

Problems Facing Healthcare Providers When Caring for COVID-19 Patients: An Integrative Review

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Abstract: The COVID-19 outbreak is a world health problem that affects millions of people. The pandemic is also causing burdens and challenges to health-care providers. Therefore, this study aimed to examine and help understand health-care providers' problems when caring for COVID-19 patients. An integrative review following Whittmore and Kanfl's approach was used along with a systematic search for emerging online databases and grey literature conducted from January to August 2021. The quality of papers was analyzed and a report was presented following PRISMA guidelines. A total of 18 articles that were predominantly descriptive with five themes, including mental health problems in the early stage of COVID-19 outbreak, working stress, physical and psychological impacts of disease, and the lack of support were analyzed. The results showed the pandemic's significant psychological impact on health-care providers directly caring for COVID-19 patients. Emotional, facilities and family support are needed to maintain the health-care providers' well-being.

Keywords: COVID-19, caring, healthcare providers, problems

Introduction

COVID-19, a respiratory tract infection caused by SARSCoV-2 has caused a tremendous impact around the world. The coronavirus was first reported in Wuhan, China, in December 2019 and spread exponentially to other countries worldwide.^{1,2} Clinical syndromes of COVID-19 are mild upper respiratory illness, severe pneumonia, and acute respiratory distress.³⁻⁵ The global impact of coronavirus made the World Health Organization (WHO) declare as a pandemic on Mar 12, 2020, and an international public health emergency.^{3,5,6} Hence, it is crucial to examine the psychological implications of the pandemic for the general public, patients, and health-care providers (HCPs) globally.^{4,7-9} As the frontline workers, health-care providers must care for the patients every day and face a high risk of being infected. Furthermore, they encounter greater risks of mental health problems, such as anxiety, depression, insomnia, and stress.^{5,10} These psychological problems are caused by working long hours in high-pressure environments, inadequate personal protective equipment, and inadequate organizational support.¹¹⁻¹⁴

Some studies have been conducted in many countries to identify the psychological outcomes and distress among the HCPs during the five months of the COVID-19 pandemic. The results showed that caring for COVID-19 patients was emotionally difficult for health-care workers due to stress, uncertainty, and stigmatization.¹⁵⁻¹⁷ The distress may negatively impact HCP's psychology, mental status, and working performance. Moreover, a systematic review found that disasters significantly affect the mental well-being of the HCPs.¹⁸ However, there is no systematic appraisal and critique of the existing studies. An integrative review assesses diverse data sources and methodologies such as qualitative interviews, surveys, and observational studies.¹⁹ The reviews could present a comprehensive understanding of

phenomena relevant to health care. Therefore, this study aimed to examine and help understand public literature regarding the problems faced by health-care providers when caring for COVID-19 patients globally.

Materials and Methods

Design

An integrative review, based on Whitemore and Knafl,¹⁹ was conducted. It is a method that allows for diverse methodologies involving qualitative and quantitative data as well non-experimental survey data to develop a holistic understanding.¹⁹ The first stage of the review was problem identification to ensure that the study question and aim were clearly defined. Other stages involved completing a well-defined literature search, evaluating the data quality, synthesizing the data, and presenting results. The objectives of the literature review and study questions were formulated first to identify problems. The key questions were related to the problems facing the HCPs when caring for COVID-19 patients globally.

Eligibility Criteria

This integrative review included quantitative and qualitative data published between January 2020 and August 2021. The qualitative articles were studies using phenomenological and exploratory approaches. In contrast, the quantitative papers contained studies with cross-sectional design and primary data collected applying questionnaires.

Inclusion Criteria

The following inclusion criteria were utilized to obtain the most relevant articles:

1. Articles published in English between 2019–2021.
2. Articles focused on the problems faced by health-care providers.
3. All study methodologies were included.

Data Collection

The study questions were first developed before searching for journal articles published through electronic databases. A systematic literature search was performed using PubMed, PMC, Science Direct, Google Scholar, ProQuest, Scopus, EBSCO, and Web of Science. Furthermore, the psychological problems of the HCPs worldwide were examined through keyword searches PubMed Central (PMC), Science Direct, Google Scholars, and Web of Science. This study used the terms “psychological problems [All Fields]” or “psychological distress” and “the healthcare workers’ needs” or “psychological outcomes” and “COVID-19’s impact” and “coronavirus disease” or “COVID-19” and “healthcare professionals”. These keywords incorporated Boolean operators and truncation marks to obtain the needed articles.

