

Explaining the Experiences of Health Care Providers During the COVID-19 Pandemic: A Qualitative Study

Faeze Kobrai-Abkenar¹, Parand Pourghane^{1*}, Fatemeh Jafarzadeh-Kenarsari²

¹Inflammatory Lung Diseases Research Center, Department of Nursing, Zeynab (P.B.U.H) School of Nursing and Midwifery, Guilan University of Medical Sciences, Rasht, Iran

²Inflammatory Lung Diseases Research Center, Department of Midwifery, Shahid Beheshti School of Nursing and Midwifery, Guilan University of Medical Sciences, Rasht, Iran

Abstract

Background: Healthcare providers in different countries have different experiences during epidemic conditions based on their nursing resources and healthcare systems and the cultural norms of the community. The present study aimed to explore the experiences of healthcare providers during the COVID-19 pandemic.

Methods: This qualitative study was conducted on 36 medical personnel from eastern Guilan in the north of Iran. The participants were selected via purposive sampling. The data were collected through semi-structured interviews. The interviews continued until data saturation. Data analysis was performed using conventional content analysis, simultaneous with data collection.

Results: Data analysis revealed three main categories and 10 subcategories: peaceful coexistence (scientific-professional development, enhanced emotional proximity, and resilience in critical situations), the outburst of despair (exhaustion in clinical settings, annoying obsessions, ambivalent decision making, and excessive fear), and in the shadow of sorrow (the shadow of depression, painful public rejection, and in financial distress).

Conclusion: An analysis of the participants' experiences during the COVID-19 pandemic revealed three main themes: peaceful coexistence, the outburst of despair, and in the shadow of sorrow. Paying attention to the physical, psycho-social, emotional, and financial challenges and needs of healthcare providers, especially during the COVID-19 pandemic, is an undeniable necessity and requires the full attention and support of the authorities and the community.

Keywords: Healthcare providers, Pandemic, COVID-19, Qualitative research

Citation: Kobrai-Abkenar F, Pourghane P, Jafarzadeh-Kenarsari F. Explaining the experiences of health care providers during the COVID-19 pandemic: a qualitative study. *J Qual Res Health Sci.* 2023;12(3):166–173. doi:10.34172/jqr.2023.24

Received: April 21, 2022, **Accepted:** April 3, 2023, **ePublished:** September 30, 2023

Introduction

In December 2019, a new viral disease from the coronavirus family broke out in the city of Wuhan, the capital of Hubei Province in China, and soon turned into a global concern (1). On February 11, 2020, The World Health Organization (WHO) named this new coronavirus “COVID-19” (2) and declared a pandemic on March 11, 2020 (3).

Coronaviruses are a large family of viruses and have been the cause of dangerous cases of pneumonia such as acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) in 2003 and 2012, respectively. COVID-19 is a type of coronavirus that has never been found in the human body before. Patients with COVID-19 usually show symptoms such as fever, cough, shortness of breath, and difficulty breathing. In more severe cases, this disease can lead to pneumonia, severe acute respiratory failure, kidney failure, and even death. There is still no specific treatment for COVID-19. COVID-19 patients are mainly treated symptomatically to prevent disease complications (4).

The prevalence of COVID-19 infection increased rapidly in a short period, and by November 20, 2022, 634 million confirmed cases of COVID-19 and 6.6 million deaths were reported worldwide (5). In general, the outbreak of infectious diseases is considered one of the definite threats facing society, leading to a public health crisis. The sudden outbreak and rapid spread of infectious diseases necessitate paying attention to the capacity of the healthcare system to respond to epidemics. The preparation for managing the outbreak of infectious diseases involves healthcare providers' skills, abilities, and knowledge in providing healthcare and treatment services (6). Furthermore, the pressure on healthcare providers continues to increase. This pressure presents itself in two forms: The excessive burden caused by the disease on the limited capacity of the health system and the negative effects on the health of healthcare providers, including the risk of infection (7).

Accordingly, in a special declaration, WHO highlighted the rights of healthcare service providers, including providing the necessary mechanisms for training and



improving the knowledge and skills of healthcare providers, access to assessment and diagnostic tools, providing a safe workplace, rehabilitation and treatment after illnesses caused by occupational exposure, access to mental health resources, and time off from work during the COVID-19 outbreak (8). However, it is not only physical risks that threaten these valuable resources; healthcare providers are also exposed to psychological risks for short-term and even long-term periods when providing primary healthcare during an outbreak. Working in a high-risk environment, adhering to quarantine protocols, and high work burden aggravate the psychological consequences for healthcare providers. However, access to personal protective equipment (PPE) and providing specialized training to improve healthcare providers' safety can reduce COVID-19-related consequences (9).

