

## The Experiences of Primary Healthcare Nurses During Covid-19 pandemic: Voices from Nursing Staff at King Fahad Specialist Hospital in Buraydah

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### Received:

26/12/2022

### Revised:

06/01/2023

### Accepted:

31/01/2023

### Published:

30/03/2023

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### Citation:

Al-Rasheedi, K. F., Al-Rasheedi, N. A., Al-Rasheedi, F. S., Al-Mansour, M. S., & Al-Harbi, M. A. (2023). The Experiences of Primary Healthcare Nurses During Covid-19 pandemic: Voices from Nursing Staff at King Fahad Specialist Hospital in Buraydah. *Journal of medical and pharmaceutical sciences*, 7(1), 39–50.

<https://doi.org/10.26389/AJSRP.G261222>

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**Abstract:** With the emergence of coronavirus disease (COVID-19), the world has witnessed unprecedented changes in healthcare provision. With the nurses being the most affected healthcare professionals during the pandemic, the current study aimed to examine the experiences of primary healthcare nurses during covid-19 pandemic at King Fahad Specialist Hospital in Buraydah city in the Kingdom of Saudi Arabia. The population of this research consists of all the nurses at King Fahad Specialist Hospital in Buraydah Saudi Arabia whose number is (128) nurses. The target sample included the whole research population using the complete census method. Using the questionnaire as the main data collection tool, the researchers distributed the questionnaire to the target sample and got only (106) complete responses. The duration of the study took about (1) month starting from 01 October 2022 until 02 November 2022. The findings of the study showed that the nurses experienced major employment changes during the pandemic such as extra work hours, the thought of resigning and moving to other clinical areas, and taking long vacations. Also, the findings showed that the nurses experienced major psychological problems such as anxiety, fatigue, and lack of communication, and support from their co-workers and superiors. It has also been reported that the lack of medical suppliers, lack of personal protective equipment, and the extra volume of infected patients served as major challenges experienced by the nurses during the pandemic. The researchers provided a set of recommendations that focused mainly on the importance of organizational intervention and supporting the nurses both psychologically and professionally with an extended focus on training and qualification for the nurses to deal with such crises.

**Keywords:** Primary Healthcare, Nurses, Covid-19 Pandemic, King Fahad Specialist Hospital in Buraydah, Saudi Arabia.

## تجارب ممرضات الرعاية الصحية الأولية في المراكز الصحية بالقصيم خلال جائحة كوفيد-19

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**المستخلص:** مع ظهور مرض فيروس كورونا (كوفيد-19)، شهد العالم تغيرات غير مسبوقة في توفير الرعاية الصحية. يعتبر الممرضين هم أكثر عناصر مجال الرعاية الصحية تضرراً خلال الوباء. ولذلك، تهدف الدراسة الحالية إلى دراسة تجارب ممرضي الرعاية الصحية الأولية خلال جائحة كوفيد-19 في مستشفى الملك فهد التخصصي في مدينة بريدة بالمملكة العربية السعودية. يتكون مجتمع هذا البحث من جميع الممرضين في مستشفى الملك فهد التخصصي بريدة بالمملكة العربية السعودية وعددهم (128) ممرضاً. شملت العينة المستهدفة مجتمع البحث بأكمله باستخدام طريقة الحصر الشامل. باستخدام الاستبيان كأداة رئيسية لجمع البيانات، وزع الباحثون الاستبيان على العينة المستهدفة وحصلوا على (106) استجابة صحيحة استغرقت مدة الدراسة حوالي (1) شهر بدءاً من 1 أكتوبر 2022 حتى 2 نوفمبر 2022. أظهرت نتائج الدراسة أن الممرضين مروا بتغيرات وظيفية كبيرة أثناء الوباء مثل ساعات العمل الإضافية، والتفكير في الاستقالة والانتقال إلى المجالات السريرية الأخرى، وأخذ إجازات طويلة. كما أظهرت النتائج أن الممرضين عانوا من مشاكل نفسية كبيرة مثل القلق والتعب وقلة التواصل والدعم من زملائهم ورؤسائهم في العمل. كما تبين أن نقص المستلزمات الطبية، ونقص معدات الحماية الشخصية، وزيادة عدد المرضى المصابين كانت هي أبرز التحديات التي واجهت الممرضين أثناء الوباء. قدم الباحثون مجموعة من التوصيات التي ركزت بشكل أساسي على أهمية التدخل التنظيمي ودعم الممرضين على الصعيد النفسي والمهني مع التركيز بشكل موسع على تدريب وتأهيل الممرضين للتعامل مع مثل هذه الأزمات.

