

The lived experience of hospitalized and non-hospitalized health care providers of COVID-19 pandemic: a qualitative study

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Ethics approval: the protocol of this study was approved by the College of Nursing at the University of Duhok. In addition, the ethical approval of this study was obtained from the local health ethics committee. The Health Ethics Committee is a joint committee between the Duhok General Directorate of Health and the University of Duhok for the ethical aspects of medical investigations. The proposal obtained ethical approval on 3rd March 2021 as reference number 03032021-2-2. The ethical approval was unconditional, taking into consideration the following mandates: the guarantee of this is given the right to publish the results of the study; the participants don't bear the responsibility of paying for any procedure and have the right to withdraw from the study; confidentiality of the data should be secured; notifying the participants about the results of the procedure performed; any change in the methods of the study needs prior approval from Research Ethics Committee. In this study, we did not apply any intervention to the patients neither psychological nor physical. The confidentiality of the personal information of the patients was protected throughout the study steps. In addition, sufficient information was given to the patients about the study purposes before performing the interviews.

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Abstract

This paper explores the lived experience and any mental health issues of COVID-19 survivors throughout the disease crisis using a qualitative method. The semi-structured interviewing method was conducted with COVID-19 patients who were admitted and non-admitted to hospitals in Kurdistan, Iraq. The patients had positive and negative perceptions of the COVID-19 pandemic and disease including beliefs and thoughts about COVID-19, conspiracy thinking, and concerns toward the family and their children. The patients were affected by the disease in different ways including physical consequences of COVID-19 infection, social isolation, life changes, and mental wellbeing. But they had some coping strategies to overcome the disease such as seeking help, preventive measures, and coping techniques. The patients had some concerns about health settings and therapeutic procedures including lack of sufficient care, receptiveness, hospital environment, and infection guidelines. This study showed that the COVID-19 disease had devastating effects on patients either physically or psychologically.

Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has imposed serious implications on patients [1,2] and society and healthcare workers [3] since its onset from Wuhan, China, to other countries beginning in December 2019 [4].

SARS-CoV-2 mainly is responsible for respiratory and digestive tract symptoms [5] from mild self-limited disease to severe pneumonia, acute respiratory distress syndrome, septic shock, and even systemic multiple organ failure syndromes. The infection source of the disease is mainly patients with SARS-CoV-2 infection. But, asymptomatic infected patients could also be the source of infection [1], mainly through aerosols from the respiratory tract, but also via direct contact. By June 30, 2022, the World Health Organization [6] reported that 544.324.069 were infected by this disease and 6.332.963 of the patients died.

Health systems have faced rapid high demands due to the COVID-19 pandemic. The health systems have been overwhelmed both directly by the pandemic and indirectly by vaccine-preventable and treatable medical conditions. In this regard, it is noteworthy to maintain the trust of the patients in terms of healthcare's capability in providing the safe and essential medical requirements to control infection in medical settings. Controlling the risk of infection is the main entity of the health system to

ensure suitable care-seeking behaviors and adherence to public health instructions. Given that the countries require well-organized and prepared healthcare systems to establish equitable access to essential medical service delivery. Healthcare workers (HCWs) have been affected by this pandemic both psychically and psychologically such as doctors [3,7,8], and nurses [2,9].

Patients with infectious diseases during the outbreaks experience more psychological issues compared to the time before the pandemic [10-12]. Even the patients suffer from different degrees of stress disorders, anxiety, and long-term mental health issues [13]. The studies conducted on SARS survivors have reported that 40% of patients had post-traumatic stress disorder (PTSD) even after three years [14].