Healthcare providers in different countries have different experiences in the epidemic situation based on the available nursing resources, healthcare system, and cultural norms of the community (10). However, some of the challenges faced by medical staff in different countries during epidemic conditions are physical and mental exhaustion, the difficulty of triage decisions, the pain of losing patients and colleagues, exposure to occupational hazards, the risk of contracting an infection, the anxiety caused by the transmission of this infection to one's family members, long working hours, burnout, stigma and notoriety caused by illness, and physical and mental violence (7,11). Hence, it is essential to pay attention to the challenges and physical needs of healthcare providers and provide psychological support to them. These needs typically include personnel training and learning, mental healthcare, physical condition monitoring, and PPE management (12).

A study during the outbreak of MERS in Saudi Arabia confirmed the lower levels of knowledge of nurses, doctors, and other members of the medical staff about newly emerging infectious diseases. Self-reported infection control methods were also below the desired level. The authors proposed providing educational programs on the use of PPE, isolation, and infection control as solutions to this problem (13). The COVID-19 epidemic is very similar to SARS, but it is more contagious and more resistant than SARS. Thus, it has created great challenges for healthcare providers. A study by Chen et al on medical staff during the COVID-19 epidemic showed that the expansion of social support is an effective tool for addressing mental and psychological disorders such as anxiety, depression, and insomnia in medical staff (14). In another qualitative study in Sierra Leone, adherence to religion, the feeling of service to one's country and community, peer and family support, and provision of social media support to help healthcare providers were some of the effective factors in the adaptation of healthcare providers to the Ebola epidemic (15). Kang et al. examined the experience

of South Korean nurses during the MERS epidemic and found unclear and frequently changing instructions to be one of the main reasons for confusion (16).

Given that the COVID-19 pandemic was a new experience for health systems around the world, there was a need to investigate the different effects of this emerging phenomenon in different populations. Furthermore, healthcare service providers who are at the forefront of the fight against the disease are facing various challenges in the workplace, family, and community. However, detailed and documented information about the physical, psychological, economic, and social needs of the healthcare providers affected by the COVID-19 epidemic is not available. These problems have led to some challenges in implementing targeted interventions in this crisis. Thus, using the content analysis approach, this study aimed to explore the experiences of healthcare providers during the COVID-19 epidemic. Qualitative research helps researchers to find answers to questions about human interpretations and perceptions and provides the best way to describe people's life experiences (16). Furthermore, content analysis helps us gain new knowledge and insight, a picture of reality, and an action guide through systematic classification (17).

Materials and Methods

This qualitative study aimed to explore the experiences of healthcare providers during the COVID-19 epidemic in 2020 using content analysis. The research population consisted of healthcare providers working in hospitals (Shahid Ansari hospital in Rudсар, Hosseinpour hospital in Langrod, Pirouz hospital in Lahijan, and Kowsar hospital in Astaneh) and health centers in eastern Guilan, located in the north of Iran. The study started with purposive sampling and continued with theoretical sampling. The interviews continued until data saturation was achieved, i.e. when no new information was obtained with additional interviews.

The time and location of the interview were chosen based on the participants' convenience. Thus, the interviews were conducted in staff rooms in hospitals and health centers or outside clinical settings. At the request of some participants, the interviews were conducted through apps such as WhatsApp. After obtaining permission from the Ethics Committee of Guilan University of Medical Sciences with the code IR.GUMS.REC.1399.158, all healthcare providers, including physicians, nurses, midwives, paramedics, nursing assistants, operating room technicians, anesthesiologists in hospitals, experts, midwives, and nurses working in health centers who met the inclusion criteria were selected as the participants. Some instructions were provided to the participants about the objectives of the study, the reason for recording their statements during the interviews, and the research procedure. Written consent was also obtained from all

participants. All people who had worked for at least one year in clinical settings during the COVID-19 epidemic and were willing to share their experiences and needs were included in the study. The exclusion criterion was the participant's unwillingness to continue participating in the study and share their experiences. The participants were reminded that their participation in the study was voluntary, they could withdraw at any stage of the study, and if they wished, the results of the study would be made available to them.