**الكلمات المفتاحية:** الممرضات، جائحة كوفيد-19، مستشفى الملك فهد التخصصي في بريدة، المملكة العربية السعودية.

## 1. Introduction

The appearance of the new coronavirus disease (COVID-19) has caused severe concerns around the world, especially for primary healthcare services (Robles et al., 2020). Healthcare facilities have experienced difficult problems related to the accessibility to healthcare services, and job and mental problems experienced by Healthcare Workers (HCWs) (Zhu et al., 2020). Healthcare workers have experienced negative psychological problems such as stress, anxiety, fear of infection, and other mental health problems. Furthermore, the lack of Personal protective equipment (PPP), extra workload, big volume of infected cases, lack of medical supplies, and lack of drugs were major problems facing the primary healthcare centers in most regions (Greenberg et al., 2020; Cai et al., 2020; Saragih et al., 2021; Di Tella et al., 2020).

Global attention has been focused on public health responses to the pandemic and on the ability of acute care facilities to satisfy the demands of patients infected with COVID-19 (Zareei et al., 2022; Chor et al., 2021). This includes the effect on medical workers who are providing care for the seriously ill (Chung et al., 2005; Fernandez et al., 2020). Health professionals who serve in settings other than acute care have received less attention (World Health Organization, 2020). Internationally, there are some differences in the function of nurses working in Primary Healthcare (PHC). While nurses may play relatively independent roles in some nations, they may also be a part of multidisciplinary teams or work under the supervision of medical experts in other sections (Patel et al., 2008).

However, Primary Healthcare Centers (PHC) professionals play a crucial role in identifying new instances, keeping an eye on individuals who are at risk, and lowering indirect mortality linked to the disruption of social and medical services (Guixia & Hui, 2020). PHC professionals play a significant role in community outreach, handling the public's reaction, and treating the psychological effects of COVID-19 (Cotel et al., 2021; Cai et al., 2020).

Saudi Arabia has the most COVID-19 cases that have been documented among the Gulf nations, which could put a strain on the healthcare system and increase the danger of contamination. This factor is thought to play a significant role in Saudi Arabia's HCWs' work problems (Mohsin et al., 2021).

The Saudi Government implemented social distancing, put restrictions on social gatherings, and implemented a tiered lockdown on the movements of persons and groups in reaction to the spread of COVID-19 (Alanazi et al., 2021). Due to these activities, it was difficult to respond to the pandemic and maintain the continuity of PHC services to meet the population's ongoing health requirements (Alsulimani et al., 2021). As the number of in-person consultations dropped, the government started subsidizing telehealth services delivered by PHC specialists.

Little research on experiences of nurses during respiratory epidemics or pandemics has been published (Alsulimani et al., 2021; Moreno et al., 2020; Guixia & Hui, 2020; Grande et al., 2022). Most studies, according to a recent systematic review, focus on acute care nurses (Fernandez et al., 2020). To ensure that the right assistance is offered to promote workforce retention and high-quality clinical practice

at a time when community health needs are high, it is crucial to understand the experiences of PHC nurses. Accurate information about the present experiences of the PHC nursing workforce is essential for ensuring safe, reliable PHC nursing services throughout the current epidemic and guiding future planning. In order to learn more about their perspectives on the COVID-19 epidemic, a survey of PHC nurses was conducted. The findings offer decision-makers solid facts to support crucial decisions about employee protection, assistance, and sustainability today and in the future.

### **Statement of the Problem**

Healthcare and medical personnel are always the most crucial in treating patients during an outbreak of infectious diseases, and as a result, their health is at risk or they may even lose their lives. Additionally, nurses, who make up the majority of medical professionals, care for patients with COVID-19 disease directly at the front lines of the healthcare system (Zareei et al., 2022). They may experience psychological anguish and tiredness as a result of their long work hours and heavy workload, exposure to the virus, frequent and close contact with COVID-19-infected patients, stigmatization as a virus carrier, pressure from the media, and an increase in fatalities (Hendrickson et al., 2022; Cotel et al., 2021).