Study Selection and Data Collection Process

The titles of the articles were screened by three authors, HSM, FA, and SH to approve those that met the criteria used in the selection. The authors reviewed and approved information to be added in the final review. The selection process is illustrated by the Preferred Reporting Items or Systematic Reviews and Meta-Analysis (PRISMA) flow chart.²⁰

The search for electronic databases resulted in 480 titles and abstracts but were reduced to 200 papers after duplicates and some abstracts were removed. Furthermore, the 183 papers that did not meet the criteria were excluded. The authors also ensure that the selected articles were published in reputable journals by checking the name of the journal on the website. The remaining 17 papers which explored problems and demands of the HCPs when caring for COVID-19 patients were included in the final review, as shown in [Figure 1](#).

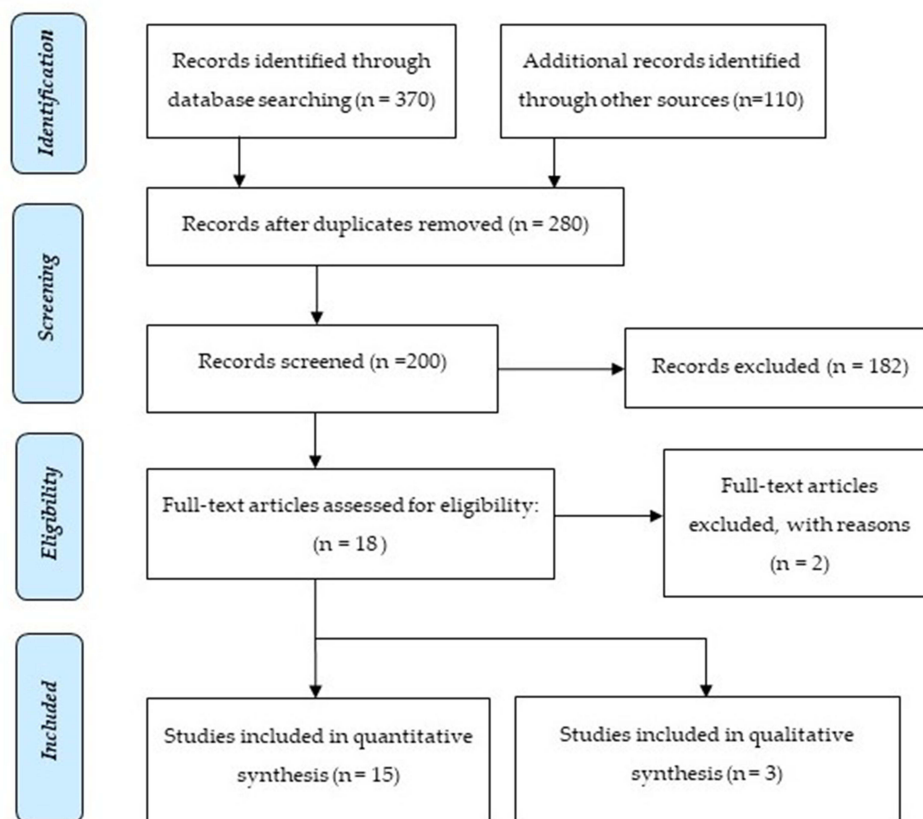


Figure 1 Flowchart describing article search and selection.

Notes: RAdapted from: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and MetaAnalyses: The PRISMA Statement. *PLoS Med.* 2009;6(7):e1000097. doi:10.1371/journal.pmed1000097.⁵⁰ © 2009 Moher et al. Creative Commons Attribution (CC BY 4.0) license (<https://creativecommons.org/licenses/by/4.0/legalcode>).

Quality Critical Appraisal

The quality of papers was independently appraised by two authors, HSM and YT. Full-text articles were evaluated using The Critical Appraisal Skills Program (CASP) research checklists,²¹ to appraise the rigour, key methods, credibility, and relevance of the literature considered for inclusion. Both reviewers assessed the risk of bias, and the quality of studies was graded as moderately good on the scale and diverse in sources and discussion.

Data Synthesis and Presentation

There are 18 quantitative and qualitative articles analyzed using a mixed-methods synthesis based on the study purpose, methods, and findings.^{19,22} The results in [Table 1](#) show the problems of the health-care providers (HCPs).

