workers indicated preference for manageable and safe working conditions, and meaningful organizational changes (e.g., adequate rest and personal protective equipment [PPE]), rather than individual counselling or psychological interventions.</li> <li>2. Adequate staffing and staff training</li> <li>3. Ensuring (healthcare workers’) basic needs are met in the workplace, including ensuring adequate PPE, rest, and food</li> </ol> <p><b>B. Prevention and Prioritization</b></p> <ol style="list-style-type: none"> <li>1. Ensuring availability of organizational-level interventions aimed at preventing mental health issues and providing supports and/or referral options to staff for mental health concerns that emerge.</li> <li>2. Ensuring a deliberate prioritization of workforce mental health, organizational dedication of appropriate resources and supportive environments</li> <li>3. Organization-level activities, even those not directly related to mental health, improved adverse psychological outcomes among providers across outbreaks by increasing confidence and enhancing positive psychological effects. Effective institutional and organizational support and leadership as being critical to reducing mental distress and burnout, allaying anxiety, and fear, and increasing confidence.</li> <li>4. Proactively monitoring for staff mental health concerns - certain groups (younger age, lower income, women, those with less work experience and those in direct contact with COVID-19 patients) may be at higher risk of adverse mental health outcomes,14 and staff may be unlikely to disclose these concerns unprompted.</li> <li>5. Educate, normalize, and reduce stigma around the potential for mental health concerns and the need for mental health supports</li> <li>6. Ready availability and accessible processes to provide mental health supports, both informal and professional, to any staff who disclose mental health concerns.</li> </ol> <p><b>C. Communication</b></p>





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	<ol style="list-style-type: none"> <li>1. Clear and honest communication from organizations and leaders as a key organizational-level priority to manage stress and minimize confusion and distress among staff during a pandemic. The facilitation of discussions and exchanges of opinions (e.g., listening groups, email suggestions boxes, town halls and managers visiting staff) can ensure staff voices are heard in decision-making, provision of accurate updates to lower stress levels as much as possible, and to foster a perception of control</li> <li>2. Up to date information about COVID-19, including infection prevention education, protocols, and changes in work arrangements</li> <li>3. Commitment to support staff wellbeing and information about where to find organizational supports.</li> <li>4. Recognition and gratitude for the work and efforts of frontline staff</li> </ol> <p><b>D. Effective leadership</b></p> <ol style="list-style-type: none"> <li>1. Those in management or leadership positions can better offer support and foster resilience and coping among the workforce by being attentive to the psychological, mental, and psychosocial needs of the healthcare workers</li> <li>2. Leadership providing acknowledgement and recognition of staff work and efforts</li> <li>3. Those in leadership positions being visible and engaged with frontline staff.</li> <li>4. Leadership making efforts to be aware of staff concerns and needs.</li> <li>5. Leadership generally perceived by staff as effective, competent, and able to provide adequate support.</li> </ol> <p><b>E. Workplace cohesion</b></p> <ol style="list-style-type: none"> <li>1. Organizations and leaders encouraging, prioritizing, and facilitating these types of supports</li> <li>2. “Creating a sense of togetherness and positivity”, and ensuring that everyone feels that their voices are heard</li> <li>3. Need for more collaboration, alongside education and training, to strengthen teams and reduce stress and the psychological impact of responding to the pandemic</li> </ol> <p><b>Community and Policy-level strategies</b></p> <p><b>A. Strategic pandemic preparedness policies</b></p> <ol style="list-style-type: none"> <li>1. Strategic policy approaches to pandemic preparedness through effective information regarding infection control interventions in clinical and non-clinical settings; policies to ensure adequate staffing levels to be prepared when an outbreak starts (with special attention paid to the importance of planning appropriate training for healthcare workers); and planning psychosocial supports ahead of the pandemic.</li> <li>2. Institutional support systems and occupational health policies designed to promote the psychological wellbeing of healthcare workers</li> </ol> <p><b>B. Addressing stigma and discrimination</b></p> <ol style="list-style-type: none"> <li>1. Need for widespread efforts to tackle discrimination against healthcare workers during pandemic outbreaks as well as stigma and discrimination associated with healthcare workers seeking support to protect or improve their mental health</li> <li>2. Communities should also be attentive to the media portrayal of healthcare workers and should work to minimize stigma and discrimination towards healthcare workers</li> <li>3. Develop public campaigns to protect healthcare workers and reduce stigmatization toward them during future pandemic outbreaks</li> </ol>





