

## Evaluation of Healthcare Workers Infected with COVID-19: A Qualitative Research on the Disease Process and Its Effects

### COVID-19 Geçiren Sağlık Çalışanlarının Değerlendirilmesi: Hastalık Süreci ve Etkileri Üzerine Nitel Bir Araştırma

<sup>1</sup>Beyza ŞAHİN, <sup>2</sup>Abdülkadir AYDIN, <sup>3</sup>Erkut ETÇİOĞLU, <sup>4</sup>Hasan Çetin EKERBİÇER, <sup>5</sup>Ashlan ARIKAN

<sup>1</sup>Department of Family Medicine, Karabük University Training and Research Hospital, Karabük, Türkiye

<sup>2</sup>Department of Family Medicine, Sakarya University Faculty of Medicine, Sakarya, Türkiye

<sup>3</sup>Department of Family Medicine, Osmaneli M.S.Ç. State Hospital, Bilecik, Türkiye

<sup>4</sup>Department of Public Health, Sakarya University Faculty of Medicine, Sakarya, Türkiye

<sup>5</sup>Department of Family Medicine, Pütürge State Hospital, Malatya, Türkiye

Beyza Şahin: <https://orcid.org/0000-0002-5435-6841>

Abdülkadir Aydın: <https://orcid.org/0000-0003-0663-586X>

Erkut Etçioğlu: <https://orcid.org/0000-0002-8117-7929>

Hasan Çetin Ekerbiçer: <https://orcid.org/0000-0003-0064-3893>

Ashlan Arıkan <https://orcid.org/0000-0001-9718-1204>

#### ABSTRACT

**Objective:** This study aimed to investigate the impacts of COVID-19 on healthcare workers and their experience of the disease.

**Materials and Methods:** The research was conducted using qualitative methods between December 12, 2020 and February 5, 2021 with 30 health workers who had recovered from COVID-19. The research data were collected using semi-structured interviews during which participants were asked about their socio-demographic characteristics, their experiences of the disease, and the impacts of the disease. The data obtained were grouped according to themes and sub-themes.

**Results:** The participants identified the emotional, cognitive, and behavioral effects of the disease, including emotional responses at different stages of the disease, attitudes towards the disease, changes in dietary style, over-attention to symptoms and vital findings, and changes in prevention measures after recovery from the disease. Uncertainty, quarantine periods, fear of infecting others, stress factors such as healthcare worker identity and stigma were also identified by the participants.

**Conclusions:** Providing support for the protection of the mental health of healthcare workers who contract the disease is essential to allow them to continue providing quality patient care. We think it would be beneficial to conduct further research on the nature of psychological support for medical personnel who experience COVID-19.

**Keywords:** COVID-19 virus, medical staff, mental health, pandemic, qualitative research

#### ÖZ

**Amaç:** Bu çalışma, COVID-19'un sağlık çalışanları üzerindeki etkilerini ve hastalık deneyimlerini araştırmayı amaçlamıştır.

**Materyal ve Metot:** Araştırma, 12 Aralık 2020 - 5 Şubat 2021 tarihleri arasında COVID-19'dan iyileşen 30 sağlık çalışanı (23 doktor ve 7 hemşire) ile kalitatif yöntemler kullanılarak gerçekleştirilmiştir. Araştırma verileri, katılımcılara sosyo-demografik özellikleri, hastalık deneyimleri ve hastalığın etkileri hakkında sorular sorular yapılandırılmış görüşmeler kullanılarak toplanmıştır. Elde edilen veriler temalara ve alt temalara göre gruplandırılmıştır.

**Bulgular:** Katılımcılar; hastalığın farklı evrelerinde duygusal tepkiler, hastalığa karşı tutumlar, beslenme tarzındaki değişiklikler, semptomlara ve hayati bulgulara aşırı dikkat ve hastalıktan iyileştikten sonra hastalığı önleme tedbirlerindeki değişiklikler dahil olmak üzere hastalığın duygusal, bilişsel ve davranışsal etkilerini tanımladılar. Katılımcılar tarafından ayrıca belirsizlik, karantina süreleri, başkalarına bulaştırma korkusu, sağlık çalışanı kimliği ve damgalanma gibi stres faktörlerini de belirtildi.