The data were collected through semi-structured individual interviews and sometimes if needed, group interviews while observing social distancing protocols. The interviews were conducted with open-ended questions. First, the researcher introduced herself and provided a brief description of the objectives of the study. Examples of the interview questions were, "Can you describe your experiences during the COVID-19 epidemic?" or "Can you talk about your needs during the epidemic?" Probing questions were used to elicit more details and enrich the data provided by the participants. Each interview lasted 45 to 60 minutes. A total of 36 interviews were conducted with 36 participants from August 2020 to January 2021 (Table 1).

The data were analyzed simultaneously with data collection. Data analysis was performed following the steps proposed by Lundman and Graneheim: The researchers transcribed the content of the interviews and read the transcripts several times to gain an understanding of the phenomenon in question. Each interview was considered a unit of analysis. Then, words, sentences, or paragraphs were considered meaning units, which are groups of words and sentences that are related to each other in terms of content. These units were summarized and grouped according to their content. Then, the meaning units were conceptualized as a set of codes. Afterward, the codes were compared with each other based on their similarities and differences and were merged into more abstract categories with specific labels. In the end, the categories were compared to each other and the underlying themes were identified and extracted (18).

The rigor of the findings was checked using Guba and Lincoln's four criteria, including dependability, transferability, credibility, and confirmability (17). The text of the interviews and the extracted codes and categories were reviewed by subject-matter experts and were revised based on their feedback. Prolonged engagement with the phenomenon in question and the data ensured the dependability of the findings. Besides, the extracted subcategories were reviewed and revised by some experts in qualitative research. The data collection and analysis procedures were recorded in detail so that others could assess the research procedure and the dependability of the findings. Moreover, the transferability of the findings was

Table 1. The participants' demographic characteristics

Participant No.	Age	Gender	Academic degree & Designation	Years in service
1	40	Female	Bachelor of nursing in the emergency department	12
2	52	Male	Infectious disease specialist	15
3	38	Male	Operating room technician	11
4	26	Female	Bachelor of nursing in the COVID-19 ward	2
5	32	Male	Bachelor of nursing in the COVID-19 ward	5
6	36	Male	Master of nursing in the emergency department	10
7	45	Female	Bachelor of nursing in the critical care unit (CCU)	18
8	48	Female	Operating room technician	20
9	32	Female	Physician	5
10	30	Male	Anesthesia technician	5
11	44	Male	Emergency medicine specialist	7
12	39	Male	Bachelor of nursing in the intensive care unit (ICU)	12
13	35	Female	Internist	3
14	36	Female	Operating room technician	8
15	53	Female	Master of nursing in the general surgical unit	22
16	56	Female	Anesthesiologist	23
17	26	Female	Master of midwifery	2
18	43	Female	Anesthesia technician	15
19	29	Male	Physician	4
20	45	Female	Bachelor of nursing in the emergency department	16
21	36	Female	Bachelor of nursing in the internal medicine ward	9
22	35	Female	General Surgeon	3
23	41	Female	Bachelor of Midwifery	17
24	35	Female	Bachelor of Midwifery	6
25	28	Female	Bachelor of Midwifery	3
26	35	Female	Master of nursing in the emergency department	7
27	38	Female	Bachelor of nursing in the pediatrics department	10
28	29	Male	Physician	2
29	36	Female	Bachelor of nursing in the dialysis department	8
30	45	Female	Bachelor of nursing in the dialysis department	16
31	35	Male	Anesthesiologist	3
32	26	Male	Bachelor of nursing in the general surgical unit	3
33	29	Female	Bachelor of nursing in the internal medicine ward	4
34	54	Male	Internist	20
35	36	Female	Master of nursing in the internal medicine ward	8
36	42	Female	Master of nursing in the ICU	16

assessed and confirmed by two people who had similar experiences to the participants.

Results

The participants in this study were 36 physicians, nurses, midwives, paramedics, nursing assistants, operating room technicians, hospital anesthesiologists, experts, midwives, and nurses who had experiences of clinical services during the COVID-19 epidemic while working in healthcare centers.

The data in this qualitative study revealed that healthcare providers were exposed to multiple challenges and stressors at the individual, family, and community levels during the COVID-19 pandemic. At the individual level, they became desperate due to exhaustion in clinical settings, annoying obsessions, ambivalent decision-making, and being in the throes of fear. Moreover, the familial and social challenges reported by the participants included sadness, depression caused by being away from the family, financial distress, and public rejection. To increase adaptation and harmony with the COVID-19 situation, the healthcare providers started a peaceful coexistence with the conditions. This type of symbiosis was manifested in their efforts for scientific-professional development, emotional proximity with grateful and benevolent people, and recourse to spirituality and

religion to increase their resilience in critical situations (Table 2).

