

# COVID-19 Survivors' Intensive Care Unit Experiences and Their Possible Effects on Mental Health

## A Qualitative Study

Tahsin Gökhan Telatar, MD,\* Ayça Telatar, MD,† Çiçek Hocaoglu, MD,‡ Ayşe Hızal, MD,§ Mustafa Sakın, MD,¶ and Sarp Üner, MD, PhD||

**Abstract:** It is known that being hospitalized in the intensive care unit (ICU) for any reason is a risk factor for future psychiatric problems. This qualitative study aims to identify the experiences of coronavirus disease 2019 (COVID-19) ICU survivors and provide insights for relevant mental health problems after being discharged. Participants were COVID-19 patients discharged from ICUs of a secondary care hospital. The experiences of 21 ICU survivors were evaluated using Colaizzi's 7-step approach, which were determined by the purposeful sampling method. There were three themes generated from the interviews as "emotions on COVID-19 diagnosis," "feelings about ICU stay and health care providers," and "life in the shadow of COVID-19." Two subthemes for every single theme were generated, and a total of 19 codes were extracted. It is essential to understand the individual's unique experiences in designing preventive interventions and apply individual preventive mental health interventions during ICU stay.

**Key Words:** COVID-19, intensive care units, survivors, experiences, phenomenological approach

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Coronavirus disease 2019 (COVID-19), caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2), has become a devastating and unprecedented global public health problem since the 21st century (World Health Organization, 2021). According to Johns Hopkins University Coronavirus Resource Center, total cases exceeded 300 million with 5.5 million deaths globally as January 2022 (Johns Hopkins University Coronavirus Resource Center, 2022). Although there are no global intensive care unit (ICU) admission rates due to COVID-19, the global shortage of ICU beds for COVID-19 patients reveals the high incidence of ICU admission (Ladds et al., 2020). Although it varies periodically and from country to country, at the beginning of January 2022 in the United States, France, and United Kingdom, the weekly new hospital admissions for COVID-19 per million were 298, 165, and 217, respectively. In the same countries at the same period, the number of COVID-19 patients in the ICU per million were 58.9, 53.0, and 12.7, respectively (Ritchie et al., 2020).

ICU stay may have psychological effects, including depression, anxiety, and posttraumatic stress disorder (PTSD) regardless of the underlying disease (Pattison, 2005). The depressive symptoms occur in almost 30% of patients after discharge from ICU (Wang et al., 2017). Four of every

five ICU survivors experience new or worsened psychological or physical problems due to post-intensive care syndrome (Needham et al., 2012).

Emerging disease outbreaks are known to cause severe psychological effects on patients (Kim et al., 2018; Kisely et al., 2020). There are still many unknown situations regarding the COVID-19 clinic. The unknown course of the COVID-19 raises concerns about the future that causes fear (Olufadewa et al., 2020). Although it commonly affects the respiratory system, many studies suggest that COVID-19 affects many systems including mental health (Dubey et al., 2020). Mental health problems including anxiety, depression, sleep disorders, and PTSD have been reported to be related with COVID-19 (Choi et al., 2020; Wang et al., 2020; Yang et al., 2020). A large-scale retrospective cohort study revealed that COVID-19 patients who were admitted to the ICU had higher hazards ratios for any psychiatric diagnoses compared with those who were not admitted to the ICU (Taquet et al., 2021).

Everyone has unique responses to stressful life events, and their coping methods differ. Environmental, biological, and psychological factors, life experiences, personality traits, and cultural factors increase this diversity (Schneiderman et al., 2005). Qualitative studies are successful research methods in revealing these differences. A qualitative study design would provide detailed insight into the quality of health services in the ICU and the patients' recovery process, which are usually missed in quantitative studies (Teti et al., 2020). Restructuring the health services provided in ICUs under suitable conditions during the COVID-19 pandemic would be possible with understanding the experiences gained from qualitative studies (Bavel et al., 2020; Kürtüncü et al., 2021; Olsen et al., 2017; Shah, 2020).

This study aims to understand the subjective experience of COVID-19 patients during their ICU stay to provide fundamental data for managing the ICU survivors' future mental health problems.