**Sonuç:** Hastalığa yakalanan sağlık çalışanlarının ruh sağlığının korunmasına destek verilmesi, kaliteli hasta bakımı sunmaya devam edebilmeleri için esastır. COVID-19 yaşayan sağlık personeline yönelik psikolojik desteğin niteliği konusunda daha fazla araştırma yapılmasının faydalı olacağını düşünüyoruz.

**Anahtar Kelimeler:** COVID-19 virüsü, nitel araştırma, pandemi, ruh sağlığı, sağlık çalışanları

#### Sorumlu Yazar / Corresponding Author:

Beyza Şahin  
Karabük University Training and Research Hospital, Karabük,  
Türkiye.  
Tel: +905380406084  
E-mail: drbeyzasahin@gmail.com

#### Yayın Bilgisi / Article Info:

Gönderi Tarihi/ Received: 24/01/2022  
Kabul Tarihi/ Accepted: 27/11/2022  
Online Yayın Tarihi/ Published: 05/03/2023

## INTRODUCTION

The COVID-19 pandemic has placed a heavy burden on healthcare systems around the world and has left most healthcare systems and healthcare workers under great pressure.<sup>1,2</sup> In the face of this pandemic, healthcare workers are under both mental and physical stress. Healthcare professionals, particularly those working on the front line with suspected or confirmed COVID-19 patients, may be vulnerable to both a high risk of infection and mental health problems. Many fears contracting the disease or transmitting the virus to their families, friends, and colleagues.<sup>3</sup> The previous literature reports mental health problems in healthcare workers during and after outbreaks, including symptoms of PTSD, burnout, depression, and anxiety, which are attributed to occupational factors.<sup>4-6</sup>

A cross-sectional study from China that included 1257 healthcare workers from 34 hospitals reported symptoms of depression in 634 participants (50.4%), anxiety in 560 (45%), insomnia in 427 (34%), and distress in 899 (72%). Moreover, all mental health symptom measures were higher in women than men, in nurses than doctors, in those working in Wuhan than other cities, and those working on the front line in the diagnosis and treatment of COVID 19 compared to other healthcare professionals.<sup>7</sup>

In order to improve response measures and address the psychological impact of the COVID-19 pandemic, it is necessary to examine psychosocial data from the whole population, vulnerable groups, and COVID-19 patients.<sup>8</sup> Several qualitative studies have been performed concerning the experiences of COVID-19 patients and their caregivers,<sup>9-11</sup> but there are no studies concerning the experiences of healthcare workers who contracted COVID-19.

This study aimed to investigate the experiences of healthcare workers who contracted COVID-19 and the impact of the illness through interviews and to provide new data to support future targeted interventions.

## MATERIALS AND METHODS

**Ethics Committee Approval:** The study was carried out under the Helsinki declaration and was approved by Sakarya University Local Ethics Committee (Date: 01.12.2020, decision no:585).

**Research Design:** In this study, Colaizzi's phenomenological method was used to qualitatively analyze healthcare workers', who have had COVID-19, experiences and its effects. Colaizzi's phenomenological method focuses on the experience and feelings of participants. It finds shared patterns rather than individual characteristics in the research subjects.

**Study Subjects:** By using a purposeful sampling method, we selected 30 health workers (23 physi-

cians and seven nurses) who had recovered from COVID-19. Inclusion criteria were as follows: (1) COVID-19 patients were diagnosed according to the "Republic of Türkiye Ministry of Health COVID-19 guide"; (2) Patients who volunteered to participate. We determined the number of required respondents by interviewing health workers who met the inclusion criteria until the data were saturated, and no new topics were generated.

**Interview Outline:** Semi-structured questionnaire form to be used in the interview was prepared by taking expert opinions and with preliminary tests, after the relevant literature was reviewed. Participants' age, gender, marital status, years of work experience before the interview, hospitalization was obtained at the start of the interview. The main interview questions posed to the participants were as follows:

- Can you tell me how you felt during the time you had COVID-19?
- Can you tell me about the positive and negative effects the disease had on you, if any?
- Can you tell me about the changes that occurred in your life during or after your illness?
- Can you tell me about how you coped with having the disease?
- Can you tell me about stressors that you encountered during your illness?