An earlier study in Saudi Arabia revealed that HCWs experienced job and physiological problems due to Covid-19 (Abolfotouh et al., 2020). Numerous research conducted in Saudi Arabia claimed that the Covid-19 pandemic has an adverse effect on nurses in particular (e.g., Alsulimani et al., 2021; Aljuffali et al., 2022; Alanazi et al., 2021). However, numerous studies from Saudi Arabia recommended interventions including coping mechanisms, hospital communication and support, and emotional intelligence training to lessen the possible influence of those worries on the performance of HCWs during pandemics (e.g., Alwaqdani et al., 2021; Temsah et al., 2020; Alenazi et al., 2020).

However, since the majority of studies used HCWs as the research population, relatively few studies focused on the analysis of Covid-19 experiences among Saudi PHC nurses and the prevalent problems that afflicted them during the Covid-19 pandemic. The direct patient contact that nurses have makes their work different from that of other medical professionals, which influences their work performance and satisfaction (Zareei et al., 2022; Alsulimani et al., 2021). Additionally, the impact of nursing issues varies based on the resources available, the support programs provided, and the workplace atmosphere in each healthcare setting (Chen et al., 2021; Chor et al., 2021). By assessing the amount of experience of nurses at King Fahad Specialist Hospital in Buraidah during COVID-19, this study addresses a gap in the literature.

### **Research Objectives**

This study aims to achieve the following objectives:

1. To identify the changes in employment experienced by PHC nurses at King Fahad Specialist Hospital in Buraydah during COVID-19 Pandemic.

2. To explore the psychological problems experienced by PHC nurses at King Fahad Specialist Hospital in Buraydah during COVID-19 Pandemic.
3. To introduce recommendations that enhance the well-being of the nurses at King Fahad Specialist Hospital in Buraydah during the COVID-19 Pandemic.

### **Research Significance**

This is the first study to specifically investigate Saudi PHC nurses' experiences during the COVID-19 pandemic has been made in this study. The findings show the pandemic's major effects on PHC nurses' employment, roles, and caseloads, as well as its possible detrimental effects on the quality of treatment provided. It also gives valuable insights into the status quo of organizational and clinical support, medical supplies, and quality of work environment provided to nurses in PHC settings. Thus, this study contributes to the literature by comprehending how COVID-19 affected the professional and psychological issues that Saudi nurses encountered during the pandemic. In order to create effective policy measures to protect the nurses' psychological well-being in the midst of the COVID-19 health crisis, it is essential to comprehend this impact. Coping mechanisms, emotional intelligence, hospital communication and support are all said to have positive effects on reducing the severity of problems experienced by nurses. The findings of this study are likely to confirm the requirement for developing nurse-specific support programs.

## **2. Methodology**

### **Research Method**

The descriptive-analytic method is used for this study. Gathering information that can be used to show a demonstration what happened is the first step in descriptive research, which also entails arranging, tabulating, depicting, and describing the data gathered (Crowder et al., 2017). Graphs and charts are commonplace to help illustrate the facts and provide context for the viewer. Descriptive statistics are useful for distilling meaning from enormous amounts of raw data that are inaccessible to the human mind. Research uses description as a tool to organize data into patterns that become apparent during analysis when in-depth, narrative descriptions of small numbers of instances are involved. These regularities facilitate mental processing of qualitative research findings and their significance.

Analytical research builds on descriptive research by probing for the reasons behind an event through the identification of underlying causal links (Robson, 1993). After a chain of causes and effects has been established, researchers turn their attention to the components that can be altered (the variables).

This study uses a descriptive analytic approach to describe and analyze the experiences of nurses working at King Fahad Specialist Hospital in Buraydah during COVID-19 Pandemic. In this case, the questions posed serve as the basis for the research strategy developed. The researcher had these thoughts after reading relevant articles and conducting interviews.

## Participants

The population of this research consists of all the nurses at King Fahad Specialist Hospital in Buraydah Saudi Arabia. The duration of the study took about (1) month starting from 01 October 2022 until 02 November 2022.

According to the statistics of King Fahad Specialist Hospital, the research population consists of approximately (128) nurses. The target sample included the whole research population using the complete census method. So, the sample size is (128) nurses. Those who responded to the data collection tool with valid responses are (106) nurses.

## Instrument

In this study, the questionnaire is the primary method of data collection. The study's questionnaire structure is informed by those of similar studies. The questionnaire items were written by the researcher after thorough consideration of the available empirical data. The researcher selected to use a questionnaire since it is conducive to collecting data from a sizable sample and can be completed conveniently by the participants regardless of where or when they are (Girko, 2018).