## METHODS

### Study Design

This qualitative research was carried out according to the Standards for Reporting Qualitative Research (O'Brien et al., 2014). All stages of the study and liabilities are clearly explained to the participants before asking for their consent. The Ethical Board of Recep Tayyip Erdogan University, Faculty of Medicine, approved the study on December 23, 2020 (registration number 2020/246). The phenomenological approach allows researchers to analyze people's unique experiences through dialogue, especially in health sciences (Berry et al., 2006). Colaizzi's 7-step approach was used to ensure the reliability of the patient experiences (Edward and Welch, 2011). The researchers consisted of two public health specialists, one psychiatrist, and three anesthesiologists. All researchers had previous experiences with qualitative research design: the public health specialists and the psychiatrist mainly designed the study, whereas the anesthesiologists conducted the interviews. During the processing of data, all researchers contributed equally. All anesthesiologists had more than 10 years of ICU experience, which dramatically improved the quality of interviews and none of them have treated the participants.

\*Department of Public Health, Faculty of Medicine, Recep Tayyip Erdoğan University; †Department of Anesthesiology and Reanimation, Rize State Hospital; ‡Department of Psychiatry, Faculty of Medicine, Recep Tayyip Erdoğan University; §Department of Anesthesiology and Reanimation, Training and Research Hospital, Rize; and ||Department of Public Health, Faculty of Medicine, Lokman Hekim University, Ankara, Turkey.

Send reprint requests to Tahsin Gökhan Telatar, MD, Recep Tayyip Erdogan Universitesi, Tip Fakultesi, Dekanlik Binası, Oda No:316, Islampasa Mh., 53200, Merkez, Rize, Turkey. E-mail: gokhantelatar@gmail.com.

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All interviews were conducted during January and February of 2021. A purposeful sampling method with criterion strategy was used, and the study was held with 21 participants. This method ensures the selection of possible information-rich cases (Palinkas et al., 2015). The inclusion criteria were as follows: having positive polymerase chain reaction test result for COVID-19 before ICU admission, being treated at least 72 hours in the ICU because of COVID-19, being discharged from the ICU to home or a general ward, being older than 18 years, and giving consent for participation to study. Exclusion criteria were being treated by any of the researchers of this study, having a cognitive or mental condition hindering participation, and not consenting to participate. After every five interviews, the researchers carefully evaluated the content to specify the sample size saturation. Potential themes and codes were defined until no themes or codes could be generated in five consecutive interviews.

### Data Collection

Data were collected by both face-to-face interviews and phone calls. The patients who were discharged from the ICU and continued their treatment in a general ward in the same hospital were interviewed directly. Other participants were interviewed by phone calls. Patients' medical records were obtained from their hospital files, including their accompanying chronic conditions, duration of ICU stay, and presence of intubation. The data gathering form had four main topics: general opinions about the COVID-19 pandemic, family and social support, ICU period, and future predictions. Researchers conducted the interviews with unconditional acceptance, used active listening techniques to avoid bias, and only made clarifications if requested by the participant. All interviews were recorded with audiorecorders and then converted to text. The interview questions and interview protocol have been provided as a Supplemental File (Supplemental Digital Content 1, <http://links.lww.com/JNMD/A157>).

### Data Processing and Analysis

Following the Colaizzi's 7-step approach, all interviews are transcribed from audio recordings. Then they were entered into the QDA Miner Lite v2.0.8 software. Then significant statements were extracted from participants' narratives, and those statements made up the study's themes and subthemes. The researchers carefully evaluated each statement, and general restatements were generated, which formed the codes for further analysis. After completing generating codes, every code is assigned to relevant themes and subthemes. Researchers developed a detailed description regarding all themes and condensed it into a fundamental structure. The last step of Colaizzi's method requires returning the results to the participants for validation. Still, this stage is heavily criticized because of the different perspectives of the researchers and the participants (Giorgi, 2006). Considering Merleau-Ponty's approach, which states "the experienter is not necessarily the best judge of the meaning of his or her experience," that step was skipped (Merleau-Ponty, 1964).