**Data Collection:** The purpose and significance of the research was explained to the participant in advance and a suitable meeting time was planned. The interviews were made by video conference method due to pandemic conditions. Researchers used techniques such as unconditional acceptance, active listening, and clarification to promote the authenticity of the data and to avoid bias. With the permission of the participants, audio recordings were obtained in all interviews. The interviews took 40-60 minutes per person. The audio recordings were transcribed verbatim by researchers within 48 hours of the interviews and reviewed by the interviewers for accuracy. During data analysis, all researchers agreed with the results and chose the highlighted quotations.

**Data Analysis:** Within 48 hours of each interview, the recording was transcribed and analyzed by Colaizzi's phenomenological analysis method. Three researchers independently reviewed the interview materials, summarized, and extracted meaningful statements, and formulated the themes. Conflicting opinions on the contents of a theme were discussed and resolved by a research group.

## RESULTS

The research included 30 healthcare workers (16 females, 14 males) who had a history of COVID-19

infection. The average age was 34.33±7.62 years. Among the participants, 23 were physicians and 7 were nurses. The average work experience was 11.06±9.14 years. Seven were unmarried, 17 married with children, and 6 married without children. Seven subjects were hospitalized due to COVID-19.

We explored the disease process and its effects of healthcare workers with COVID-19 using phenomenological methods. Five theme categories emerged from analysis of the interviews. These themes and sub-themes are displayed in Table 1.

**Table 1.** Themes identified through interviews with healthcare workers .

<b>Theme 1: Emotional, Cognitive, and Behavioral Responses</b>	
<b>Subtheme</b>	<b>Quotations</b>
<b>Emotional responses during different stages of the disease</b>	<p>(Female, 48 years, physician): “I was very upset, scared, and pessimistic... I felt helpless... as I started to recover, I started to feel more at ease... I was so happy when my follow-up test came back negative; knowing that I was free of disease felt great.”</p> <p>(Female, 33 years, physician): “... At first I felt really bad... I had severe anxiety... I was afraid I might die... as I recovered and saw that I was getting better, I started to calm down... I was very happy when my test came back negative...”</p>
<b>Attitude toward the disease</b>	<p>(Female, 25 years, physician): “I started to watch what I eat and tried to stay positive... I just had to accept the situation and do my part.”</p> <p>(Female, 33 years, physician): “... I just faced the truth... I took the medication and waited to recover...”</p> <p>(Female, 28 years, physician): “I couldn’t conceive that I had COVID-19... I just did whatever it took to get better.”</p>
<b>Changes in diet</b>	<p>(Female, 33 years, physician): “... I made a big change to my diet... I was really careful to have regular meals... I was careful to eat more fruit... I was careful to eat fruits rich in vitamin C. I tried to eat everything that I thought was healthy.”</p> <p>(Male, 43 years, physician): “... when I was sick, I forced myself to drink more water, even though I wasn’t thirsty. I didn’t have much appetite and I couldn’t eat all that much, but I didn’t wait to feel hungry to eat... when it was time to eat, I tried to eat a lot of protein.”</p>
<b>Excessive attention to signs and symptoms</b>	<p>(Female, 25 years, physician): “I was constantly checking to see if I was feeling short of breath, if my cough was too severe... I was constantly watching my oxygen saturation... I felt cold and immediately took my temperature to see if I had a fever.”</p> <p>(Female, 29 years, physician): “I was constantly checking if my cough or dyspnea got worse or better... I often measured my blood oxygen saturation.”</p>
<b>Changes in prevention measures</b>	<p>(Male, 34 years, physician): “... I am now more careful about preventive measures... I pay closer attention...”</p> <p>(Male, 38 years, physician): “... I’ve become too careful about everything. I am more aware of prevention.”</p> <p>(Male, 30 years, nurse): “I became more careful. I am careful to wear my mask at all times.”</p>
<b>Theme 2: Stress Factors</b>	
<b>Subtheme</b>	<b>Quotations</b>
<b>Uncertainty</b>	<p>(Female, 32 years, physician): “... I was worried because I did not know how my prognosis would be... I was thinking ‘Anything can happen’.”</p> <p>(Male, 46 years, physician): “I was worried and constantly thinking about when my test would come back negative, when I would fully recover, if I could resume my normal life after the quarantine... the prognosis of the disease is uncertain, and the lack of a definitive treatment is also worrisome...”</p>
<b>Quarantine</b>	<p>(Female, 34 years, nurse): “... you want it to end as soon as possible so you can go back to being with other people... Friends, relatives, buddies, they can’t come and visit you when you are sick. You have to stay away from your kids. It’s tough. It’s upsetting.”</p> <p>(Female, 28 years, physician): “... you feel like you need help, but your loved ones cannot be with you.”</p>

