Exploring the experiences of COVID-19 survivors with a history of admission to the respiratory intensive care unit (RICU): A phenomenological study in Iran

Esmaeil Barkhori Mehni
Jiroft University of Medical Sciences

Foozieh Rafati
Jiroft University of Medical Sciences

Mohsen Abbasi
Jiroft University of Medical Sciences

Shideh Rafati
Hormozgan University of Medical Sciences

Sudabeh Ahmadidarrehsima
Sudabeh.Ahmadi1122@gmail.com
Jiroft University of Medical Sciences

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Abstract

COVID-19 is still spreading around the world. To this end, the present study sought to explore the experiences of COVID-19 survivors with a history of admission to ICUs in southern Iran.

This study was conducted using descriptive phenomenology on twelve COVID-19 survivors with a history of admission to the ICU. The patients were selected using purposive sampling. The data were collected through face-to-face semistructured interviews with the patients. The collected data were analyzed using the seven steps of Colaizzi analysis.

Data analysis revealed 3 main themes: better resources and facilities, unpleasant physical and psychological experiences, and pain relievers.

COVID-19 survivors who were admitted to the RICU reported that they had many positive and negative experiences. Thus, health officials, experts, nurses, and physicians need to pay special attention to the problems faced by COVID-19 patients admitted to ICUs.

Introduction

During the last two centuries, several epidemic diseases have severely threatened humanity[1]. One of these epidemics is COVID-19 caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) [2]. This disease quickly spread throughout the world and imposes considerable psychological pressure on human society[3]. COVID-19 spread widely in Iran and caused confusion, distress, and changes in people's living conditions [4].

A significant number of COVID-19 patients experience dyspnea in 2–5 days, and pooled ICU admission rate was 21% and 69% of cases needed invasive mechanical ventilation[5, 6]. These patients experience considerable suffering in the last days of their lives in the ICU, which affects them physically and mentally[7]. The admission of COVID-19 patients to RICUs is different from admission to other wards. Patients who are admitted to the RICU due to COVID-19 have different levels of experience with admission, which affects their general attitudes toward continuing treatment [8]. A COVID-19 patient who is admitted to the RICU is exposed to much psychological distress due to critical conditions and the complex medical procedures performed on him/her. Anxiety, fear, anger, hatred [9], and communication problems [4, 10] are among the challenges experienced by these patients. A case study reported suicide due to anxiety symptoms in a young patient with COVID-19 [11]. Furthermore, quarantine and dependence on others during treatment may distort patients’ sense of autonomy and independence and reduce their quality of life [12, 13]. A systematic review revealed that the incidence of posttraumatic stress disorder (PTSD), anxiety, and depression symptoms in COVID-19 patients after discharge from the ICU was 39%, 30%, and 30%, respectively [14].

The widespread use of mechanical ventilation for the treatment of COVID-19 patients and medical staff’s inadequate knowledge about patients’ experiences can affect the quality of nursing care. The personal
feelings of COVID-19 patients under mechanical ventilation affect their reactions and their ability to reach a previous stable state. Thus, an awareness of the patient’s experiences and feelings can open a window toward a better understanding of the expectations of COVID-19 patients admitted to the ICU[15].

Patient experience involves a wide range of interactions that patients have with the health care system, including physicians, nurses, and hospital staff, during the treatment process[16]. The results of a systematic review on the relationships among patient experience, clinical safety, and treatment effectiveness showed a relationship between patient experience, health care outcomes, clinical effectiveness, and patient safety. The results of this study confirmed that the experience of patients is one of the main components of quality in health care[17]. Knowledge of patients’ direct experience of the clinical care process can provide valuable insights into daily care, including pain management, help with personal tasks, coordination of care, and improvement of healthcare services[18]. Understanding the quality and nature of the experiences of COVID-19 survivors who are admitted to the RICU during the treatment and recovery of their disease can be very useful in providing services, especially treatment and nursing support, for these patients.