## RESULTS

Of the participants, 61.9% (13) were male, and 90.5% (19) were married. The mean age was  $54.05 \pm 11.85$ , and 47.6% (10) had a high school degree or higher (Table 1). The average ICU stay was  $15.95 \pm 9.35$  days, and 5 (23.8%) of the participants were intubated. Thirteen patients (61.9%) were interviewed in the hospital at the general wards, and the rest of the interviews were held on the phone. After analyzing the data, 3 themes, 6 subthemes, and 18 codes were generated (Table 2). The extracted three themes were "emotions on COVID-19 diagnosis," "feelings about ICU stay and health care providers," and "life in the shadow of COVID-19."

### Theme 1: Emotions on COVID-19 Diagnosis

Participants' feelings toward themselves and other people due to their experiences during the COVID-19 pandemic and related to their

**TABLE 1.** Sociodemographic Characteristics of the Participants

Characteristic	Frequency or Mean	Percentage or Standard Deviation
Age	54.05	11.85
Sex		
Male	13	61.9
Female	8	38.1
Marital status		
Married	19	90.5
Widow or divorced	2	9.5
Education status		
Literate	4	19.0
Primary school	4	19.0
Secondary school	3	14.3
High school	4	19.0
University	3	14.3
MSc, PhD, etc.	3	14.3

diseases were evaluated in this section. Those emotions or feelings were evaluated in two subthemes as feelings toward other people and themselves.

### Feelings Toward Others

The illness process caused the participants to develop various feelings toward other people. These feelings include blaming and angering other people, concerns about family members, and being grateful to people for their support during their illness. Some of the quotes from the participants are as follows.

*"There is no fear bigger than death. I scared so much, not for myself but my family, especially for my children. I couldn't stand the thought of leaving them alone just because of a small virus"* (male, 61 years old).

*"I'm angry with my neighbor. I told them not to visit us, but they didn't listen. They came to our house like nothing was going on. They never cared about the outbreak. Finally, I got the disease from them. I don't think that I'm going to forgive them ever"* (female, 50 years old).

*"My family did everything they could during my disease. They prayed for me, they spend everything they have. I owe them big time"* (male, 63 years old).

### Feelings Toward Themselves

Regret was the most common feeling among the participants. Many of them regret their attitudes and decisions before the disease. Sadness and physical disturbances were also other feelings of the participants toward themselves. Some of the quotes from the participants regarding those feelings are as follows.

*"I blame myself. It's my fault that I relocated during the pandemics. I underestimated the outbreak, I regret so much for my decisions. I literally made myself sick"* (male, 44 years old).

*"It makes you feel sad about you and your family. My children were crying, they were asking Allah to save their father. I can't tell enough how that made me sad"* (male, 54 years old).

*"I was ready to give everything I have just for a deep breath. It was like drowning"* (male, 43 years old).

### Theme 2: Feelings About ICU Stay and Health Care Providers

Although five of the participants were intubated, all participants had time in the ICU to be aware of their surroundings. ICU experiences of the participants included positive and negative components.

**TABLE 2.** Distribution of Themes, Subthemes, and Codes Generated From the Interviews

Theme	Subtheme	Code	Within Codes, n (%)	Within Cases, n (%)
Emotions on COVID-19 diagnosis	Toward others	Anger	12 (5.4)	10 (47.6)
		Support	13 (5.8)	11 (52.4)
		Concern about family	6 (2.7)	6 (28.6)
	Toward themselves	Sadness	9 (4)	7 (33.3)
		Regret	14 (6.3)	12 (57.1)
		Physical disturbances	13 (5.8)	11 (52.4)
Feelings about ICU stay and health care providers	Positive feelings	Gratefulness	19 (8.5)	14 (66.7)
		Relief	16 (7.1)	16 (76.2)
		Feeling safe	1 (0.4)	1 (4.8)
	Negative feelings	Dissatisfaction	1 (0.4)	1 (4.8)
		Fear and anxiety	33 (14.7)	17 (81.0)
		Loneliness	5 (2.2)	5 (23.8)
Life in the shadow of COVID-19	General effects	Being uncomfortable	6 (2.7)	6 (28.6)
		Seeking information	13 (5.8)	13 (61.9)
		Bewildering	14 (6.3)	9 (42.9)
	Future alterations	Resignation	19 (8.5)	10 (47.6)
		Changing lifestyle	11 (4.9)	11 (52.4)
		Deliberation	5 (2.2)	4 (19.0)
		Expectation	14 (6.3)	13 (61.9)

### Positive Feelings

The gratitude to the ICU and its staff, who helped them hold on to life, and the comfort of receiving treatment were examples of positive experiences. Some of the participants stated that receiving treatment at the ICU made them feel safe. Some of the quotes from the participants regarding those experiences are as follows.