Peaceful coexistence

During the COVID-19 pandemic, the participants inclined to scientific-professional development, more emotional proximity with family and people, and resilience in critical situations.

Many participants highlighted the need to obtain correct and up-to-date information during the COVID-19 epidemic. One of the nurses stated, "Every day we tried to get the latest information and news about the epidemic, to know the latest symptoms of the disease released in the news and other information channels so that we could take better care of ourselves and inform people" (Participant #2). The majority of the participants reported higher levels of professional responsibility during the pandemic. A physician stated, "Our professional responsibility requires us to take care of other people in all circumstances, as if COVID-19 has increased our sense of responsibility" (Participant #9).

The healthcare providers stated they got emotionally closer to their family members and other people. A midwife at the health center reported, "The COVID-19 epidemic and its unpleasant experiences brought the whole family closer together as if we had been separated for a long

Table 2. The categories and subcategories extracted from the experiences of healthcare providers

Categories	Subcategories	Codes	Meaning units
Peaceful coexistence	Scientific-professional development	Continuous knowledge acquisition Professional Responsibility	Every day we tried to get the latest epidemic news and information Our professional responsibility requires that we look out for other people in all circumstances
	Enhanced emotional proximity	Feeling closeness to family members Emotional proximity to people	The epidemic and its unpleasant experiences brought the whole family together. People helped a lot with equipment at the time we had a severe shortage of such equipment, and we heard that people called us angels.
	Resilience in critical situations	Constant praying and supplication to God Relying on spirituality	By taking refuge in God and spirituality and praying to God, our endurance increased and we learned how to survive in critical situations.
The outburst of despair	Exhaustion in clinical settings	High admission rates Many working shifts High resignation and dropout Inadequate interdepartmental cooperation Physical/psychological exhaustion	The number of our work shifts had increased There were a lot of emergency visits. Many specialists closed their offices and people only went to hospitals. I felt that my whole body was exhausted.
		Getting tired of frequent hand washing Extreme compliance with health standards	I kept washing my throat and hands several times at home with alcohol. I was tired of this repetitive procedure. Frequent hand washing has become an obsession and I was annoying my whole family.
	Ambivalent decision making	Quitting the job or continuing services Changing one's job	I was fed up with intensive work and high anxiety. Every day I was in a dilemma whether to continue or leave my job.
	Excessive fear	Fear of transmitting the disease to the family Imminent death Unknown work future Poor management	I may be a carrier and pass this disease on to my husband and children. The management of COVID-19 was not satisfactory to us nurses. We had no motivation to keep working.
In the shadow of sorrow	In a shadow of depression	I miss my family Repetitive life	I haven't seen my parents for about a month, and I miss them a lot. Repetitive life has become very boring and difficult.
	Painful public rejection	Fear of disease transmission by healthcare providers Public rejection	People treat us differently. Many people prefer to stay away from us.
	In financial distress	Economic problems Lack of PPE Low salary and compensation	The economic situation is getting worse day by day. We receive inadequate equipment. We have to buy the equipment ourselves at higher prices.

time” (Participant #8). A nurse stated, “People helped a lot with equipment at the time we had a severe shortage of such equipment, and we heard that people called us angels; their empathy had a healing effect on us” (Participant #28). The participants also reported that the COVID-19 epidemic improved their resilience in critical conditions. An operating room technician reported, “Taking refuge in God and spirituality and saying prayers induced a higher level of resilience, and we learned how to endure in critical situations” (Participant #8).

The outburst of despair

Almost all participants reported their burnout in clinical settings and their physical/psychological exhaustion. They stated that the large number of patients admitted every day, working in consecutive shifts in different departments due to the resignation of a large number of medical staff, and non-employment of new staff were the causes of their burnout.

An anesthesiologist stated, “We have to work for a large number of shifts in non-specialized departments to help the personnel of the departments, and I felt exhausted in my whole body, and unfortunately, some people’s non-compliance with the health standards increased our exhaustion” (Participant #13). A physician stated, “There was a great number of emergency visits. Unfortunately, many specialists had closed their offices and patients had to visit hospitals” (Participant #8). A nurse stated, “Almost every day, a large number of pregnant and elderly women visited hospitals, and in critical situations, we were always wearing shields and other equipment, and I always thought that my eyes had become weak due to the excessive use of shields” (Participant #13).