There are sections to this questionnaire. In the first section, participants were asked basic questions about themselves. The second component of the questionnaire discussed the employment changes PHC nurses faced during the Covid-19 pandemic and the psychological issues PHC nurses faced during the pandemic.

This survey makes use of a five-point Likert scale, from which respondents can select "strongly agree," "agree," "undecided," "disagree," or "strongly disagree." It was written in English since all the participants are good at the English language. Participants were given a questionnaire to fill out at their own leisure.

Research subjects were informed of the study's goals, and their consent to participate was confirmed. The participants were also assured that providing their comments would not have any negative consequences for them. Confidentiality of the information is also protected. In Addition, the researcher secured permission from the appropriate authorities including the ethics board to proceed with data collection.

## Validity & Reliability

The term "validity" is used to describe how well a study represents or evaluates the notion that the study is meant to quantify (Crowder et al., 2017). Validity refers to whether or not the study actually measured what the researchers claimed it would.

The researcher ensured the questionnaire's face validity by checking that it accurately assesses the variables of interest. Some judges with expertise in the topic have been given access to the questionnaire. The researcher has revised the questionnaire and reworded the items that need more clarity and relevance in light of the suggestions and remarks offered by the judges.

In scientific terms, reliability is defined as "the degree to which repeated applications of a given experimental, testing, or measuring process produce the same result" (Girko, 2018). Researchers would be unable to draw conclusive conclusions, formulate theories, or make claims about the generalizability of their research without the agreement of independent observers able to replicate research procedures or the use of research tools and procedures that yield consistent measurements.

Cronbach's Alpha coefficient was utilized to determine the level of reliability between questionnaire items in this study. Cronbach's Alpha scores for the survey are shown in Table (1).

**Table 1. Reliability Statistics**

No of Items	Cronbach's Alpha
25	0.865

Cronbach's Alpha for the entire questionnaire comes out to (0.865), which is rather high. As such, the questionnaire is trusted as a reliable instrument.

### Statistical Tools

Choosing the appropriate statistical methods requires considering both the data's characteristics and the method's relevance to the study's aims (Girko, 2018). Considering the study's research questions and theoretical framework, the researchers used the SPSS software for data analysis. The mean, percentage, standard deviation, and rank of the mean scores were the primary measures of statistical significance in this study.

### 3. Results & Discussion

In this section, the researchers report the study's findings and provide some commentary on those findings. Due to the prevalence of the questionnaire as the primary source of information gathered, this study's primary focus is on reporting the results from the questionnaire's various sections. Data on respondent demographics and data on the questionnaire statements are shown below. Following the presentation of the research findings, the results are discussed.

#### The Respondents' Demographics

Table 2 shows the findings related to the participants' demographics:

**Table 2. The Participants' Demographics**

Variable	Frequency	Percentage
<b>Gender</b>		
Male	62	58.5%
Female	44	41.5%
Total	106	100%
<b>Years of Experience</b>		
Less than 5 years	12	11.3%
From 5- 10 years	36	34%

Variable	Frequency	Percentage
From 11 – 15 years	20	18.8%
From 16 – 20 years	25	23.5%
More than 20 years	13	12.2%
<b>Total</b>	<b>106</b>	<b>100%</b>
<b>Education</b>		
Diploma	9	8.5%
Bachelor	70	66%
Master	21	19.8%
Doctoral	6	5.6%
<b>Total</b>	<b>106</b>	<b>100%</b>
<b>Job</b>		
Nursing Manager	24	22.6%
Nurses	82	77.4%
<b>Total</b>	<b>106</b>	<b>100%</b>

The above-mentioned table shows the p responses to the demographic data. Regarding the *gender* variable, the results showed that the female participants represent (58.5%) of the overall research participants, and the male participants represent (41.5%). Regarding the years of experience variable, those who are (less than 5 years) represent (11.3%), those who are (from 5- 10 years) represent (34%), those who are (from 11- 15 years) represent (18.8%), those who are (from 16- 20 years) represent (23.5%), and those who are (more than 20 years) represent (12.2%).

Regarding the *education* variable, those who hold *diploma* represent (8.5%) of the participants, those who hold *bachelor* represent (66%) of the participants, those who hold *master* represent (19.8%) of the participants, and those who hold *doctoral* represent (5.6%). With regard to *job* variables, the percentage of *nursing managers* is (22.6%) while the percentage of *nurses* is (77.4%).