The containment measures including social distancing and a national lockdown are important public health strategies in the fight against COVID-19. Despite these measures being necessary steps against the COVID-19 pandemic, these measures impact physical [15] and psychological [16] health. Changes in mental health during the lockdown have been reported by several studies from the USA and Italy. The increased prevalence and severity of anxiety and depressive symptoms along with an impairment of psychological functions have been reported by these studies [17-19]. The decrease in physical activity and sleep habits impairment and unhealthy eating habits have been reported in Italian studies [20,21]. Another study from Italy surveyed 5008 persons who reported moderate or severe psychological distress among 25.5% and 22% of respondents, respectively [22]. Psychological distress has been reported among healthcare workers as well [23,24]. We need to explore the mental health issues of the patients after the disease to address their psychological needs. Therefore, there is an urgent need to identify the existing mental health services in addressing the current requirements of mental health and preparing the health system for future challenges in the post-pandemic era in terms of prevention and management. The HCWs are the main column of giving care to COVID-19 patients and can affect the patients receiving or not receiving the care. In this regard, this paper explores the lived experience and any psychological issues of COVID-19 survivors throughout the disease crisis using a qualitative method. In this study, we hypothesized that the participants experienced psychological distress during hospitalization. In addition, we hypothesized that the attitudes of the patients have changed after infection with COVID-19.

Patients and Methods

Study design

This study utilized a descriptive qualitative method for data collection. Qualitative research is useful when we know little about the research issues [25]. It allows the participants to be able to express their needs and concerns from their perspectives. In this study, two different types of patients with COVID-19 were included following taking the written consent form. The patients with the COVID-19 who were admitted to the hospital (admitted COVID-19 group) due to the severity of the disease were invited through a snowballing sampling technique (those who have lived through COVID-19 infections) [25]. In addition, the patients with light to moderate levels of the COVID-19 who were not admitted to the hospitals (non-admitted COVID-19 group) were invited through a snowballing purposive sampling technique as well. We could not visit the COVID-19 hospitals to find out the admitted HCWs due

to infection and strict governmental measures. Therefore, we had not any other choice of sampling except for snowballing technique.

Participants, setting, and sampling technique

The admitted and non-admitted COVID-19 patients (HCWs) were chosen from the COVID-19 patients in geographic areas of the Duhok governorate in Iraqi Kurdistan in 2021. The target population of this study was infected HCWs diagnosed with COVID-19 either admitted or non-admitted in the hospital or intensive care unit (ICU). The target population had different socio-demographic characteristics, including both males and females, different educational levels, various social classes, occupations, and religions.

This geographic area has three special hospitals dedicated to COVID-19 patients. Based on the local guidelines of the region for the management of COVID-19, patients with light and mild-to-moderate status are not admitted to the hospital to compensate for the hospitals' beds for severe and critical patients. The light and mild-moderate patients confine themselves at home until recovery from the disease. Several free screening centers have been dedicated to testing suspected patients with COVID-19. The patients receive free medical care at three dedicated hospitals for the COVID-19 disease [2].

To obtain a representative sample of the population, the second author of this study attempted to contact some nurses who work in these three COVID-19 hospitals to find the admitted patients. The researcher asked them to give them the names of medical staff who were infected by COVID-19 either admitted or not admitted to the hospital. The second researcher recorded the names and characteristics of the HCWs on a paper. He tried to include patients of both genders with different educational levels, various religions, and other socio-demographic characteristics to obtain a representative sample of HCWs in this region. The same technique was used by the second researcher to include the infected HCWs with COVID-19 who had a light and mild-moderate level and were not admitted to the hospital. In this regard, we included six patients with COVID-19 who were admitted to the hospital and four patients who were not admitted to the hospital. The patients were invited into this study regardless of their socio-economic status. Patients with different educational and cultural backgrounds were eligible to participate in this study. The second author invited eight admitted and seven non-admitted HCWs to the study. However, two and three admitted and non-admitted HCWs patients were not included in the interview due to having a high working load at a hospital.