The participants reported that they were suffering from annoying obsessions during the COVID-19 pandemic. A health expert stated, “Frequent hand washing has become an obsession, and my behavior had become annoying for the whole family”

” (Participant #13). An operating room technician reported, “I always thought I had the disease. At work, I didn’t eat anything, I constantly washed my throat, and at home, I rubbed my hands with alcohol pads several times every hour, and I was tired of these things” (Participant #13).

The healthcare providers reported that they were ambivalent when deciding whether to continue or leave their service or change their job. A nurse stated, “I was fed up with intensive work and high anxiety. Every day I faced the dilemma whether to continue or to leave my job, because every day when I went to work, I heard that one of my colleagues had quit their job and we had a high work burden” (Participant #23). A midwife stated, “Some of our colleagues died in other cities and I was finishing my compulsory services under the human resource plan. I always thought that I would change my job after finishing

the plan and kiss my degree of education goodbye” (Participant #18).

The participants stated that they were living in fear. They were afraid of transmitting the disease to their family, the fear of impending death due to observing the high mortality of their colleagues, unknown work future, mismanagement, and the fear of contracting the disease by using inefficient equipment. A nurse said, “I sometimes didn’t go home for 10 days, because I have two small children and I was afraid of the possibility of transmitting the disease to my husband and children. Anyway, I am a mother and I can’t stay away from my children, so I used to go home with great fear and anxiety” (Participant #6). A nurse stated, “There was mismanagement during the COVID-19 outbreak. We did not have auxiliary staff, and despite working multiple shifts, the rewarding process was drastically different in different hospitals, and we had no motivation for our future work” (Participant #19).

In the shadow of sorrow

The participants reported that they experienced problems such as depression, public rejection due to fear of disease transmission, and financial problems. The participants reported that they missed their parents, children, and spouses because they avoided visiting their family members due to fear of transmitting the disease. An anesthesiologist stated, “I am the only child in the family and I have a strong dependence on my father and mother; I have not seen them for about a month, and I miss them very much” (Participant #20). An operating room technician stated, “Repetitive life has become very boring and difficult. We are either at the hospital or home, we have not had any fun and entertainment for a long time” (Participant #33).

Some participants complained about the way people treated them. A midwife stated, “The way people treat us on the street has changed, and many people avoid us when they see us, and sometimes I even noticed them looking at us with fear as if we are all sick and can transmit the disease” (Participant #35). A nurse stated, “Unfortunately, sometimes the way people treat us adversely affects our mood. This happened to me twice when I was in a taxi on my way back from the hospital. The taxi driver noticed that I was a nurse and he tried to drop me off sooner and took the fare from me with fear. Another day, a woman was keeping her distance from me in the back seat. She got off a minute later while her destination was somewhere else” (Participant #1).

Almost all the participants complained about their low income and financial problems during the COVID-19 outbreak. Their concerns were the low salary received, the lack of PPE, and the need to purchase expensive equipment at their own expense in the economic crisis. A nurse stated, “The economic situation is getting worse day by day. Salaries are fixed and the high cost of personal

protective equipment is annoying" (Participant #3). Another nurse reported, *"For some time, they [the hospital officials] don't give us adequate equipment and at times they only give us only one mask for a whole day. Since we cannot wear only one mask in such a contaminated environment, we have to buy the equipment at higher prices ourselves for the whole shift"* (Participant #24). An anesthesiologist stated, *"Due to the rising prices of all equipment, we cannot make ends meet and it seems that we are drowning in the swamp of high prices every day"* (Participant #4).

Discussion

The present study examined the experiences of healthcare providers during the COVID-19 pandemic. The results indicated that healthcare providers experienced high levels of stress due to despair and sorrow. They suggested that peaceful coexistence was considered a way out of these conditions. Peaceful coexistence during the COVID-19 pandemic involved concepts such as scientific-professional development, enhanced emotional proximity, and resilience in critical situations by relying on spirituality. It should be noted that not all mental health experiences or outcomes in pandemics are negative. One review study confirmed positive psychological effects on health workers, including a new understanding of the profession and its importance, feeling of appreciation from the public, courage, self-awareness, and communication with other healthcare providers (19). Ergun and Bozdog showed that increasing the resilience of healthcare providers during the COVID-19 pandemic requires strengthening their positive emotions, life satisfaction, and sleep quality. An increase in the level of negative emotions will decrease the mental resilience of a person (20). Besides, relying on spirituality and faith in God is a powerful mechanism to control stress, exhaustion, and despair in difficult situations (21).