*“God bless all the white angels working at the ICU. I’m ashamed to say, but they even cleaned my diaper. I owe my life to them”* (female, 46 years old).

*“Words are not enough to describe the joy of being able to breathe again. Everything was tough, I would never want anyone to have these troubles, but the comfort of being able to breathe in at the end of all difficulties has no description”* (female, 49 years old).

*“They said that I should get treatment, but there is no room at ICU. At that moment, I realized the seriousness of the situation. I thought I was going to die, and there was nothing to do. When a place was opened in ICU, and they put me in there, I was relieved. I felt safe. I knew I wouldn’t die anymore because they would be able to do all the necessary interventions for me at ICU. I trusted them so much that I didn’t want to leave the ICU when I learned that I would recover and be discharged. I was afraid of getting worse again. I wanted to stay a little longer”* (male, 46 years old).

### Negative Feelings

Fear of death, dissatisfaction with the health service received, loneliness, and discomfort constitute the foremost negative experiences. Some of the quotes from the participants regarding those experiences are as follows.

*“The only thing I can think about in the ICU was death. One day, three patients died in front of my eyes. I never thought that death was so close”* (female, 28 years old).

*“The sound of the breathing machine was like a nightmare. As if I still hear it”* (male, 61 years old).

*“I don’t think the doctors looking after me were competent enough. There could have been more experienced staff. They didn’t treat me nice”* (male, 42 years old).

### Theme 3: Life in the Shadow of COVID-19

The effects of the COVID-19 pandemic on the lives of the participants and their future thoughts under the influence of the pandemic were evaluated in this theme. Two subthemes were generated under this theme, which are general effects and future alterations.

#### General Effects

The pandemic has had many effects on people's lives. Participants made an effort to obtain information about the disease during this process, but in some cases, they could not fully understand what they lived through and its causes. Although some participants tended to accept their experiences, they stated that they were desperate in the face of what happened. Some of the quotes from the participants regarding those effects on their lives are as follows.

*“I was obsessed with the news. I was watching every news about COVID, trying to get information about the disease and its course from every source I could find”* (male, 71 years old).

*“I was very careful about hygiene. I was constantly changing my mask. I was applying every precaution suggested to us. Despite all these measures, I have no idea how and where I got the disease. Many people become ill and survive the disease outpatient. Why did I suffer so much? I cannot understand any of these”* (male, 63 years old).

*“If anything happens, it happens. It is not possible to avoid fate. It was my destiny to catch this disease and experience these troubles”* (female, 28 years old).

#### Future Alterations

It was observed that the COVID-19 disease and the ICU experiences of the participants caused changes and expectations regarding the rest of their lives. These changes mainly focus on lifestyles and future decisions. Some of the quotes from the participants regarding those changes and expectations are as follows.

*“Whether the epidemic is over or not, I will never accept guests at home again. I will not come closer than 2 meters to anyone”* (female, 72 years old).

*"I stopped working as a taxi driver, now I'll protect myself. Making money is not more important than living"* (male, 68 years old).

*"Nobody should think that nothing will happen to them. Even if they are not thinking of themselves, they should be thinking of others. They do not know what the infected person and his family are going through. Everyone should do their part. I wish everyone followed the rules"* (female, 56 years old).

## DISCUSSION

This qualitative study of 21 COVID-19 ICU survivors has identified important findings regarding the experiences of those participants. It has been shown that patients who have survived through ICU stay have experiences that change their lifestyles and shape their expectations for themselves and their relatives. Intense anxiety, fear, regret, and helplessness were the main negative feelings. In addition, it was observed that the experiences of the patients during the treatment process varied widely. Although some patients were very grateful to the health personnel who provide health services to them, others stated that they were not satisfied with the service they received. These findings provide a framework for understanding the postdischarge life, expectations, and possible associated health problems of COVID-19 patients who have experienced ICU.