Table 1. Continue.

<b>Fear of infecting others</b>	(Male, 32 years, physician): "I feared that I might have infected my wife and my colleagues at the hospital." (Female, 41 years, nurse): "I had just seen my father before I tested positive... I was really afraid that I infected him... I kept calling him and seeing if he was OK. It was really hard" [crying as she was speaking].
<b>Being a healthcare worker</b>	(Female, 33 years, physician): "It was definitely worse that I knew what could happen down the road... Having worked in a hospital made it tougher on me... I kept having images of patients in poor condition flash before my eyes. I always imagined the worst-case scenario." (Female, 42 years, physician): "I feel like I would not be this worried about being sick if I wasn't a healthcare worker or if I didn't know this much about the disease."
<b>Stigma</b>	(Female, 28 years, physician): "My colleagues avoided me for a while after I got better. They didn't want to be near me even with a mask." (Female, 33 years, physician): "After I went back to work, my colleagues were avoiding me. They didn't want to eat in the same room as me."

**Theme 3: Sources of Motivation**

Subtheme	Quotations
<b>Social support</b>	(Female, 29 years, physician): "My family and friends were my pillars during my sickness... One teacher from the clinic constantly remained in contact with me and closely monitored my condition." (Female, 28 years, physician): "My family and friends always called and asked how I was doing... I got great support from people I never expected. They brought me all kinds of food so many times."
<b>Self-support</b>	(Female, 34 years, nurse): "... I kept myself busy with housework. I tried to get things done, things that I kept putting off because I had to work. When I focused on doing things, I was distracted from thinking about my illness." (Female, 41 years, nurse): "... it was really good for me to do other things... there was an online convention and attending that made me feels much better."
<b>Religious beliefs</b>	(Female, 34 years, nurse): "I believe that the disease is from Allah, and after all, no matter what, Allah is testing us, and all living things will one day die. These thoughts affected me positively." (Female, 32 years, physician): "... As I lay in bed, I constantly tried and prayed to Allah." (Female, 28 years, physician): "I prayed constantly. My belief in Allah gave me strength because I knew He was omnipotent and could heal me."
<b>Being a healthcare worker</b>	(Male, 32 years, physician): "Being acquainted with the physicians working in the hospital, having easy access to information and medical support, if needed, helped me feel more at ease. Also, it was comforting to be aware of possible prognoses and being able to take precautions accordingly." (Male, 26 years, physician): "Being a healthcare worker, I guess I was a little more at ease during my illness compared to others. I thought, even if I should end up being hospitalized, I needn't worry since my friends at the hospital will support me the best they can."
<b>An effective healthcare system</b>	(Female, 26 years, physician): "My family physician kept track of my condition by regular phone calls. Apart from that, I was followed up by two different teams whose only purpose was COVID-19 follow-up. Although I already worked in the healthcare system, it was different and reassuring to experience the process from this aspect." (Female, 50 years, nurse): "I was relieved to know that all bases were covered when it came to my well-being."