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	<ol style="list-style-type: none"> <li>4. Online promotion and awareness campaigns to minimize stigma should be implemented in the planning and execution phases of psychological intervention programs for healthcare workers.</li> <li>5. Normalizing the provision of and funding for mental health education and programs by modelling self-care and help-seeking behaviours to ensure availability of mental health resources and develop a culture of caring</li> </ol>
<p>Rangachari P and Woods JL.          2020  <i>Preserving Organizational Resilience, Patient Safety, and Staff Retention during COVID-19 Requires a Holistic Consideration of the Psychological Safety of Healthcare Workers.</i></p>	<p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. Create an environment of trust, psychological safety, and empowerment to enable individual workers to communicate patient safety concerns to managers.</li> <li>2. Develop communication structures to enable the organization to learn from the problem-solving strategies and communications of individual healthcare workers</li> </ol>
<p>Robertson L, et al.          2020  <i>Mental health of healthcare workers during the COVID-19 outbreak: A rapid scoping review to inform provincial guidelines in South Africa.</i></p>	<p><b>Management initiatives recommended:</b></p> <ol style="list-style-type: none"> <li>1. Be psychologically prepared             <ul style="list-style-type: none"> <li>o Access training and support</li> </ul> </li> <li>2. Keep informed with scientific updates</li> <li>3. Conduct a rapid needs assessment             <ul style="list-style-type: none"> <li>o Found beneficial and may allow HCWs to feel heard, foster team spirit, and enable managers to set priorities</li> </ul> </li> <li>4. Communicate clearly and regularly             <ul style="list-style-type: none"> <li>o Facts about the outbreak</li> <li>o Risks to HCWs, PPE availability</li> <li>o Daily tasks, clinical guidelines, adaptations to resource constraints</li> <li>o Expectations of HCWs' self-care, including their mental healthcare</li> </ul> </li> <li>5. Incorporate support in daily routine             <ul style="list-style-type: none"> <li>o Ask about coping of team members in handover rounds and meetings</li> <li>o Discuss difficult clinical situations, providing containment of any distress</li> </ul> </li> <li>6. Engage with local community             <ul style="list-style-type: none"> <li>o Educate community leaders on the outbreak, risks, and treatment; destigmatise HCWs</li> <li>o Identify supportive resources, e.g., childcare providers, lay counsellors, faith-based organisations</li> </ul> </li> <li>7. Establish peer support networks             <ul style="list-style-type: none"> <li>o Identify peer supporters and facilitate training in mental health literacy and psychological first aid</li> <li>o Allocate HCWs to supporters</li> <li>o Encourage sharing of emotions and experiences</li> </ul> </li> </ol>



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	<ul style="list-style-type: none"> <li>○ Receive feedback from supporters, and provide ongoing direction</li> <li>8. Establish referral pathways and human resource mechanisms</li> <li>9. Recognise mental disturbance in HCWs or self and refer accordingly</li> <li>10. Psychological support</li> <li>11. Be psychologically prepared               <ul style="list-style-type: none"> <li>○ Access training and support</li> </ul> </li> <li>12. Keep informed with scientific updates</li> <li>13. Conduct a rapid needs assessment               <ul style="list-style-type: none"> <li>○ May allow HCWs to feel heard, foster team spirit, and enable managers to set priorities</li> </ul> </li> <li>14. Communicate clearly and regularly               <ul style="list-style-type: none"> <li>○ Facts about the outbreak</li> <li>○ Risks to HCWs, PPE availability</li> <li>○ Daily tasks, clinical guidelines, adaptations to resource constraints</li> <li>○ Expectations of HCWs' self-care, including their mental healthcare</li> </ul> </li> <li>15. Incorporate support in daily routine               <ul style="list-style-type: none"> <li>○ Ask about coping of team members in handover rounds and meetings</li> <li>○ Discuss difficult clinical situations, providing containment of any distress</li> </ul> </li> </ul>