Previous studies have not attempted to provide a deep understanding of the lived experiences of COVID-19 patients undergoing mechanical ventilation. Thus, the present study aimed to explore the experiences of COVID-19 survivors under mechanical ventilation in the RICU at the only hospital center for the treatment of COVID-19 in a city in southern Iran. The findings of this study can provide a deeper understanding of the needs and potential problems of COVID-19 patients and can contribute to improving the quality of treatment and care for these patients.

**Methodology**

This study was conducted using descriptive phenomenology on COVID-19 survivors with a history of admission to the ICU who were discharged for a maximum of 6 months.

**Sampling**

The participants were selected using purposive sampling from among patients with rich information to provide a vivid picture of the phenomenon under study. Twelve patients participated in this study. The patients with the most variation in terms of age, sex, and education were selected.

**Setting**

The study was conducted in a teaching hospital in southern Iran. For the sake of the participants’ convenience, the location and time of the interviews were determined upon their agreement. The interviews were conducted in a room at the hospital, the nursing school, or the patient’s home.

**Data collection**
The data were collected through semistructured interviews with open-ended questions. The participants could describe and discuss their experiences on the subject. Each interview began with the following questions: "Describe your experience of being in the intensive care unit" and "Describe your experience of the care received in the intensive care unit". Probing questions were also asked for further clarification wherever necessary. Each interview session ended with the question “Are there any other questions I should have asked?” Throughout the interview, the researcher tried to keep the questions relevant to the purpose of the interview. Data collection continued until data saturation. Data saturation occurs when further sampling does not provide any new information and only repeats previously collected data [19]. The duration of the interviews varied from 30 minutes to one hour. The interviews were recorded with a tape recorder, and then all verbal and nonverbal expressions of the participants were written down.

**Data analysis**

The collected data were analyzed using Colaizzi’s seven-step analysis: reviewing the collected data, extracting significant statements, deriving formulated meanings from significant statements, organizing formulated meanings into clusters of themes, integrating the findings into an exhaustive description, describing the fundamental structure of the phenomenon, and validating the findings with the participants [20].

In the first step, the interview transcripts were read several times to come up with a general impression of their content. In the second step, significant phrases, statements, or paragraphs related to the questions asked in the interviews were identified and underlined. In the third step, a short description was formulated for the hidden theme for each significant statement. The formulated theme is the phrase or statement that is formed by the researcher’s revision of the essence of the significant statements. The themes were extracted separately by two people, and then the extracted themes were discussed to agree on a common theme. The fourth step involved grouping the formulated meanings into a set of clusters. To validate the data, an expert compared the extracted clusters with the data. In the fifth step, the findings were merged into a thorough description of the phenomenon under study in the form of themes and subthemes. The description was revised by other members of the research team. Finally, the findings were shared with the participants, and they were asked to give their opinions and discuss their reactions to the findings.

**Rigor**

The criteria proposed by Lincoln and Guba were used to establish the rigor of the data [21]. To this end, the extracted codes and themes were discussed with the participants, and they revised and confirmed them. In addition, the emerged codes and themes and the coding scheme were verified through member checking and peer checking. Keeping the documents and evidence, reviewing the literature, explaining the context, long-term involvement with the participants, the researcher’s interest in the phenomenon in question, and interviewing the participants who were different in terms of gender and education were other measures taken to enhance the credibility of the findings.
Moreover, the bracketing technique was used to increase the trustworthiness of the data. Bracketing is a method used in qualitative research to mitigate the potentially deleterious effects of preconceptions that may taint the research process [22]. It is also a method to prove the validity of data collection and analysis in most phenomenological studies [23].

Results

The participants in this study were twelve COVID-19 survivors, including 9 men and 3 women aged 19 to 59 years with a history of admission to the ICU. Table 1 shows the participants’ demographic characteristics.