**Theme 4: Mental Growth and Empowerment**

Subtheme	Quotations
<b>Meaning of life</b>	(Female, 46 years, nurse): "You better understand the value of your loved ones. You understand that what you take for granted is actually a blessing." (Male, 34 years, physician): "I realized that even one second is precious and we don't have any time to waste."
<b>Re-setting priorities</b>	(Female, 26 years, physician): "It gets away from us during the hustle and bustle of life, but at least this experience reminded me that the well-being of my family and loved ones is what matters the most." (Female, 41 years, nurse): "What can be more important than being in good health? When you think about it that way, all else becomes insignificant."
<b>Setting new goals</b>	(Female, 34 years, nurse): "I now try to plan more family activities and spend quality time with my family." (Female, 41 years, nurse): "I always wanted to work out regularly, but I couldn't find the time. Turns out, I can. I stopped fooling myself and started to exercise regularly. I hope it will last this time."
<b>Gratitude</b>	(Female, 28 years, physician): "I'm grateful to everyone who stayed by my side when I was sick." (Male, 26 years, physician): "I feel grateful to my family and friends who supported me during my illness."

Table 1. Continue.

Theme 5: Effect on Work	
Subtheme	Quotations
Increased empathy for COVID-19 patients	(Female, 25 years, physician): "... I don't only see my patients through the eyes of a doctor but also better understand them as I have gone through what they are going through." (Male, 41 years, physician): "I understand better what patients mean when they say 'I am in great pain' and what they are going through."
Changes in approach to COVID-19 patients	(Male, 38 years, physician): "I visit patients' rooms, I talk to them more often." (Female, 41 years, nurse): "I talk more to patients who are conscious. I go to patients, hold their hands... I try and help them overcome their fears."

Theme 1: Emotional, Cognitive, and Behavioral Responses

The participants reported different emotional responses associated with the disease, including sadness, fear, and anxiety in the early stages; relief with the improvement of disease symptoms; and happiness and excitement with disease resolution. Several participants also reported loneliness due to being alone during quarantine or guilt over the thought of infecting family members. We found that healthcare workers displayed various attitudes towards the disease, such as denial, confrontation, acceptance, and cooperation with treatment and prevention measures.

Participants aimed to maintain body strength and, to recover more easily; they adopted a more balanced diet. Several participants reported taking nutritional supplements. Many constantly monitored any changes in their symptoms or the development of new symptoms and frequently measured vital signs. Participants reported both increased (changing masks more frequently, wearing a mask around non-family members, disinfecting hands more often, etc.) and decreased (not wearing a mask around non-family members, disinfecting hands less often, using less personal protective equipment in the hospital, etc.) compliance with prevention measures after the illness.

Theme 2: Stress Factors

Causes of stress during illness included the uncertain prognosis, lack of a definitive treatment, and potential sequelae. Participants also emphasized the stress associated with potentially infecting family members, close friends, colleagues, or others. Some expressed concern about the possibility of infecting others immediately after leaving quarantine due to the relatively short duration of the isolation period (10 days). Participants reported various challenging factors, including social isolation due to the quarantine, being in need of help, and being away from loved ones. Having a detailed knowledge of the disease and its potential complications and outcomes and having previously witnessed the poor prognosis

of severe COVID-19 patients adversely affected our participants' mental health during their illness. They expressed concern about the potential stigma, and several participants reported experiencing prejudice after recovery.

Theme 3: Sources of Motivation

In our study, the major source of motivation was the support given by family, friends, and others during recovery. Participants reported resorting to various activities such as watching TV, cleaning, reading, cooking, trying to distract themselves, and positive thinking to cope with the disease. Religious prayer, forbearance, fate, and trust were reported to positively affect participants' mental state during the illness. Being healthcare workers, participants mentioned feeling more at ease due to having confidence in receiving the required medical support. Having access to accurate information about the disease and the medical staff as needed and, in the case of possible hospitalization, being acquainted with the hospital staffs were reported as sources of mental relief. Participants also noted that adequate medical support positively affected their mental health.