Rolandi S, et al. 2021 <i>COVID-19: An Italian Hospital Response from the Nursing Perspective.</i>	<ol style="list-style-type: none"> <li>1. Provide a comfortable environment to work in, with organized breaks, food, and drink available to restore and manage physical needs</li> <li>2. A psychologist was present 24/7 for online or telephone support. The team was often in a state of outburst, of sharing emotions like fear or frustration, the place to understand that you are not alone, and you are not the only one suffering. Listening, talking, and teaching them risks and strategies to face high level of stress is a never-ending work.</li> </ol>
Rosa WE. 2020 <i>A blueprint for leadership during COVID-19: Minimizing burnout and moral distress among the nursing workforce.</i>	<ul style="list-style-type: none"> <li>○ Create a COVID-19 taskforce with a strong nursing presence</li> <li>○ Make top leadership accessible to clinical nurses</li> <li>○ Intelligently and safely redeploy clinical staff on the bench to units (because not having enough staff and support to complete the necessary care or take breaks during the day leads to nurses feeling overextended and eventually results in burnout.)</li> <li>○ Create a culture of transparent communication (bringing this information (virus transmission, updates on CDC recommendations for best practices, plans for rationing and allocation of PPE, etc.) directly to nurses increases transparency and helps alleviate fears about becoming sick or potentially infecting a family member.</li> <li>○ Foster well-being with strategic advocacy (e.g., ethics consultant availability and open forums to discuss ethical challenges can help lessen the burden associated with these decisions or help nurses reconcile their feelings of moral distress; nurse managers and other leaders should document the ongoing prevalence of moral distress and burnout and use the results to focus resources and interventions)</li> </ul>
Ruta F, et al. 2021	<ol style="list-style-type: none"> <li>1. Social support turned out crucial for healthcare professionals to reduce anxiety, stress, and depression.</li> <li>2. Support and support from family members can help nurses reduce anxiety levels since the social interactions</li> </ol>



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<i>Covid-19 and front-line nurses' mental health: a literature review.</i>	<p>reduce negative emotions, positively impacting mood.</p> <ol style="list-style-type: none"> <li>3. Need to implement a new model of psychological intervention in case of crisis for nurses involved in the pandemic, based on the mental health services implemented and delivered in a virtual way to support nurses at a distance.</li> <li>4. Guarantee periods of rest and psychological assistance appears essential for continue to work without psychological damage, promoting resilience.</li> <li>5. The intervention can be aimed at introducing techniques and procedures to solve or limit the problem, such as telephone psychological support and the daily briefing of the work team.</li> </ol>
<p>Saqib A and Rampal T. 2020  <i>Quality improvement report: setting up a staff well-being hub through continuous engagement.</i></p>	<ol style="list-style-type: none"> <li>1. Set up of a safe space for staff “a quiet room” away from clinical noise to enable and encourage mindfulness and psychological resilience through a calm and serene environment. The space comprises relaxed furniture, soft furnishings and inspirational messages as had been requested on the survey. The space was placed geographically outside the main hospital site to allow physical and mental distancing from the clinical anxieties. It is open 24 hours a day and accessed through a staff identity badge.           <ul style="list-style-type: none"> <li>o Received excellent feedback from participants (through emoji stickers, mood board, repeat survey)</li> <li>o Space also allows for group activities such as games and puzzles. Attendees also found colouring therapeutic</li> </ul> </li> </ol>
<p>Sharifi M, et al. 2020  <i>Burnout among Healthcare Providers of COVID-19; a Systematic Review of Epidemiology and Recommendations</i></p>	<p>Organizational strategies to create a capable environment to reduce burnout could include the following interventions:</p> <ol style="list-style-type: none"> <li>1. Improving workflow management, organizing services with an emphasis on reducing workload, improving communication skills, arranging discussion meetings, increasing interoperability, providing the opportunity for having adequate rest and exercise, holding workshops on coping skills, decreasing the clinical demand via schedule changes, and increasing teamwork.</li> <li>2. Developing clear and up-to-date guidelines and protocols for different situations, as well as practical training about protective interventions are among interventions that may increase the sense of safety, assurance, and control</li> </ol>