<table>
<thead>
<tr>
<th>No.</th>
<th>Age (year)</th>
<th>Gender</th>
<th>Education</th>
<th>ICU stay (day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>35</td>
<td>Female</td>
<td>Master’s degree</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>37</td>
<td>Male</td>
<td>Bachelor’s degree</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>53</td>
<td>Male</td>
<td>Associate degree</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>48</td>
<td>Male</td>
<td>Bachelor’s degree</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>52</td>
<td>Male</td>
<td>Bachelor’s degree</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>59</td>
<td>Male</td>
<td>Bachelor’s degree</td>
<td>21</td>
</tr>
<tr>
<td>7</td>
<td>19</td>
<td>Male</td>
<td>High school diploma</td>
<td>30</td>
</tr>
<tr>
<td>8</td>
<td>48</td>
<td>Male</td>
<td>Primary school</td>
<td>17</td>
</tr>
<tr>
<td>9</td>
<td>41</td>
<td>Male</td>
<td>Lower education</td>
<td>19</td>
</tr>
<tr>
<td>10</td>
<td>58</td>
<td>Male</td>
<td>Bachelor’s degree</td>
<td>23</td>
</tr>
<tr>
<td>11</td>
<td>42</td>
<td>Female</td>
<td>Bachelor’s degree</td>
<td>29</td>
</tr>
<tr>
<td>12</td>
<td>34</td>
<td>Female</td>
<td>Master’s degree</td>
<td>28</td>
</tr>
</tbody>
</table>

Three main themes were extracted from the interviews with the participants: (1) better resources and facilities, (2) unpleasant physical and psychological experiences, and (3) pain relievers.

Better resources and facilities

Since most of the patients had been admitted to the acute respiratory unit before being admitted to the ICU, they stated that the conditions and facilities of the ICU were much better than those of the acute respiratory units.

Supportive and expert healthcare staff
Most of the participants stated that the healthcare and medical staff, especially ICU nurses and doctors, were professional, kind, dedicated, supportive, and accessible people who provided comprehensive support to their patients. They stated that the healthcare staff performed their duties beyond the patients’ expectations. This was contrary to their experience in normal respiratory units, where due to the lack of personnel, the healthcare staff and personnel were not able to provide comprehensive care and support. Accordingly, one of the patients who had fought in the Iran-Iraq war said, “I have been in the war. I saw the ICU personnel like soldiers of the war. Being in the ICU reminded me of the fire of battle. I saw they (the healthcare staff) gave their lives to save the patient’s life” (Participant #5).

**Better facilities and equipment**

The participants reported that the ICU had more and better facilities, medicines, and equipment than did the respiratory units, the waiting time for receiving care was lessened, and the central oxygen supply made them feel more relaxed. One of the patients (Participant #8) stated, “In the ICU, there was a central oxygen supply that had good pressure. This was very good, while in the respiratory unit, I was always worried about running out of oxygen capsules, and they had to a spare one next to me so that I could feel at ease”.

**Unpleasant physical and mental experiences**

This theme refers to the physical and mental problems experienced by patients in the ICU.

**The severity of physical symptoms**

Most of the patients stated that they suffered from severe physical symptoms such as severe cough, severe shortness of breath, chest pain, fever and chills, the feeling of suffocation, and severe physical weakness. One of the patients said, “I took the doctor’s hand and said, kill me in any way you can because I can’t bear this pain anymore” (Participant #3).

**Ambivalent feelings**

The participants in this study stated that they had conflicting emotions that they had not experienced before being admitted to the ICU. Feelings such as swinging between hoping to survive and despair, wishing for survival and accepting death as a part of life, feeling happy about the emptying of the ICU bed and getting admitted due to the death of a patient, and remorse for being happy about the death of another person, feeling sad about the death of a patient with happiness that the patient died but you are still alive, and the desire to receive information about the severity and progress of one’s illness and the fear of receiving this information. Most of the participants stated that getting along with these emotional fluctuations and conflicting feelings was difficult. One of the female patients stated, “I used to be happy that another person died and I was alive, and then I was feeling guilty that I was happy about the death of another person” (Participant #1).

**The unpleasant atmosphere of the ICU**
All participants reported that they had unpleasant experiences related to the conditions of the ICU. They stated that things such as loud noise, frequent blood draws, restrictions on visiting relatives and feelings of loneliness, impaired perception of time, observation of critically ill patients, and death were the most unpleasant experiences for them.