The healthcare providers in this study reported higher levels of despair due to exhaustion in clinical settings, physical and psychological erosion, annoying obsessions, ambivalent decision-making, and excessive fear during COVID-19. During the SARS and MERS epidemics, frontline healthcare providers felt afraid, anxious, and hopeless and were at higher risk of mental health problems after the epidemic (22). Burnout is associated with a higher rate of anxiety disorders, depression, and suicide. It is aggravated during the pandemic and can cause people to leave the workplace in a situation where the presence of medical staff is urgently needed (23). Healthcare providers are a special group that needs a lot of social and psychological support (24). To ensure the effective performance of healthcare providers, their mental health should be monitored, and timely and constant interventions should be provided to support them. Psychological interventions, including

risk management and resilience training, are effective techniques for managing psychological effects in healthcare providers (25). During health crises of the magnitude of the COVID-19 pandemic, officials should emphasize the self-care of healthcare providers and arrange fair work schedules and shifts to protect them against heavy workloads (22).

The third theme revealed from the experiences and statements of the participants in this study was the darkness of sadness inherent in concepts such as the shadow of depression, public rejection due to the risk of disease transmission, and financial distress. A study conducted in Saudi Arabia reported the prevalence of depression and anxiety symptoms in healthcare providers with different severity rates from 51.4% to 55.2%. Almost half of them reported mild symptoms and the rest had moderate to severe symptoms (26). During the pandemic, more attention should be paid to the physical, mental, social, and financial needs of front line healthcare providers, and periodic and routine examinations should be performed at the workplace to assess their physical, mental, and social health status. Moreover, their needs should be addressed effectively to help them provide quality services to patients in clinical settings.

Moreover, for a nurse to perform her care duty effectively, it is necessary to ensure access to the necessary facilities and equipment to protect their health against illness (27). Alizadeh et al. reported that the lack of PPE such as masks, gloves, and gowns, as well as inefficient human resources, caused a lot of stress among healthcare providers, especially in the early days of the COVID-19 outbreak (21). Another factor that can affect the mental health of healthcare providers during pandemics is stigma. Stigma is associated with increased anxiety and symptoms of depression and post-traumatic stress disorder. The experience of healthcare providers in Canada during the SARS epidemic also indicated that they felt a lot of stigma and avoided revealing their professional identity. The authors also showed that if healthcare providers are supported by employers and the community, their increased psychological distress can be moderated (19). The social support of frontline healthcare providers fighting against COVID-19 by the public, media, and managers should not decrease during the pandemic but should increase in parallel with the increase of exhaustion and fatigue of the healthcare providers (21).

The findings of qualitative studies are not generalizable by nature. Thus, more similar studies and even quantitative studies need to be conducted in other settings with more participants.

Conclusion

The present study showed that healthcare providers experienced much psychological, physical, and social stress during the COVID-19 pandemic. The various stressors created an outburst of frustration in them and affected their mental and physical health. Moreover,

the darkness of grief gripped healthcare providers and made them socially isolated. In the present study, the most effective way out of the challenges as reported by healthcare providers was peaceful coexistence by improving their specialized skills and knowledge, increasing public awareness to attract the support of religious groups and benefactors, and also asking the officials to have a realistic view of the situation. As a result, we can expect less frequent obsessive behaviors, more resilience, adequate psychological and physical support for healthcare providers, and a safe, high-quality, and client-oriented care and treatment environment.

Acknowledgments

The researchers would like to express their gratitude to the Vice Chancellor for Research and Technology and the Research Center for Inflammatory Lung Diseases of Guilan University of Medical Sciences as well as the participants for their cooperation.

Authors' Contribution

Conceptualization: Faeze Kobrai-Abkenar, Parand Pourghane, Fatemeh Jafarzadeh-Kenarsari.

Data curation: Faeze Kobrai-Abkenar, Parand Pourghane.

Formal analysis: Faeze Kobrai-Abkenar, Parand Pourghane, Fatemeh Jafarzadeh-Kenarsari.

Funding acquisition: Faeze Kobrai-Abkenar.

Investigation: Faeze Kobrai-Abkenar, Parand Pourghane, Fatemeh Jafarzadeh-Kenarsari.