Data collection

The required information for this was divided into two parts. The general information of the patients was recorded in the first part of the questionnaire. The information was age, gender, hospitalization (yes/no), the hospital admitted days, isolated days, infected days till recovery, education, occupation, and infected date. The second part of the questionnaire had the main questions of the study as follows:

- i) Can you please tell me how you felt when you were affected by COVID-19? What made you feel that way? Please explain more.
- ii) What did you do to deal with the infection? Who did you get help from? Who gave you the support you needed then?
- iii) How did you feel during your time in hospital/family? What was your experience in the hospital? Please explain.
- iv) How did you feel toward your family members then? And what about now?

- v) What has changed in your life since the infection?
- vi) How do you cope/deal with changes in your life/work?
- vii) What are your thoughts and feelings after recovery from COVID-19?
- viii) What are your thoughts about Covid-19 and the pandemic?
- ix) What advice you would give to other people who might be in the same situation as you?

Interviews

We performed individual interviews with patients between 20 March 2021 and 14 August 2021. The second author performed all interviews with patients to apply the sample way of explanation and questioning. The individual interviews were recorded on a smartphone to be used for data analysis. We preferred to do the interviews through phone calls to prevent the possible spread of the virus since the recovered patients are still sources of infections [8,9]. The questions were presented to the participants one by one. The patients were allowed the questions as much as they could on phone calls. The interviewer asked the patients to explain the questions in detail as required.

The interviewer called the patients to identify an appropriate time for an interview. The consent to conduct an interview was obtained from all patients before performing the interviews. The interviewer obtained the consent of the participants by recording their voices in the phone call. Of the total 15 patients who were invited to this study, five of them were excluded from the study following determining two times the interview time. The interviewer explained the objectives of the study through the phone call and they accepted to record their voice for the study purposes. Each interview lasted for between 30 and 45 min.

The semi-structured interviews were conducted to collect information from the patients. We developed open-ended questions to collect as much relevant information from the patients. The same pre-set questions were asked of each patient by the second author. The interviewer used the probes and was prompt for clarification. We gave sufficient time to the participants to respond to the questions.

Data analysis

The information recorded on phone calls was listened to by the first author. The first author translated the interviews from Kurdish

into English verbatim. The information was read, reread, and checked several times. The translated texts were sent to the second author for checking of the contents. The first author went to the next step in the case of confirmation of the contents by the second author. The relevant information was arranged to obtain suitable themes and sub-themes. Suitable codes were given to the themes and sub-themes for the arrangement of the information. The information on each theme was joined together aftermath. The crated themes were sent to the second and third authors for correcting and giving the appropriate suggestions. The final themes were made through the consensus of three authors. The texts of each theme were arranged and condensed subsequently. The information was analyzed using a thematic method. To realize the findings, the interviews were read several times. The themes of the study were extracted from the significant statements of each interview. In the next step, the developed concepts were carefully studied and clustered based on the similarity of the information. In the discussion, the themes were studied carefully to make the connection between the themes. The connection of the themes was analyzed based on the current information in the literature.

Results

In this study, six and four health care providers who were admitted and not admitted to the hospital due to COVID-19 disease were included respectively. They had different age groups, gender, and other medical information. The healthcare providers included nurses, doctors, and medical lab technicians (Table 1).

Thoughts and feelings about COVID-19

Being infected with COVID-19: thoughts and feelings

At the beginning of the pandemic, they exhibit very negative thoughts and feeling about the disease. However, their feelings have changed positively after contracting the corona although they lost several friends and colleagues in this pandemic. Most have good feelings because they have recovered from the disease. One participant who is a physician reported a good feeling about his infection because doctors had no time to rest during the COVID-19 pandemic. Otherwise, he would be too busy taking care of his patients and have no time to rest properly (Participant

Table 1. General information of healthcare providers.