Theme 4: Mental Growth and Empowerment

The disease experience helped participants find meaning in their lives. Participants stated that they realized the importance of mental and physical well-being for themselves and their families and they expressed less concern about money and social status. They emphasized that the experience contributed to setting new goals. They indicated feeling grateful for their family members, friends, the medical staff, and the government for their support during this illness.

Theme 5: Effect on Work

Participants indicated that having personally experienced COVID-19 helped them better understand and relate to and changed their perspective on other COVID-19 patients. They reported a positive change in their behavior towards COVID-19 patients.

## DISCUSSION AND CONCLUSION

The present study, healthcare workers identified the emotional, cognitive, and behavioral effects of the disease, including emotional responses at different stages of the disease, attitudes towards the disease, changes in dietary style, over-attention to symptoms and vital findings, and changes in prevention measures after recovery from the disease.

Sudden pandemic-related changes in working conditions may be associated with the prevalence of mental disorders among healthcare workers.<sup>12</sup> During the SARS outbreak, Reynolds et al. reported anxiety, sadness, fear, loneliness, and guilt among quarantined individuals.<sup>13</sup> Individuals with confirmed or suspected COVID-19 may fear the consequences of contracting a possibly fatal disease.<sup>14</sup> In this study, we found that healthcare workers exhibited anxiety, fear, sadness, guilt, and loneliness during COVID-19.

Sun et al. conducted a qualitative study on people with a history of COVID-19. Participants' attitudes toward the disease included denial in early stages and acceptance and confrontation during later stages. Eighty percent of the patients exhibited excessive attention to symptoms due to fear of progression of the disease or not recovering.<sup>11</sup> In our study, healthcare professionals with COVID-19 similarly exhibited denial, acceptance, confrontation, and cooperation. They also devoted excessive attention to new and existing symptoms due to fear of disease progression and frequently measured and monitored vital signs.

We also found that our participants tried and adopted a balanced and regular diet and took nutritional supplements to strengthen their immune systems and for a rapid recovery. Such a finding was not reported in other similar studies.

A qualitative study by Moradi et al. on COVID-19 patients found that the confusion resulting from the uncertain prognosis caused anxiety, and fear of infecting others caused mental stress.<sup>15</sup> We found that our participants perceived themselves as a threat to the well-being of family members (particularly children and the elderly) and others. A systematic review by James et al. documented that people who contracted the Ebola virus feared infecting others due to the ability of the virus to persist in tissues long after recovery.<sup>16</sup> In our study, healthcare workers who developed COVID-19 were anxious due to the uncertain prognosis of the disease and the yet unknown long-term complications and feared transmitting the virus to family members (particularly the elderly and children), coworkers, friends, and others. For most participants, this fear resumed for a while after being discharged from quarantine and they avoided close contact and public places.

A meta-analysis concluded that quarantine placed a

heavy mental burden on individuals.<sup>17</sup> Gammon et al. reported that 33% of the participants who had undergone isolation had a poor mental health status.<sup>18</sup> Studies on individuals who were quarantined due to COVID-19 indicate that the main causes of stress during quarantine include being away from family members, disruption of life, and limited options for activity,<sup>19</sup> as well as anxiety about the illness, disruption of normal life, social isolation, and stigma.<sup>20</sup> Similarly, our participants mentioned feeling stressed due to being away from loved ones, social isolation, the uncertainties surrounding the disease, and stigma.

We also identified a seldom mentioned risk factor for COVID-19-related anxiety: being a healthcare professional. Our participants indicated that having detailed knowledge of the disease and its potential complications and outcomes and having previously witnessed the poor prognosis of severe COVID-19 cases adversely affected their mental health during this illness.

A study of 549 hospital personnel from 3 years after the SARS outbreak found that 8.8% of all subjects exhibited severe depressive symptoms, 60% of whom had been quarantined, compared to 14.9% of participants who exhibited low rates of depressive symptoms.<sup>21</sup> Thirty months after the SARS epidemic, Mak et al. found the prevalence of mental illness in people with a history of SARS infection to be 33.3%, and they reported PTSD in 25% and depression in 15.6% of the participants.<sup>22</sup> In this setting, timely psychological guidance is crucial.<sup>8,17,23,24</sup> In reference to these data, our participants are also at risk of mental illness and require mental health support.