Results

Characteristics of the Studies

This review analyzed 15 quantitative and 3 qualitative studies published in 2020–2021. Most quantitative studies used the cross-sectional approach in data collection. In contrast, the qualitative studies used phenomenology with in-depth interviews. [Table 1](#) outlines the studies contained in the review and presents their design, sample size, instruments, and main findings. Specifically, 13 papers came from China, and one each from Singapore, Italy, Germany, India, and Bangladesh. Most of the selected articles came from China because, at the time of conducting systematic searching, the publication of research related to COVID-19 mostly came from China.

Table 1 Summary of Reviewed Articles

Authors/ Year of Citation/ Country	Purpose of Study	Research Design	Sample Size	Instruments	Key Findings	Critical Appraisal
Sun et al (2020) China ²³	Investigate the psychology associated with nurses' ability to care for COVID-19 patients.	Qualitative phenomenology study	22 nurses	In-depth interview	<ul style="list-style-type: none"> • Facing stress and anxiety. • Lack of self-coping styles. • Feeling under pressure. • Heavy workloads. • Lack of communication with colleagues and authority. • Lack of support from organization. 	9/10
Yin and Zeng (2020) ²⁴ China	Investigate the psychological requirements of nurses ability to care for COVID-19 patients and suggest reciprocal interventions.	Qualitative study	Ten nurses	In-depth interviews	<ul style="list-style-type: none"> • Facing stress. • Lack of PPE. • Feeling insecure of COVID-19. • Lack of support. • The needs of health and security. • The needs of supports from organization especially facilities of PPE.9/10 	
Guo et al (2020) China ²⁵	Analyze the psychological effect of the virus outbreak on medical staff in China.	Cross-sectional survey	3351 physicians; 5900 nurses; 757 medical students, 464 clinical medical assistants, 450 clinical Administration staff.	Self-rating anxiety scale (SAS) and Self-Rating Depression Scale (SDS).	<ul style="list-style-type: none"> • 4.98% of medical staffs have middle and high level of anxiety. • 13.47% respondents have middle and high levels of depression. • Nurses, younger medical and frontline medical staff were more anxious and depressed than the physicians, older and non-frontline medical staff, respectively. 	10/12
Liu et al (2020) China ²⁶	Recognize the factors influencing medical workers' nervousness in China during the outbreak.	Cross-sectional study	512 medical staff; 164 healthcare workers.	Zung Self-rating Anxiety Scale (ZAS).	Respondents' anxiety is minimal. However, the medical staff that came in direct contact with infected patients had an increase in anxiety rate than others.	10/12
Lu et al (2020) China ²⁷	Determine the psychological state of the medical workforce.	Cross-sectional survey	2042 medical staff (doctors and nurses); 257 non-medical staff.	Numeric Rating Scale (NRS) on fear, Hamilton Anxiety Scale (HAMA), and Hamilton Depression Scale (HAMD).	<ul style="list-style-type: none"> • The medical staff possesses significant anxiety, fear, and depression than non-medical staff. • The HCPs working in emergency, ICU, and infectious disease, were twice more anxious and depressed than the non-clinical staff. 	11/12

(Continued)

Table 1 (Continued).

Authors/ Year of Citation/ Country	Purpose of Study	Research Design	Sample Size	Instruments	Key Findings	Critical Appraisal
Tan et al (2020) Singapore ²⁸	Analyze the psychological distress, stress, depression, and anxiety experienced by health care workers in Singapore during the pandemic.	Cross-sectional study	296 health care workers (physician, nurses) and 174 on medical" personnel (allied health professional, pharmacists, technicians, administrator, clerical staff, and maintenance workers.	Depression, Anxiety and Stress Scales (DASS-21) and the Impact of Events Scale-Revised (IESR) instrument.	The HCPs and Non-medical staff experience the most significant risk for psychological distress during the pandemic.	11/12
Kang et al (2020) China ²⁹	Assessed the mental health status of nursing staff and medical personnel to determine their psychological needs.	Quantitative study	183 doctors and 811 nurses staff working in Wuhan.	Mental health assessment using: 9 items (PHQ-9), the 7- item Generalized Anxiety Disorder (GAD-7), the 7-item Insomnia Severity Index (ISI), and the 22-item Impact of Event Scale-Revised (IESR) Questioners.	36.9% of doctors, and nurses had subthreshold mental disturbances, 22.4% and 6.2% had moderate and severe disturbances, respectively.	10/12
Simone and Gangnarella (2020) Italy ³⁰	Examine the risk of being infected with the pandemic both in healthcare workers and the general population in Italy.	Quantitative study	353 health care workers: 167 medical, doctors, nurses, paramedics, students in medicine as MED group and 186 participants in control group.	4-item Perceived Stress Scale (PSS) 6-item version of State-Trait Anxiety Inventory (STAI) Death anxiety scale of the Existential Concerns Questionnaire (ECQ) Marlowe & Crowne social desirability scale (M&C) Questionnaire about SARS CoV-2 and COVID-19-related experience and personal opinion.	HCWs reported increased risk perception, inadequate knowledge of the virus and higher levels of anxiety, compared to the overall population.	10/12