There are very few previously published studies about the ICU experiences of COVID-19 survivors, and most of them are conducted with quantitative methods (Berends et al., 2021; Tingey et al., 2020). One of the recent qualitative studies conducted with COVID-19 survivors revealed similar themes with our study as "living in limbo" and "psychological distress behind the wall" (Moradi et al., 2020). That study's findings especially imply the disturbance caused by uncertainty and mental health impairments due to COVID-19. Similarly, our findings reveal that uncertainty is a significant source of disturbance among ICU survivors. Also, the high frequency of codes such as anxiety, fear, regret, and anger suggests possible future mental health impairment risks for those individuals. Physical disturbances such as fatigue and breathlessness are also accompanied by psychological disturbances such as PTSD and decreased quality of life after discharge from ICU in COVID-19 patients (Halpin et al., 2021; Hosey and Needham, 2020). It has been shown by some qualitative studies that developing the capacity to cope with stress by supporting the positive emotions of COVID-19 patients is crucial for promoting their mental health (Olufadewa et al., 2020).

Existing studies are primarily cross-sectional and indicate that various mental health problems, especially PTSD, may be seen in individuals after ICU discharge (Pattison, 2005). However, these studies cannot reveal the reasons for the vulnerability of individuals. In our study, individual risk factors that may cause possible emotional distress in the future were determined. Each individual may have their own concerns. For example, an issue that is very important for one person may not be a priority for another person. Individual risk factors should be determined to prevent psychological problems in the post-ICU discharge period, and individual psychosocial support should be planned.

The negative experiences of COVID-19 survivors discharged from the ICU are not only caused by psychological factors. It has been observed that environmental stimuli they are exposed to, especially during ICU hospitalization, are also a significant stress factor. Events such as the constant alarm and other sounds heard from the devices, or the death of another patient lying next to them in front of their eyes and another patient being brought to the same bed after a short time, have a traumatic effect on patients (Gültekin et al., 2018). When these effects are combined with loneliness, they form the basis for chronic conditions that may occur in the future. For example, being exposed to the physical discomfort listed previously or being connected to a mechanical ventilator during ICU treatment increases the risk of delirium (Brown et al., 2020).

The qualitative approach provides a thorough evaluation of the experiences and potential challenges for the future life of COVID-19 ICU survivors. The most important aspect of the study is that it revealed the leading causes of possible mental health conditions after discharge. Each patient has a unique inner world, and the preventive interventions should be designed individually for the patients.

The main limitation of this study is the unknown psychiatric illness status of the patients after ICU discharge. The study was conducted with patients treated and discharged from the ICU due to COVID-19 after a certain period and did not include long-term follow-up results. It is thought that cohort-style studies that include quantitative items will help to evaluate the long-term results. The small sample size of the study prevents the results to be generalized for the general population, but the findings provide important clues for future studies. In this study, which included qualitative evaluations, more detailed sociodemographic information about the participants could not be presented and analyzes evaluating the relationships between factors and outcomes could not be performed.

## CONCLUSIONS

The qualitative approach provides a thorough evaluation of the experiences and potential challenges for the future life of COVID-19 ICU survivors. As a result of this study, it can be stated that people who are hospitalized in intensive care due to COVID-19 are among the risky groups for mental symptoms. Therefore, effective and individualized psychosocial interventions are required for these patients. It is crucial to apply individualized psychiatric treatment approaches before discharge, during treatment in the ICU, in terms of postdischarge follow-up.

## DISCLOSURE

*No funding was received for this study.*

*The study was conducted according to acceptable research standards, including having obtained informed consent of participants. The study was approved by Ethical Board of Recep Tayyip Erdogan University, Faculty of Medicine with registration number 2020/246 on December 23, 2020.*

*All authors have read and approved the submitted manuscript.*

*The authors declare no conflict of interest.*

*T.G.T., Ç.H., and S.Ü. helped the design and planning of the study, analysis and interpretation of the data, and drafting and revising the final version of the manuscript. A.T., A.H., and M.S. helped the design and planning of the study, collecting the data and conducting the interviews, analysis, and interpretation of the data, and drafting and revising the final version of the manuscript.*

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