Self-support and social support play key roles in maintaining mental health among patients with infectious diseases.<sup>25,26</sup> One qualitative study indicated that all participating COVID-19 patients depended on their family members for mental support.<sup>11</sup> Similarly, our participants derived benefit from the social support of family, friends, and others as well as self-care and support during recovery.

Gashi found that religious faith had a significant impact on COVID-19 patients' understanding of the disease and religious prayer, forbearance, worship, and submission significantly contributed to coping with the disease.<sup>27</sup> In our study, Muslim participants indicated that religious forbearance, worship, and prayer had positive effects during their illness.

Having accurate medical information can reduce stress, anxiety, depression, and the mental impact of a disease.<sup>28</sup> Participants mentioned that being a healthcare worker had a positive effect on their mental well-being. Having easy access to accurate information and acquaintances in healthcare had a positive influence. This aspect appears to be ignored by

other similar studies.

COVID-19 patients face physical and mental stress. Attitudes toward the disease and emotional responses change throughout different stages of the illness. The negative emotions in early stages gradually develop into coexisting negative and positive emotions. Identifying stress factors and providing targeted support play key roles in patients' mental health. Timely mental health interventions can prevent physical and mental damage and improve patients' moods, attitudes, and behaviors.

Healthcare workers require psychosocial support to be able to maintain adequate patient care.<sup>12</sup> Considering that the pandemic may last for a few more years, future experimental studies may investigate the qualities of the psychological support to be provided to healthcare professionals.

However, motivation is also vital to more easily overcome the disease, both physically and mentally. Further studies are needed to investigate the sources of motivation that emerged in our study, including social support, self-support, religious beliefs, being a healthcare worker, and an effective healthcare system.

In this study, we also found that contracting COVID-19 allowed healthcare professionals to better understand and communicate with COVID-19 patients and to give patients moral support.

As a limitation of the study, this research was performed in only one of Turkey's provinces and the results should be interpreted in this context.

**Ethics Committee Approval:** This study was approved by the Sakarya University Local Ethics Committee (Date: 01.12.2020, decision no:585).

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Author Contributions:** Concept – BŞ, AA, EE, HÇE; Supervision – BŞ, AA, EE, HÇE; Materials – BŞ, AA, EE, HÇE; Data Collection and/or Processing – BŞ, AA, EE, HÇE; Analysis and/ or Interpretation – BŞ, AA, EE, HÇE; Writing – BŞ, AA, EE, HÇE.

**Peer-review:** Externally peer-reviewed.

## REFERENCES

1. Armocida B, Formenti B, Ussai S, Palestra F, Missoni E. The Italian health system and the COVID-19 challenge. *Lancet Public Health*. 2020;5(5):e253.
2. Xie J, Tong Z, Guan X, Du B, Qiu H, Slutsky AS. Critical care crisis and some recommendations during the COVID-19 epidemic in China. *Intensive Care Med*. 2020;46(5):837-840.
3. Wu P, Fang Y, Guan Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *Can J Psychiatry*. 2009;54(5):302-311.
4. Lancee WJ, Maunder RG, Goldbloom DS; Coauthors for the Impact of SARS Study. Prevalence of psychiatric disorders among Toronto hospital workers one to two years after the SARS outbreak. *Psychiatr Serv*. 2008;59(1):91-95.
5. Maunder RG, Lancee WJ, Balderson KE, et al. Long-term psychological and occupational effects of providing hospital healthcare during SARS outbreak. *Emerg Infect Dis*. 2006;12(12):1924-1932.
6. Park JS, Lee EH, Park NR, Choi YH. Mental health of nurses working at a government-designated hospital during a MERS-CoV outbreak: A cross-sectional study. *Arch Psychiatr Nurs*. 2018;32(1):2-6.
7. Lai J, Ma S, Wang Y, et al. Factors associated with mental health outcomes among health care workers exposed to Coronavirus Disease 2019. *JAMA Netw Open*. 2020;3(3):e203976.
8. Holmes EA, O'Connor RC, Perry VH, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiatry*. 2020;7(6):547-560.
9. Sun N, Wei L, Shi S, et al. A qualitative study on the psychological experience of caregivers of COVID-19 patients. *Am J Infect Control*. 2020;48(6):592-598.
10. Liu Q, Luo D, Haase JE, 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-e798.
11. Sun N, Wei L, Wang H, et al. Qualitative study of the psychological experience of COVID-19 patients during hospitalization. *J Affect Disord*. 2021;278:15-22.
12. Stuijzand S, Deforges C, Sandoz V, et al. Psychological impact of an epidemic/pandemic on the mental health of healthcare professionals: a rapid review. *BMC Public Health*. 2020;20(1):1230.
13. Reynolds DL, Garay JR, Deamond SL, Moran MK, Gold W, Styra R. Understanding, compliance and psychological impact of the SARS quarantine experience. *Epidemiol Infect*. 2008;136(7):997-1007.
14. Xiang YT, Yang Y, Li W, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *Lancet Psychiatry*. 2020;7(3):228-229.
15. Moradi Y, Mollazadeh F, Karimi P, Hosseingholipour K, Baghaei R. Psychological disturbances of survivors throughout COVID-19 crisis: a qualitative study. *BMC Psychiatry*. 2020;20(1):594.
16. James PB, Wardle J, Steel A, Adams J. Post-Ebola psychosocial experiences and coping mechanisms among Ebola survivors: a systematic