### Responses to the Research Questions

Table 3 shows the responses to the questionnaire items that address the experiences of primary healthcare nurses during Covid-19 pandemic.

**Table 3 The Experiences of Primary Healthcare Nurses During Covid-19 pandemic**

S	Statements	Mean	Standard Deviation	Order
1	I had increased hours of employment per week	3.99	1.17	22
2	I asked to move to another clinical area	3.87	1.09	23
3	I thought of resignation	3.43	1.06	24
4	I thought of taking a long vacation	3.11	1.03	25
5	I felt very fatigue	4.77	1.96	13

S	Statements	Mean	Standard Deviation	Order
6	The overwhelming volume of Covid-19-infected patients placed me under a lot of pressure.	4.83	2.14	8
7	Because of a lack of means, I was really nervous	4.91	1.69	2
8	Not enough resources were made available	4.77	2.74	14
9	The prospect of a brighter future made me feel down	4.83	2.99	9
10	When I think of my patients, it makes me sad	4.82	2.87	10
11	To be honest, I wasn't all that interested in socializing	4.90	3.05	6
12	I felt in danger because of poor lines of communication with my coworkers and superiors	4.62	2.53	19
13	I lost my sense of being active	4.90	3.09	5
14	Issues with coworkers and superiors plagued me	4.91	2.17	3
15	Concentration was a problem for me	4.72	2.71	15
16	My work satisfaction level dropped	4.84	3.01	7
17	Dreams about my patients and my job gave me nightmares	4.63	2.56	18
18	In certain cases, I hoped to avoid interacting with patients	4.82	2.97	11
19	I was easily getting into a case of irritation	4.69	2.69	16
20	That something terrible would occur was what I had anticipated	4.90	1.13	4
21	There were a lot of things on my to-do list	4.62	2.13	20
22	I had feelings of ill-will and resentment	4.94	3.02	1
23	I engaged in self-dangerous or self-harmful actions	4.16	1.36	21
24	A lot of blunders may have been made if I hadn't been careful.	4.64	1.02	17
25	The requirements of the job are beyond my capabilities	4.79	1.85	12
Overall Mean		4.57		

Table 3 shows that the overall mean of the participants' responses to the experiences of primary healthcare nurses during Covid-19 pandemic is (4.57) which is a very high mean, indicating that the participants had important employment changes and psychological issues during the pandemic. The participants highly agreed with the statements of this part of the questionnaire with mean scores ranging from (4.94) to (3.11).

These results showed that the nurses' typical work status and mental health underwent significant alterations during the epidemic. It is demonstrated that the most common symptoms experienced by the participants are unpleasant feelings, a lack of hope, a lack of interest in social activities, and decreased activity levels. Participants also frequently reported feeling unsupported, distracted, and emotionally drained.

The results showed that many nurses considered leaving their job due to fears for their own safety. Concern about the dangers of working in acute care during pandemics has been noted before (Di



Tella et al., 2020; Fernandez et al., 2020). The instability of clinical practice, the lack of effective planning for a pandemic, the scarcity of available resources, and the risk of contracting an infectious disease all add to a general sense of insecurity (Gao et al., 2020). The high number of healthcare workers dying internationally owing to COVID-19 (De Tella et al., 2020) is likely to have heightened current worries, just as the deaths of colleagues have produced uncertainty and anxiety in earlier pandemics (Grande et al., 2022). The intervention to help nurses cope with these worries may lie in strategies that encourage the spread of consistent and reliable information.

These results are in line with those of other research, such as those by Chen et al. (2021) and Cotel et al. (2021), which found that nurses experienced significant job and mental health difficulties during the Covid-19 pandemic. Moreover, nurses working on the front lines of the COVID-19 pandemic are more prone to suffer from stress when they witness the physical agony, psychological suffering, and death of their patients (Guixia & Hui, 2020). Many nurses showed psychological effects, including emotional weariness and depersonalization (Alanazi, 2021). The results of this study indicated that a greater proportion of respondents experienced psychological problems as a result of the Pandemic.

This study's findings indicated that the lack of resources, lack of sufficient supporting programs, poor communication with colleagues and managers, the potential for making mistakes, and the sheer number of required tasks were the most significant psychological challenges faced by nurses during Covid-19. Both Alsulimani et al. (2021) and Grande et al. (2022) found that poor communication and inadequate organizational support were issues for nursing staff during the pandemic, lending credence to our findings. This conclusion agrees with that of Aljuffali et al (2022), who found that nurses felt burdened by their workload and anxious about the possibility of contracting an infectious disease.