Methodology: Faeze Kobrai-Abkenar, Parand Pourghane, Fatemeh Jafarzadeh-Kenarsari.

Project administration: Parand Pourghane.

Resources: Faeze Kobrai-Abkenar, Parand Pourghane, Fatemeh Jafarzadeh-Kenarsari.

Supervision: Parand Pourghane.

Validation: Faeze Kobrai-Abkenar, Parand Pourghane, Fatemeh Jafarzadeh-Kenarsari.

Visualization: Faeze Kobrai-Abkenar, Parand Pourghane, Fatemeh Jafarzadeh-Kenarsari.

Writing—original draft: Faeze Kobrai-Abkenar, Parand Pourghane, Fatemeh Jafarzadeh-Kenarsari.

Writing—review & editing: Parand Pourghane.

Competing Interests

The authors certify that there was no conflict of interest in the present research process.

Ethical Approval

This study was conducted as part of a research project approved by the Vice Chancellor for Research and Technology and the Ethics Committee of Guilan University of Medical Sciences, Rasht, Iran, under code IR.GUMS. REC. 1399.158.

Funding

The Social Determinants of Health Research Center of Guilan University of Medical Sciences funded this study.

References

- Lu H, Nie P, Qian L. Do quarantine experiences and attitudes towards COVID-19 affect the distribution of mental health in China? A quantile regression analysis. *Appl Res Qual Life*. 2021;16(5):1925-42. doi: [10.1007/s11482-020-09851-0](https://doi.org/10.1007/s11482-020-09851-0).
- World Health Organization (WHO). Rolling Updates on Coronavirus Disease (COVID-19). Switzerland: WHO; 2020. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>.
- Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian J Psychiatr*. 2020;51:102083. doi: [10.1016/j.ajp.2020.102083](https://doi.org/10.1016/j.ajp.2020.102083).
- Xing J, Sun N, Xu J, Geng S, Li Y. Study of the mental health status of medical personnel dealing with new coronavirus pneumonia. *PLoS One*. 2020;15(5):e0233145. doi: [10.1371/journal.pone.0233145](https://doi.org/10.1371/journal.pone.0233145).
- World Health Organization (WHO). Weekly Epidemiological Update on COVID-19. 119th ed. WHO; 2022.
- Lam SKK, Kwong EWY, Hung MSY, Pang SMC, Chiang VCL. Nurses' preparedness for infectious disease outbreaks: a literature review and narrative synthesis of qualitative evidence. *J Clin Nurs*. 2018;27(7-8):e1244-e55. doi: [10.1111/jocn.14210](https://doi.org/10.1111/jocn.14210).
- Adams JG, Walls RM. Supporting the health care workforce during the COVID-19 global epidemic. *JAMA*. 2020;323(15):1439-40. doi: [10.1001/jama.2020.3972](https://doi.org/10.1001/jama.2020.3972).
- World Health Organization (WHO). Coronavirus Disease (COVID-19) Outbreak: Rights, Roles and Responsibilities of Health Workers, Including Key Considerations for Occupational Safety and Health: Interim Guidance. WHO; 2020. Available from: <https://apps.who.int/iris/handle/10665/331510>.
- Kang L, Ma S, Chen M, Yang J, Wang Y, Li R, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: a cross-sectional study. *Brain Behav Immun*. 2020;87:11-7. doi: [10.1016/j.bbi.2020.03.028](https://doi.org/10.1016/j.bbi.2020.03.028).
- Kim Y. Nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus in South Korea. *Am J Infect Control*. 2018;46(7):781-7. doi: [10.1016/j.ajic.2018.01.012](https://doi.org/10.1016/j.ajic.2018.01.012).
- Dai Y, Hu G, Xiong H, Qiu H, Yuan X. Psychological impact of the coronavirus disease 2019 (COVID-19) outbreak on healthcare providers in China. *medRxiv [Preprint]*. March 6, 2020. Available from: <https://www.medrxiv.org/content/10.1101/2020.03.03.20030874v1>.
- Wang H, Wang S, Yu K. COVID-19 infection epidemic: the medical management strategies in Heilongjiang province, China. *Crit Care*. 2020;24(1):107. doi: [10.1186/s13054-020-2832-8](https://doi.org/10.1186/s13054-020-2832-8).
- Alsahafi AJ, Cheng AC. Knowledge, Attitudes and behaviours of healthcare providers in the Kingdom of Saudi Arabia to MERS coronavirus and other emerging infectious diseases. *Int J Environ Res Public Health*. 2016;13(12):1214. doi: [10.3390/ijerph13121214](https://doi.org/10.3390/ijerph13121214).
- Chen S, Xia M, Wen W, Cui L, Yang W, Liu S, et al. Mental health status and coping strategy of medical workers in China during the COVID-19 outbreak. *medRxiv [Preprint]*. March 7, 2020. Available from: <https://www.medrxiv.org/content/10.1101/2020.02.23.20026872v2>.
- Raven J, Wurie H, Witter S. Health workers' experiences of coping with the Ebola epidemic in Sierra Leone's health system: a qualitative study. *BMC Health Serv Res*. 2018;18(1):251. doi: [10.1186/s12913-018-3072-3](https://doi.org/10.1186/s12913-018-3072-3).
- Kang HS, Son YD, Chae SM, Corte C. Working experiences of nurses during the Middle East respiratory syndrome outbreak. *Int J Nurs Pract*. 2018;24(5):e12664. doi: [10.1111/ijn.12664](https://doi.org/10.1111/ijn.12664).
- Speziale HS, Streubert HJ, Carpenter DR. Qualitative Research in Nursing: Advancing the Humanistic Imperative. Wolters Kluwer Health, Lippincott Williams & Wilkins; 2011.

18. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today*. 2004;24(2):105-12. doi: [10.1016/j.nedt.2003.10.001](https://doi.org/10.1016/j.nedt.2003.10.001).
19. Magill E, Siegel Z, Pike KM. The mental health of frontline health care providers during pandemics: a rapid review of the literature. *Psychiatr Serv*. 2020;71(12):1260-9. doi: [10.1176/appi.ps.202000274](https://doi.org/10.1176/appi.ps.202000274).
20. Bozdağ F, Ergün N. Psychological resilience of healthcare professionals during COVID-19 pandemic. *Psychol Rep*. 2021;124(6):2567-86. doi: [10.1177/0033294120965477](https://doi.org/10.1177/0033294120965477).
21. Alizadeh A, Khankeh HR, Barati M, Ahmadi Y, Hadian A, Azizi M. Psychological distress among Iranian health-care providers exposed to coronavirus disease 2019 (COVID-19): a qualitative study. *BMC Psychiatry*. 2020;20(1):494. doi: [10.1186/s12888-020-02889-2](https://doi.org/10.1186/s12888-020-02889-2).
22. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, Liu S, et al. The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *Lancet Glob Health*. 2020;8(6):e790-e8. doi: [10.1016/s2214-109x\(20\)30204-7](https://doi.org/10.1016/s2214-109x(20)30204-7).
23. Dzau VJ, Kirch D, Nasca T. Preventing a parallel pandemic - a national strategy to protect clinicians' well-being. *N Engl J Med*. 2020;383(6):513-5. doi: [10.1056/NEJMp2011027](https://doi.org/10.1056/NEJMp2011027).
24. Shamloo G, Mohammad Moradi A, Hosseini SB. Environmental factors affecting health-related quality of life: nurses' narrative analysis. *J Qual Res Health Sci*. 2020;8(4):37-48. doi: [10.22062/jqr.2020.90989](https://doi.org/10.22062/jqr.2020.90989).
25. Shahed-Haghghadam H, Fathi Ashtiani A, Rahnejat AM, Ahmadi Tahoor Soltani M, Taghva A, Ebrahimi MR, et al. Psychological consequences and interventions during the COVID-19 pandemic: narrative review. *J Mar Med*. 2020;2(1):1-11. doi: [10.30491/2.1.7](https://doi.org/10.30491/2.1.7). [Persian].
26. AlAteeq DA, Aljhani S, Althiyabi I, Majzoub S. Mental health among healthcare providers during coronavirus disease (COVID-19) outbreak in Saudi Arabia. *J Infect Public Health*. 2020;13(10):1432-7. doi: [10.1016/j.jiph.2020.08.013](https://doi.org/10.1016/j.jiph.2020.08.013).
27. Saffari M, Vahedian-Azimi A, Mahmoudi H. Nurses' experiences on self-protection when caring for COVID-19 patients. *J Mil Med*. 2020;22(6):570-9. doi: [10.30491/jmm.22.6.570](https://doi.org/10.30491/jmm.22.6.570). [Persian].

© 2023 The Author(s); Published by Kerman University of Medical Sciences. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.