**Fear, anxiety, and worry**

The most important cause of fear and worry in patients was the incipient risk of death because the patients experienced severe physical symptoms (such as shortness of breath, weakness, and lethargy). On the other hand, they frequently noticed other patients becoming sick and dying, which caused them to worry and experience anxiety. They often stated that they were afraid of being the next patient to die. One of the female patients said, "*When I saw seven or eight doctors and nurses attending the bed of a sick patient, but they did not succeed in keeping her alive, I had a terrible feeling, and I was afraid that I would be the next one (to die)***" (Participant #1).

The participants also stated that they were afraid of COVID-19 as a newly emerged disease, its unknown course, the unknown long-term and short-term complications of the disease, and the lack of known definitive treatment for it. One of the patients said, "*I was worried because it was a new viral disease that even doctors did not know how to treat***" (Participant #6).

Some participants also stated that they were afraid and anxious due to exposure to complex equipment and devices. Another factor that made all the participants worried was family concerns. Missing, worrying about the future (welfare, mental and economic conditions) of the family members in case of the patient's death, and worrying about the health of other family members infected with COVID-19 were among the main concerns experienced by the patients in the ICU. One of the patients said, "*I was worried about my husband and child that they would be alone after my death, even in that situation I was looking for a suitable partner for my husband who would be kind and treat them well after my death***" (Participant #1).

**Pain relievers**

Most of the patients were not defenseless in the face of worry, fear, and anxiety, but some factors reduced their mental pain and suffering:

**Coping strategies**

The patients reported that they used different strategies to address the stress experienced in the ICU, the most frequent of which were diversion of thoughts in different ways (such as video calls with family members, limited activity, exercise in the bed, repeating positive and hopeful words and sentences, and focusing on the here and now) and resorting to spirituality and God. One of the male patients (Participant #4) said, "*I left everything to God, there (in the ICU) no one could help except the divine power***". A female
patient said, “I was trying to bring peace to myself by mentally reconstructing the conditions at home” (Participant #1).

Professional and family support

Support, encouragement, and reassurance from the healthcare staff, admiration of the smallest improvement by the healthcare staff, and effective and supportive communication were among the factors that provided comfort to patients in stressful situations. In addition, the physical and virtual, practical, and emotional support of family members, especially meeting with close relatives and family members, was a positive experience for patients and helped them cope with the stressful conditions of the ICU. One of the male patients (Participant #10) said, “The pandemic conditions did not allow anyone to see me, but all my relatives talked to me through video calls. This gave me a lot of morale.”

Discussion

The present qualitative study explored the lived experiences of COVID-19 survivors in Iran. However, due to reasons such as the discovery of the COVID-19 vaccine, increased research and knowledge about prevention methods, the introduction of more effective drugs for treatment, and the mutation of less lethal strains, public panic about COVID-19 has disappeared, and a kind of normalcy has prevailed in society. However, it should be noted that knowing the lived experiences of people affected by a phenomenon will help people understand the different aspects of the problem, think of ways to solve it, and prepare to deal with possible similar epidemics. For example, using the lived experiences of people with diseases such as tuberculosis and Ebola has been very helpful in preparing and formulating strategies to address similar diseases [24, 25].