- review. *Trop Med Int Health*. 2019;24(6):671-691.
17. Hossain MM, Sultana A, Purohit N. Mental health outcomes of quarantine and isolation for infection prevention: a systematic umbrella review of the global evidence. *Epidemiol Health*. 2020;42:e2020038.
  18. Gammon J, Hunt J, Musselwhite C. The stigmatisation of source isolation: a literature review. *Journal of Research in Nursing*. 2019;24(8):677-693.
  19. Cheng JG, Tan XD, Zhang L, Zhu SR, Yao H, Liu B. Research on the psychological status and influencing factors of novel coronavirus pneumonia patients and people under medical observation. *J. Nurs. Admin*. 2020;20(04):247–251.
  20. Dong RQ, Zhou X, Jiao XN, Guo BS, Sun LP, Wang Q. Investigation on psychological status of isolation personnel during the outbreak of novel coronavirus. *Rehabil Med*. 2020;30(01):7–10.
  21. Liu F, Li L, Xu M, et al. Prognostic value of interleukin-6, C-reactive protein, and procalcitonin in patients with COVID-19. *J Clin Virol*. 2020;127:104370.
  22. Mak IW, Chu CM, Pan PC, Yiu MG, Chan VL. Long-term psychiatric morbidities among SARS survivors. *Gen Hosp Psychiatry*. 2009;31(4):318-26.
  23. Kim HC, Yoo SY, Lee BH, Lee SH, Shin HS. Psychiatric findings in suspected and confirmed Middle East respiratory syndrome patients quarantined in hospital: A retrospective chart analysis. *Psychiatry Investig*. 2018;15(4):355-360.
  24. Yoon MK, Kim SY, Ko HS, Lee MS. System effectiveness of detection, brief intervention and refer to treatment for the people with post-traumatic emotional distress by MERS: a case report of community-based proactive intervention in South Korea. *Int J Ment Health Syst*. 2016;10:51.
  25. Huang J, Zhang J, Yu NX. Close relationships, individual resilience resources, and well-being among people living with HIV/AIDS in rural China. *AIDS Care*. 2018;30(sup5):49-57.
  26. Schwerdtle PM, De Clerck V, Plummer V. Experiences of ebola survivors: causes of distress and sources of resilience. *Prehosp Disaster Med*. 2017;32(3):234-9.
  27. Gashi F. Koronavirüse yakalanmış kişilerde tedavi döneminde dini başa çıkmanın etkisi . Pamukkale Üniversitesi İlahiyat Fakültesi Dergisi. 2020;7(1),511-535.
  28. Wang C, Pan R, Wan X, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus Disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Public Health*. 2020;17(5):1729.