General information on healthcare providers								
Name	Age	Gender	Hospitalized	Admitted days	Isolated days	Recovery	Education	Occupation
Participant 1	29	Male	Admitted	56		6	BSc in Nursing	Nurse
Participant 2	24	Male	Admitted	7		15	B.Sc.	Medical Lab
Participant 3	41	Male	Admitted	4	8	14	Ph.D.	University faculty member
Participant 4	28	Male	Admitted	7	15	8	MBChB	Physician in corona hospital (single)
Participant 5	43	Male	Admitted	41	41	64	College	Nurse
Participant 6	26	Male	Admitted	10	22	25	Higher Diploma	Nurse
Participant 7	31	Female	Non-admitted	.....	25	20	Higher Diploma	Occupation: Nurse (COVID-19 hospital)
Participant 8	38	Female	Non-admitted	.....	18	14	Institute	Nurse
Participant 9	25	Male	Non-admitted	.....	14	14	Higher Diploma	Nurse
Participant 10	26	Female	Non-admitted	.....	18	18	B.sc Nurse	Nurse

4). At the beginning of the pandemic, the infection by COVID-19 created a stigma in the public. Some famous persons were infected by COVID-19. It was believed that they were infected because of their sexual relations. Some participants believed that the virus remains a seasonal one. At the beginning, participant 10 believed that she can overcome the disease as the virus will disappear in the summer.

Conspiracy thinking

Some participants had conspiracy thinking about the disease despite their beliefs and thoughts being changed during this pandemic. Only hospitalized patients reported something about the conspiracy theory. This virus is artificial. They believed that someone has determined who must be infected by this virus and who must be affected by this disease. It is under the control of someone or some countries that they have identified which age group must be infected or die. They can manage the level of the corona. Participant 6 remarked that:

Because it was January that they said the corona will be increased in July and August and we have the same situation. He anticipated that the virus will be disappeared, but maybe some years later. Because it is a good idea for commercial purposes. So, they do not need to lose this tool.

Concerns toward the family

In terms of beliefs and thoughts about being infected by the COVID-19 disease, the participants either hospitalized or non-hospitalized had concerns about their family members. The hospitalized patients reported that they had no good feelings toward their families. But they preferred to go to the hospital for the safety of their parents. One participant who was admitted to the hospital for 56 days with a severe COVID-19 condition mentioned that it is better to go to the hospital to protect his parents from the infection (Participant 1). Another participant was admitted to the hospital along with his wife to the corona hospital. He was concerned about losing his wife due to the COVID-19 disease because she was pregnant and obese. In addition, his sister does not have a good medical situation. They had a high level of social interaction, so he was afraid to infect other family members. His mother was infected and had not in a good situation. His sister came home to visit her mother, but she was infected by the virus despite his asking her not to come (Participant 3). Participant 6 was concerned about his older family members. If they were infected by the virus, they would die of the disease due to their old age as most also have a chronic health condition as well. The similar concerns were reported among non-hospitalized patients.

Concerns toward their children

That concern was also for the children. When one of the parents was infected by the virus, the participants tried to separate the children from the infected person. They also remarked that if one dies of COVID-19, what would happen to their children (Participant 8). The participants were thinking about death and were afraid of their children and family members.

Participant 5 was afraid to die because he had concerns for her children. He sometimes cried for his children because he felt that he is close to death. He asked his family and friends to not come to him at night. Also, he advised his friends to not come hospital because of an infection. He added that one night between three and four patients died in the room where he was admitted in. He was not afraid of death, but just want to live for the sake of his family and

children (Participant 5). The hospitalized patients reported that they were so happy when they recovered from the COVID-19 disease.

Consequences of COVID-19 infection

In terms of the consequences of COVID-19 infection, several issues emerged from the participants' perspectives including social isolation to protect themselves and their society, changes in their lifestyles, and mental well-being. The participants experienced isolation from their family members and society and changes in their lifestyles. Some participants reported some degrees of fear of infection by the COVID-19 disease.