<p>Shreffler J, et al. 2020  <i>The Impact of COVID-19 on Healthcare Worker Wellness: A Scoping Review.</i></p>	<p>Review authors provide recommendations/strategies for HCW wellness:</p> <ol style="list-style-type: none"> <li>1. Immediate and individualized access to mental health resources.</li> <li>2. Short-term and long-term individualized wellness and mental health interventions to address the physical and emotional tolls of COVID-19.</li> <li>3. Individual AND organizational strategies to optimize wellness for healthcare providers in areas of nutrition, exercise, mindfulness, sleep quality, and reducing burnout.</li> <li>4. Quality, accessible PPE for all HCWs to provide security and reduce likelihood of infection for themselves and their loved ones.</li> <li>5. Opportunities to research and implement telehealth in a variety of settings to limit exposure to infection.</li> <li>6. Reduce stigma on mental health symptoms and the psychological impact of significant stressful events within HCWs.</li> <li>7. Development of new HCW community groups and encouragement of participation</li> </ol>



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Sinsky C and Linzer M. 2020 Practice And Policy Reset Post-COVID-19: <i>Reversion, Transition, Or Transformation?</i>	<ol style="list-style-type: none"> <li>1. Changes to workflow, administrative and technological burdens have been lifted, and team members can make more meaningful contributions to patient care</li> <li>2. Verbal orders are the norm instead of written orders</li> <li>3. Documentation simplified</li> </ol>
Sriharan A, Ratnapalan S, et al. 2021 <i>Women in healthcare experiencing occupational stress and burnout during COVID-19: A rapid review.</i>	<p>Systems-level interventions:</p> <ol style="list-style-type: none"> <li>1. Work modifications</li> <li>2. Ensuring clear communication about policies</li> <li>3. Providing access to PPE, offering training related to managing COVID-19</li> <li>4. Instituting measures to support health professionals financially</li> <li>5. Providing rest areas for sleep and recovery</li> <li>6. Offering basic physical needs such as food</li> <li>7. Including training programs to improve resiliency</li> </ol>
Sriharan A, West K, et al. 2021 <i>COVID-19-Related Occupational Burnout and Moral Distress among Nurses: A Rapid Scoping Review.</i>	<p>Recommendations for nurse leaders:</p> <p><b>Psychological support</b></p> <ol style="list-style-type: none"> <li>1. Foster a supportive work environment</li> <li>2. Offer mental health resources and support early on to promote the psychological adjustment of staff</li> <li>3. Check in regularly with staff about their physical and psychological needs, particularly those who are younger and less experienced</li> <li>4. Facilitate access to psychological interventions</li> <li>5. Develop staff support protocols</li> <li>6. Be attentive to the psychological needs of both front-line and non-front-line staff</li> </ol> <p><b>Adjustments to nursing shifts</b></p> <ol style="list-style-type: none"> <li>1. Schedule frequent short breaks from clinical duties</li> <li>2. Provide adequate time for rest between shifts</li> <li>3. Adjust shift duration to account for the additional demands of infection control measures</li> <li>4. Provide food and other daily living supplies on breaks <u>Pandemic preparation</u></li> <li>5. Ensure access to adequate personal protective equipment, where possible, and enforce infection control procedures</li> <li>6. Provide adequate training</li> <li>7. Ensure clear communication with staff</li> <li>8. Allow for voluntary redeployment, whenever possible</li> </ol>
Stuijtzand S, et al. 2020 <i>Psychological impact of an epidemic/ pandemic on the mental health of</i>	<p>Recommendations for during the disease outbreak:</p> <ol style="list-style-type: none"> <li>1. Widespread screening to identify those in need of support</li> <li>2. Widespread educational campaign alerting HCWs to the possibility of experiencing mental health problems</li> <li>3. For those reporting mental health problems, a three-phased stepped intervention consisting of a workshop on psychological first aid, a workshop on psychoeducation, and a brief CBT group program may be helpful</li> </ol>



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<i>healthcare professionals: a rapid review.</i>	<ol style="list-style-type: none"> <li>4. With regards to organizational factors, managers should increase organizational support and foster peer support.</li> <li>5. HCWs should be encouraged to volunteer for working with infected patients, rather than be deployed.</li> <li>6. Managers should regularly provide updated information about the epidemic/pandemic and how HCWs can best protect themselves.</li> <li>7. Adequate specialized training should be made available, with personal infection control as a priority.</li> <li>8. After the disease outbreak, HCWs' perceived risk should be screened within a few months after the disease outbreak</li> </ol>