Nurses' difficulties during the pandemic have been linked to factors like prolonged contact with COVID-19 patients, seeing the deaths of several patients, and the severity of symptoms experienced by close contacts infected with COVID-19. Also, the major significance of failed caregiving attempts in the development of psychological issues was demonstrated by the fact that stress, emotional tiredness, and exposure to patients' deaths all predicted the psychological problems experienced by the nurses. It was found that frontline nurses who had been exposed to patients' deaths were more likely to have experienced intrusive symptoms themselves (Grande et al., 2022).

Moreover, Zareei et al (2022) supported the idea that nurses' emotional perception and behavior can shift during the pandemic, resulting in symptoms like a preponderance of negative thoughts, difficulty focusing or remembering, loss of interest in activities, a sense of isolation, and an inability to feel happy.

Multiple studies have found that the ongoing COVID-19 epidemic is having a negative impact on nurses' emotional well-being (e.g., Alanazi et al., 2021; Cotel et al., 2021). Registered nurses who respond to pandemics or other epidemics often report experiencing a wide range of mental health problems. Stress, worry, and emotional anguish, as well as signs of depression, insomnia, and moral harm, are among these symptoms. Long-term mental health disorders including anxiety, sadness, PTSD, or suicide ideation may

develop from these first symptoms. Caregiving during the recent COVID-19 pandemic, which necessitated frequent screening for stress, anxiety, and depression among healthcare personnel, was highlighted as a need in several assessments.

The COVID-19 epidemic, a public health emergency, has had a major effect on the nurses' quality of life. Lack of personal protective devices, physical tiredness, an excessive workload, and worries about direct COVID-19 exposure in the workplace have all been linked to nurses experiencing psychological distress (Chor et al., 2021). The latter is associated with the worry of contracting an illness or passing it on to loved ones. Caring for patients who had experienced both physical and psychological trauma as a result of the emergency also put the nurses at risk of acquiring secondary traumatic stress disorder. Long-term impacts such as PTSD and depression may be more likely in people who were exposed to the extreme distress of the COVID-19 pandemic (Guixia & Hui, 2020).

#### **4. Conclusion & Recommendations**

This study found that during the Covid-19 time period, nurses experienced significant rates of employment and psychological difficulties. According to the results, nurses experienced more stress during the COVID-19 pandemic because they saw more patients in pain and witnessed more deaths. It has been noted that the main sources of stress for nurses in the Covid-19 era include a lack of communication, extra workload, and a lack of organizationally supportive programs. Key signs of burnout during the Covid-19 period included worry, fear, lack of attention, job dissatisfaction, and inactivity. Furthermore, the nurses considered leaving their jobs, transferring to new clinical areas, taking extended leaves of absence, and working additional shifts.

The nurses' employment stresses during a pandemic have always been addressed through organizational assistance (Chor et al., 2021). Psychological first aid, which is an early and decisive professional intervention that focuses on the mental health of professionals in the health system, notably the nurses, has been shown to be the first solution in previous pandemics. In light of this, it is imperative that all psychiatrists work together and be readily available to support any medical professionals and nurses who come into contact with infected patients at this time (Cotel et al., 2021).

In highly stressful situations, such as a pandemic, professionals and caregivers could benefit from the information provided by psychoeducation programs that aim to reduce risk factors and normalize stress reactions. Self-monitoring is made possible in pandemic situations by the use of electronic screening methods that may be performed privately and confidentially.

While screening is important, it only serves its purpose if it leads to the introduction of appropriate treatment and the establishment of connections to useful resources. When stress-related telehealth services are accessible during off-work hours, they provide a way for affected people to get the care they need when it's most convenient for them, both mentally and physically. Reducing barriers to help-seeking in rural and other areas with limited resources or providers who are well-known in the

community requires a provider pool that includes individuals trained on stress, and evidence-based services, and which can be provided virtually across local or regional lines. Last but not least, technological advancements in virtual and telehealth have given rise to active coping mechanisms in the form of sharing and support platforms. Knowledge gained via COVID-19's active coping and support provided should be archived for use beyond the pandemic's end.

Researchers still need to look at the long-term impacts of burnout on nurses to get a full picture. The prevalence of burnout symptoms and the long-term changes in nurses' mental health require longitudinal investigations.

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