Social isolation

The hospitalized participants isolated themselves to recover from the disease and protect their family members from the disease. The participants experienced negative feelings when they were separated from their families and social networks. The isolated room of the hospital also created a negative feeling among the participants. For non-hospitalized participants, they were confined at home during the infection time. They contacted their friends and family members through online platforms. Being confined to an infected place created some negative feelings in some participants. One participant remarked that there is something in their house that creates negative feelings. She was feeling suffocating at home. Her husband was thinking to sell their house (Participant 8). Other participants were confined at home or in a dorm with no social contact with their family members, friends, or community.

Life changes

Some hospitalized participants reported some changes in their life, for instance, being more physically active, feeling tired and lost energy. The prone to humanism was an aspect reported by one of the participants. She is more tolerable than before (Participant 5). One participant reported that "I am more religious than before. I have so positive spiritual feelings in my life" (Participant 1). In addition, participants found that they had sufficient experience to assist other family members during a difficult time.

Some non-hospitalized participants were not willing to have social communication with people after infection by the COVID-19 disease and reported significant changes in their physical conditions. The negative changes in eating habits and pleasure occurred as a result of the infection. Their lives did not have the same quality as before the pandemic time. One of the participants could not smell her favorite perfume and was suffocated by some smells, such as soap, some smells in hospitals. (Participant 8). Patients paid more attention to their health compared to before outbreak time.

Mental well-being

The mental well-being of the hospitalized participants was negative when they were infected by COVID-19. One doctor who worked for several months for the COVID-19 patients remarked that:

I knew that I will be infected by the disease a day. I had a little bit of fear of the disease. I was thinking that if I die because of the virus, will do my duties at the hospital. Some persons and friends died of COVID-19 and the Facebook news put us in a bad situation, so I was psychologically down (Participant 5).

However, after he has been in the hospital for three days, he was no longer afraid of death.

The non-hospitalized participants were quarantined until recovery from the disease. They were unable to sleep at night due to the effects of the infection by COVID-19 disease.

Coping strategies

The participants asked for help from their friends or family members to recover from the disease. They had some pieces of advice for the people to protect themselves against the COVID-19 disease. The patients did some strategies for coping with this disease, receiving medicine, changing diet, and family assistance. For example, Participant 6 reported that received sufficient information on treatment and diet. He followed the instructions of the doctor, but his situation was escalated and admitted to the hospital. His oxygen level was decreased due to fear. His friends (nurses) and his brother assisted him a little. Some other strategies were using supplements and food with good energy. Participant 1 said that I could not move for several weeks, so he relied on physiotherapy along with family assistance. Participant 1 added that being psychologically strong is important to overcome this disease. He suggested that psychiatric staff assist the patients with COVID-19. Participant 5 believed that firstly God can save us and secondly medicines. He trusted the health system for recovery and received the assistance of family and friends.

The non-hospitalized patients used different techniques for coping with the disease; including natural fruit drinks, like ginger and lemon, and using fruits and vegetables for improving immunity; coughing continuously to decrease the dirty sputum; using fruits and vegetables, eating more the meal but a small portion; and using fluids too much; and psychological strength.

Seeking for help: social support

Social support was received mostly from the family members and close relatives of the participants. A visit from family members when they were hospitalized provided good psychological support to him. For participant 3, this led to a better relationship with family members than before. Many hospitalized participants asked their friends or family members for help when needed. Others sought support from religion. One participant (participant 3) mentioned that "I listened to religious texts of the Quran for psychological support".

Healthcare experiences

The participants reported some of their experiences in the hospital or at home, including lack of care and respect among nurses and medical staff. In addition, they reported bad experiences in the hospital environment.