The results of this study showed that better resources and facilities in RICUs improved the physical and mental health of COVID-19 patients. Most of the participants were satisfied with the sufficient number and skill of ICU staff, as well as better equipment and facilities for care and treatment, as was evident in another study in Iran [26]. The participants in this study also reported their physical and psychological experiences due to the severity of physical symptoms that caused great pain and suffering for these patients. Aghahosseini (2022) reported the unpleasant physical and psychological experiences of COVID-19 survivors in Iran, including fear of imminent death, living in a fence, family concerns, and suffering from restrictions[27]. Rahmatinejad et al. (2020) also reported severe physical symptoms, especially shortness of breath, in COVID-19 patients [12]. Another unpleasant experience reported by the COVID-19 patients in this study was the unpleasant atmosphere of the ICU. Similarly, Amini et al. reported that a significant number of patients admitted to treatment departments were not satisfied with their health conditions during hospitalization. The frequent visits of the nurses, noise, and overcrowding of the nursing station disturbed their rest [26]. Fear, anxiety, and worry were other unpleasant psychological experiences reported by the patients in the present study. They stated that they repeatedly noticed the critical conditions and death of other patients, which caused them to worry and experience anxiety. Bahmani and Pirak (2020) reported that patients who recovered from COVID-19 imagined themselves in
an uncontrollable and difficult situation in which they had no control [28]. Aghahosseini (2022) also reported that COVID-19 patients in Iran suffered from preoccupation with death, hearing the news of others’ death, and death anxiety. They also showed that seeing and hearing about the illness and death of others, especially acquaintances, caused more anxiety, worry, and fear in COVID-19 survivors [27]. Other studies have also indicated fear, anxiety, and worry in COVID-19 survivors [29, 30]. The unpredictability of the course of treatment, loneliness, quarantine, frequent exposure to the death of others, and the imminent risk of death can be the reasons for the negative emotions experienced by patients admitted to the ICU. Providing accurate and clear information to patients about COVID-19 and explaining the physical symptoms experienced by patients and the course of the disease may reduce patients’ fear and anxiety [31]. In addition, online psychological interventions can be carried out to reduce the mental and psychological symptoms of COVID-19 patients in a situation where face-to-face psychological interventions are not possible due to epidemic conditions [32].

The participants in this study reported that they used coping strategies and social (professional and family) support to reduce their negative emotions. Sun et al.’s (2021) study in China showed that receiving care from medical staff and social and family support helped the psychological adaptation of hospitalized COVID-19 patients [31]. Moreover, Rahmatinejad et al. (2020) reported that in Iran, the perception of social support, positive emotions caused by religious and spiritual beliefs, positive thinking, and support from medical staff were effective at helping patients cope with COVID-19 [12]. Social support makes people feel cared for, loved, and valued. Moreover, they see themselves as part of a wider communication network, which ultimately empowers them to cope well with stressful situations [33]. In Eastern cultures such as Iran, where the emphasis is on collectivism rather than individualism, social support plays an important role in adapting people to stressors. **Limitations**

The nature of qualitative studies limits the generalization of the findings to other COVID-19 survivors. In addition, this study did not examine the experiences of patients after discharge. Thus, future studies can examine the effects and consequences of COVID-19 after patients are discharged.

**Conclusion**

The present study showed that COVID-19 patients admitted to the ICU experienced many positive and negative experiences. Access to better resources and facilities, supportive and expert healthcare staff, and more facilities and equipment in the RICU were among their pleasant experiences. However, the patients reported unpleasant physical and mental symptoms, including severe physical symptoms, ambivalent feelings, an unpleasant atmosphere in the ICU, fear, anxiety, and worry. The patients reported that they were able to cope with the challenges of the disease by relying on individual coping skills and social support. According to these findings, health officials and experts, nurses, and doctors need to pay special attention to COVID-19 patients who are admitted to ICUs to reduce their negative experiences and suffering and enable them to more effectively cope with the disease.

**Declarations**
Ethics approval and consent to participate: This study was conducted in accordance with the Declaration of Helsinki, and was approved by the Ethics Committee of Jiroft University of Medical Sciences (IR.JMU.REC.1400.084). The participants were assured of the confidentiality of their information and the right to withdraw from the study. Moreover, oral consent was obtained from all participants. In addition, if the recall of the information related to admission to the ICU caused extreme discomfort and emotions in the patient, the patient could see a psychologist for free. Permission was obtained from the hospital officials to conduct the study.

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Consent for publication:

Not applicable.

Availability of data and materials:

The datasets used and/or analyzed during the current study are available from the corresponding authors upon reasonable request.

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Authors' contributions:

All authors (E B; S A D, F R, M A, and SH R) conceptualized the study, and all were major contributors to the writing of the manuscript. All authors approved the final manuscript.

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