(Continued)

Table I (Continued).

Authors/ Year of Citation/ Country	Purpose of Study	Research Design	Sample Size	Instruments	Key Findings	Critical Appraisal
Zhu et al (2020) China ³¹	Examine the psychological impact of health workers at Tongji Hospital in Wuhan, China.	Cross-sectional survey	5062 participants (doctors, nurses, and clinical technicians) in all clinical departments of Tongji Hospital.	Online Questionnaire of perceptions of the threat of COVID-19 By using Revised Questionnaire (IES-R), Patient Health Questionnaire –9 (PHQ-9), and Generalized Anxiety Disorder 7 item (GAD-7).	29.8% of HCPs reported distress, depression, and anxiety symptoms.	10/12
Dai et al (2020) China ³²	Analyze the risk perception and psychological state of workers.	Cross-sectional survey	4357 health care workers in China.	General Health Questionnaire 6 questions \Designed to examine the participants' perception of risk to COVID-19.	HCWs were worried about the increase in the infection of their colleagues (72.5%), family members (63.9%), measures (52.3%), and Medical violence (48.5%). However, only 34.7% were worried about the risk of self-infection.	10/12
Huang et al (2020) ³³ China	Examine the present state of emotional and coping strategies of nurses and college students in Anhui Province.	Quantitative study	Population comprises 202 males and 602 females of which, 298 live in rural areas and 506 in urban. Furthermore, 374 are nurses with 430 in nursing school, 377 from cities with uncompromising epidemics, 17 from cities with moderate epidemic levels, 257 from prefecture-level cities.	Modified Brief COPE(Carver, 1997) and an emotional responses scale.	The HCWs faced psychological burdens and a lack of coping strategies.	10/12

(Continued)

Table 1 (Continued).

Authors/ Year of Citation/ Country	Purpose of Study	Research Design	Sample Size	Instruments	Key Findings	Critical Appraisal
Zerbini et al (2020) German ³⁴	Examine the psychosocial problems of physicians and nurses in accordance with their degree of contact with affected patients.	Cross-sectional study (Survey)	The survey consists of a total of 75 nurses and 35 physicians, working either in a special COVID-19 ward or in a regular ward.	The Patient Health Questionnaire, PHQ; and the Maslach Burnout Inventory, MBI.	<ul style="list-style-type: none"> • Nurses in ICU had higher stress, depression and exhaustion, stress levels compared to those of their colleagues in other wards. • Similar independent scores were reported by physicians that came in contact with COVID-19 patients. 	10/12
Lai et al (2020) China ³⁵	Investigate the magnitude of mental health outcomes as well as its factors among health care workers exposed to the virus in China.	Cross-sectional, survey-based, region-stratified study	1257 health care workers in 34 hospitals in China. 764 (60.8%) were nurses.	The Chinese versions of the 9-item Patient Health Questionnaire in addition to the 7-item both of Generalized Anxiety Disorder scale and Insomnia Severity Index as well as the 22-item Impact of Event Scale-Revised.	The nurses had more significant risk of symptoms, anxiety, depression, insomnia, anxiety, and distress than other healthcare providers.	11/12
Xiaoa et al (2020) China ³⁶	Analyze the trappings of social support associated with sleep quality and function of medical staff responsible for COVID-19 patients in Wuhan China from January to February 2020.	Cross-sectional study	180 medical staff (Doctors or nurses) in Wuhan.	Self-Rating Anxiety Scale, the General Self-Efficacy Scale, the Stanford Acute Stress Reaction Questionnaire, the Pittsburgh Sleep Quality Index, and the Social Support Rate Scale.	The various levels of social support were associated with sleep quality, self-efficacy and adverse degree of stress and anxiety.	10/12

(Continued)

Table 1 (Continued).