Troglio da Silva FC and Neto MLR. 2021 <i>Psychiatric disorders in health professionals during the COVID-19 pandemic: A systematic review with meta-analysis.</i>	Recommendations: <ol style="list-style-type: none"> <li>1. The provision of subsidies to rest, to study, and to protect the health of doctors is essential, associated with the improvement in the screening of patients</li> <li>2. The acquisition of updated guidelines orienting about conducts, and the new members to compose the medical team, as well as the promotion of the telemedicine, the telepsychiatry, and the support to resident physicians</li> </ol>
Turner S, Botero-Tovar N, et al. 2021 <i>Systematic review of experiences and perceptions of key actors and organisations at multiple levels within health systems internationally in responding to COVID-19.</i>	Organisational-level strategies in response to the pandemic: <ol style="list-style-type: none"> <li>1. Introduced psychological support programs for workforce</li> <li>2. Recognition of otherwise 'unseen' workers</li> <li>3. Emphasized open or engaging leadership</li> <li>4. Use of cross-functional teams to support care coordination</li> <li>5. Reflection on how COVID-19 relation information shared within and beyond organisation COVID-19 seen as 'catalyst' for overcoming typical barriers to change</li> </ol>
Turner S, Nino N, et al. 2021 <i>Organisational responses to mitigate the effects of COVID-19 on healthcare workers: a qualitative case study from Bogota, Colombia.</i>	<ol style="list-style-type: none"> <li>1. Implement on-site drills and biosafety protocols on the proper use of personal protection elements to mitigate the contagion.</li> <li>2. Provide PPE according to their risk exposure.</li> <li>3. Implement in-house psychiatrists to accompany their emergency team as a response to mitigate fear. (in-house psychiatry and psychology services such as Balint groups (regular meetings with a trained facilitator for debriefing).)</li> <li>4. Implement regular refreshment breaks and having collective prayers in COVID-19 areas to support teamwork between the frontline workforces.</li> <li>5. Implement personalized transportation, develop technological tools and advocate to reduce violence and stigma against health workers</li> </ol>



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Walton H, et al. 2020 <i>Emergency medicine response to the COVID-19 pandemic in England: a phenomenological study.</i>	Maintaining staff well-being and managing staff expectations. <ol style="list-style-type: none"> <li>1. Well-being hubs and free or discounted food</li> <li>2. Access to psychological support (access to in-person counsellors, access to clinical psychologists, trained mental health first aiders)</li> <li>3. Introduction of 'NOVID' rooms (where no discussion of COVID-19 is allowed) and the introduction of 'wobble rooms' (where staff members feeling anxious, stressed or needing additional support could go to discuss this)</li> <li>4. Rotating staff between zones (structured rotation of clinicians between the 'COVID-19 suspected' and 'not suspected' zones to avoid 'physical and emotional exhaustion' from working with patients with COVID-19 during the surge period).</li> </ol>
Yaffee A, et al. 2020 <i>Preparedness, Adaptation, and Innovation: Approach to the COVID-19 Pandemic at a Decentralized, Quaternary Care Department of Emergency Medicine.</i>	Recommendations: <ol style="list-style-type: none"> <li>1. Adaptability – in triage, workflow, staffing and communication               <ul style="list-style-type: none"> <li>o Staffing Recommendations: Implement a surge staffing schedule to enable as needed flexing physicians on and off the schedule to address ED surge as well as fill in for providers who need to come off the schedule for illness. Consider credentialing family and internal medicine physicians, to offload lower-acuity workload from emergency providers as needed</li> </ul> </li> <li>2. Childcare for providers by partnering with volunteer medical students given interruptions in their educational schedule, and with professional childcare agencies after schools closed.</li> <li>3. On-shift food for the EDs for two weeks at the beginning of increased COVID-19 volume, and then transitioned to fundraising at an institutional level to continue to provide food for all ED staff on shift.</li> <li>4. Great attention was paid to the emotional state of providers and staff, with ongoing discussions normalizing and validating the range of emotions experienced and offering emotional processing groups at the end of weekly operations through virtual sessions led by department leadership.</li> <li>5. Counseling services were offered by phone or virtual platform by Emory's Faculty and Staff Assistance Program and Emory Psychiatry.</li> <li>6. Yoga and meditation classes were offered on a virtual platform so employees could continue to participate while practicing social distancing</li> </ol>