Authors/ Year of Citation/ Country	Purpose of Study	Research Design	Sample Size	Instruments	Key Findings	Critical Appraisal
Liang et al (2020) China ³⁷	Identify medical staff mental health Using SDS and SAS to identify personnel's mental health during the pandemic.	Cross-sectional study	A total of 59 doctors and nurses in addition to 180 medical staff from COVID-19 associated departments and in Guangdong and Wuhan.	Zung's self-rating depression scale (SDS), Zung's self-rating anxiety scale (SAS).	Several staff experienced clinical significant depressive symptoms.	10/12
Roy et al (2020) India ³⁸	Analyze the attitude, knowledge, anxiety and perceived experience of mental healthcare needed by the adult Indian population during the pandemic	Cross-sectional study	662 health care professionals were involved in this study.	An online survey was carried out using a semi-structured questionnaire.	<ul style="list-style-type: none"> The anxiety levels in this study is high because approximately more than 80% of the people were occupied with the thoughts of the pandemic. 72% stated the importance for adequate PPE. 	11/12
Li et al (2020) China ³⁹	Examining the psychological emphasis of sympathetic nurses caused by the pandemic.	A mobile phone app-based questionnaire survey	740 individuals (ie, 214 general public, 234 frontline nurses, and 292 non-frontline nurses) were enrolled in the study	The vicarious traumatization questionnaire was used in the study.	The sympathetic traumatization of front-line medical staff is less serious than their non-frontline counterpart.	11/12
Razu et al (2021) Bangladesh ⁴⁰	Analyze the difficulties faced by doctors and nurses during the pandemic.	A qualitative study	15 participants (doctors and nurses)	Telephone- in-depth interview.	<ul style="list-style-type: none"> Psychological Distress. Feeling powerless. Lack of Facilities (PPE). Heavy workload. Lack of incentives. Lack of Coordination. Lack of support. Lack of nurses and medical doctors. 	9/10

The results were integrated into themes with regard to their central issues and common meanings. This review identified four themes in the literature as shown in Figure 2 that addressed problems facing health-care workers when caring for COVID-19 patients.

The main themes include following points:

1. Mental health problems during COVID-19 outbreak.
2. Working stress.

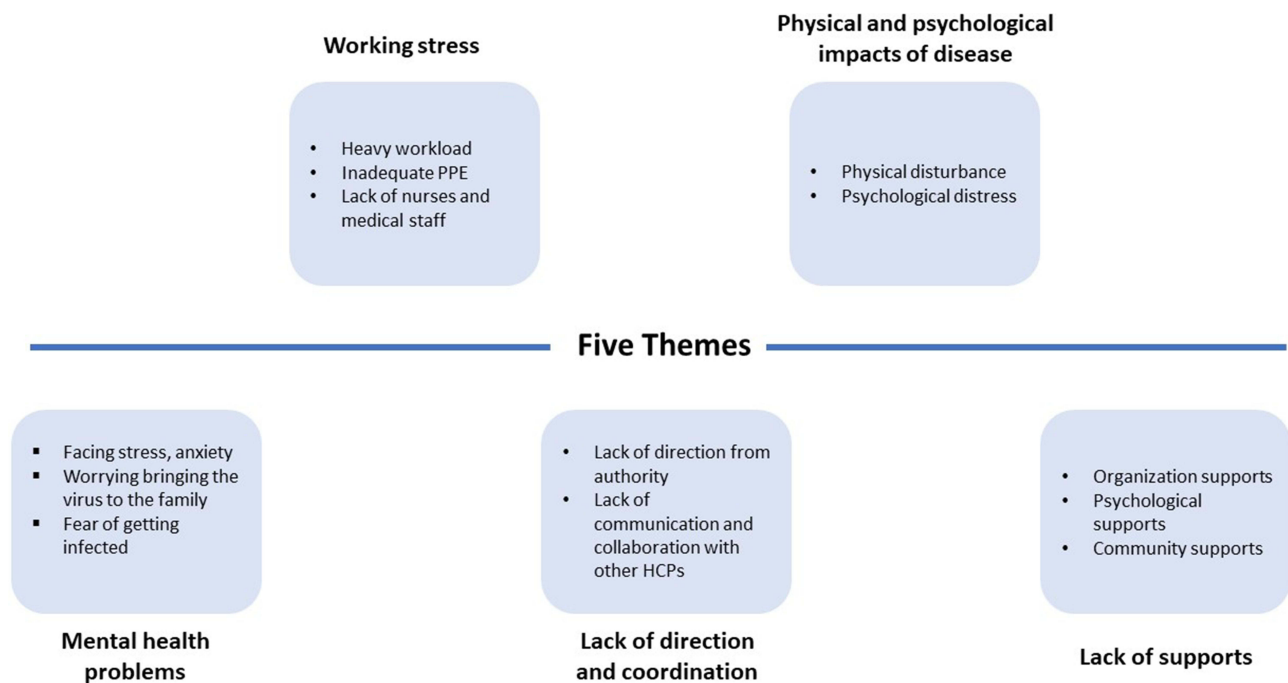


Figure 2 Themes.

3. Lack of direction and coordination.
4. Physical and psychological impacts of disease.
5. Lack of support.

Theme 1: Mental Health Problems During COVID-19

People are under increased psychological pressure, including health-care providers, facing the pandemic. This review found 16 studies stating that the frontline health-care providers suffered stress when caring for patients. The HCPs had psychological distress symptoms such as moderate to a high of anxiety, stress, worry, and depression, especially in the early pandemic stages.^{23,25–28,30–40} Moderate and severe anxiety was associated with directly treating and caring for patients and lacking adequate personal protective equipment. Furthermore, the HCPs expressed feelings of anxiety, vulnerability, pain, and peril to their life and family. After reading and understanding the articles under review, a thematic analysis was conducted to assess the mental problems of the HCPs during the outbreak. This study found that HCPs faced suffered stress when caring for patients.

Theme 2: Working Stress

As the frontline in caring for COVID-19 patients, the HCPs have vital roles in delivering optimal health-care services. Their physical and mental health and safety are vital for providing continuous and safe patient care. However, this study identified that the HCPs were under working stress. Furthermore, several studies^{23,24,38–40} showed that the HCPs experienced job stress due to heavy workloads, long working hours, under-staffing, and high risk of infection due to lack of personal protective equipment (PPE). This study has shown that a high mental workload is the main source of stress in HCPs when caring for COVID-19 patients.

Theme 3: Lack of Direction and Coordination

This study showed that many HCPs lacked coordination and collaboration from nurses and medical doctors, especially from other wards, specialties, and different provinces,^{23,24,40} potentially influencing working conditions. Working together, collaboration, coordination, and communication with a new multidisciplinary team were challenging.

However, this is necessary when caring for COVID-19 patients, meaning that the HCPs should work together effectively and efficiently.

Theme 4: Physical and Psychological Impact of the Disease

Ten studies of this review showed that the HCPs on the front line directly implicated in diagnosis, treatment, and caring for patients reported experiencing physical and psychological reactions.^{23,25,27,29,33,34,35,37,38,40} The HCPs experienced anxiety, depression, insomnia, and psychological distress.

Theme 5: Lack of Support

Several studies found that health-care workers faced difficulties when caring for COVID-19 patients. The HCPs experienced a lack of support from the health-care team, organization, family, and community.^{23,24,40} The shortage of PPE, lack of guidance, and psychological support from hospital authorities contribute to inadequate healthcare for the patients. Additionally, support from the health team was identified by Sun et al²³ as a protective factor.

Discussion

This integrative review thematically analyzed and synthesized 18 scholarly articles on problems the HCPs while caring for COVID-19 patients. The problems were classified as mental health complications, working stress, lack of direction, coordination, support, and physical and psychological impact of the disease.

The mental health problems might be related to the many workplace safety difficulties. These include the initially insufficient understanding of the virus, the lack of prevention and control measures, and the high risk of exposure to patients with COVID-19. Other difficulties were the shortage of PPE, the risk of infecting families, concerns regarding family care and responsibilities, and the exposure to critical life events, including the death of the infected. This shows that frontline health-care providers experienced psychological and mental health problems when caring for COVID-19 patients.

Preliminary studies promoted the adverse impact of the epidemic on people's mental health, such as the HCPs.⁴¹ Health-care providers are three times more prone to suffering post-traumatic stress disorder (PTSD) symptoms when located in high-risk areas, quarantined, or with infected families and friends.⁴² These conditions may impact the psychological wellness of health-care providers and require mitigation strategies to ensure their psychological wellness.

The COVID-19 pandemic has increased hospital admissions, impacting the HCPs' workload. Consequently, health-care providers have many tasks to fulfill when caring for COVID-19 patients. This may cause a high mental workload and psychological burden of the HCPs. High mental workload, long working hours, under-staffing of HCPs, and lack of PPE may cause working stress in nurses, negatively impacting their performance, behaviors, and quality of life. In line with this, previous studies found that many new infectious diseases of global health concern such as Ebola with no effective medications triggered working stress in health-care providers. Furthermore, nurses have high workloads in conducting a comprehensive assessment, monitoring, nursing interventions, responding to clinical deterioration, and providing care and psychological support. They experience challenges communicating and collaborating with other health-care professionals and preventing potential complications.^{43,44} Resilience and self-efficacy may mitigate the negative impact of working stress and improve the psychological and mental health of the HCPs.⁴⁴⁻⁴⁶ Additionally, adequate physical and psychological working conditions are needed to ensure the HCPs have optimal health.

During the COVID-19 outbreak, health-care providers worldwide have been confronted with an influx of new challenges. They must make quick and better decisions, such as diagnosing and isolating patients suspected to be infected and shutting downwards. This is because of limited resources, especially in developing countries. The pressure of carrying out activities in a timely and successful manner, by isolating and treating patients is overwhelming.

This study showed that the HCPs were more stressed when caring for uncooperative COVID-19 patients not adherent to safety instructions. The HCPs feel powerless when unable to provide good care due to limited hospital beds and resources.¹² Moreover, using PPE for long made the HCPs face breathing difficulties and limited their access to toilets and water, resulting in physical and mental distress and fatigue. The demand for health-care services for COVID-19 patients may increase workforce shortages, psychological distress, and working stress on health-care providers.

Consequently, these factors correlate with physical, mental, and social problems impacting HCPs' work productivity and quality.

Stress and its associated feelings among the frontlines of the HCPs are normal, but it should not impact their ability to provide good care. The HCPs should manage their mental, psychosocial, and physical health during this pandemic. Therefore, they should use positive coping strategies such as ensuring adequate rest, eating healthy food during work, and keeping in contact with family and colleagues. The pandemic implies the necessity to measure and protect the psychological well-being of health-care providers by accepting that stress, fear, or anxiety are normal. However, it is important to ensure quick and easy access to additional support services for those in need.

The hospital organization should ensure the psychosocial well-being of health-care providers during the pandemic. Organizations should provide HCPs with up-to-date information on the protection measures against the pandemic's infection and transmission. Moreover, there is a need for efficient interventions regarding the immediate psychological impact on the HCPs and their work responsibility. This includes convenient and inexpensive e-Health strategies such as telemedicine and telenursing.^{47–49} Additionally, the organization should provide sick leave to support self-isolation for infected health-care providers. This study showed the importance of family and friends' support for the HCPs during the COVID-19 pandemic, especially when stigmatized by the community.

Conclusion

This study indicates that frontline health-care providers experience psychological problems when caring for COVID-19 patients. Many HCPs faced psychological distress and working stress that impacted their physical and mental health and social life. These include fatigue, occupational burnout, anxiety, depression, and other mental health problems impacting work productivity and efficiency. Therefore, it is important to assess and minimize the psychological burden on the frontline health-care providers against the COVID-19. This is needed to protect the psychosocial well-being of health-care providers, including accepting that anxiety and stress are normal during this pandemic. The psychological problems and mental health challenges warrant more attention and support from policymakers, families, and the community. Therefore, future organizational and national strategies and interventions should improve frontline HCPs' mental health and well-being during the pandemic. This would be achieved by building self-efficacy and resilience, providing adequate social support and PPE facilities, and ensuring that HCPs work voluntarily.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation. All authors gave final approval of the version to be published, have agreed on the journal to which the article has been submitted, and agreed to be accountable for all aspects of the work.

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Disclosure

The authors declare no conflicts of interest in this work.

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