Lack of care in caring for patients

One participant who is a nurse remarked that he did not receive the required medicine from the medical staff at the hospital. He elaborated:

I experienced so much bad feelings when I was admitted to the hospital. Because the hospital staff does not care for the patients as required. For example, they prescribed the medicine for me, but they did not administer some medicines for me. When I was discharged from the hospital, I checked the patients' charts. I found out that they did not administer the celexane for me. I think my d-dimer was between 6000 and 8000. I was not able to breathe, but they did put me on a CPAP (Continuous positive airway pressure). The CPAP is for

patients who can breathe to some extent. The CPAP assists the patients to breathe only. This is a crime in the health system. Later one of my nurse friends visited me and found out the situation and put me on intubation. Intubation is for persons who are unable to breathe. If my friend did not help me, I would definitely pass away (Participant 1).

Lack of sufficient healthcare was the result of an insufficient experience in managing COVID-19 patients. According to participant 1,

The medical staff in COVID-19 do have not sufficient experience in managing COVID-19 patients because they work in the public sector also. For example, in a public hospital, staff did not come or come too late to check the medical conditions of the patients. My creatinine was so high, that my brother asked them to do a creatinine test for him. They said it is not your own business. The high level of creatinine was the main reason that I became an acute renal failure. It was three days on hemodialysis.

According to participant 5, some patients died because of a lack of oxygen in the hospital. Some patients died due to their low socio-economic status. They could not go to the private sector and the public sector did not give sufficient attention to the patients.

Receptiveness and carelessness of the medical staff

The patients reported that the healthcare services of the hospitals were so weak. The nurses and doctors were not available in need. An admitted nurse with COVID-19 reported that I am sorry for the weaknesses of the health system despite its great role in treating the patients. This nurse added that there was no one in the hospital in need. The medical staff just administered the medicines and left the medical ward. He added that "Someone asked where the doctors and nurses are? I could be comfortable when I see the white color medical staff. I was not so comfortable with this station. I have worked for 23 years in the health system. The shortage of medical staff and oxygen, and food. The doctors visited the patients quickly and left the medical ward" In addition, he added that the health system did not respect its staff. He mentioned that he has worked for 23 years in the health system. But no one from the health system visited us during that time.

Respect

Lack of respect among medical staff created unhappiness among the participants. The participants expected their colleagues to be respectful of them as a patient. One participant, who is a nurse, complained of the non-respect of the health authorities to the medical staff. He mentioned that:

I did not see any medical authority to visit me. They could come and visit their staff to respect them. I have worked for 23 years in the health system. I was the manager of a hospital for five years and the manager of medicine distribution for four years. They could come and respect their medical staff at the hospital. They did not respect us for our services during the COVID-19 pandemic (Participant 5).

Hospital environment

One was hospitalized with his wife in the hospital and remarked on some aspects of the hospital environment. He said that "The hospital is outside the city far from everything. It is like a prison. The hospital was so crowded and not comfortable for the patients" (Participant 3). This participant also added that the hospital environment created a fearful atmosphere for patients. He remarked:

I had the worst experience in the COVID-19 hospital. For example, the hospital is for mild-to-moderate cases only. The cases who became severe cases were transferred to another special hospital. The ambulance came two or three times per day to the hospital. The noise of the ambulance made a negative feeling for us. I was thinking that the next day is our turn to be the severe cases (me and my wife). I closed the door to not hear the voice of the ambulance. I did not like that my wife heard the voice of the ambulance. The voice of oxygenation was full. The patients were screaming and coughing too much. It was not an environment for us. The COVID-19 hospital is like Guantanamo. Someone passed away in front of you. The next one may be you (Participant 3).

Discussion

This study showed the patients had positive and negative perceptions of the COVID-19 pandemic and disease including beliefs and thoughts about COVID-19, conspiracy thinking, and concerns toward the family. The patients were affected by the disease in different ways including physical consequences of COVID-19 infection, social isolation, life changes, and mental wellbeing. But they had some coping strategies to overcome the disease such as seeking help, following preventive measures advice, and coping techniques. In addition, the patients had some concerns about the health settings and therapeutic procedures, including lack of care in caring for patients, receptiveness, hospital environment, and infection guidelines.

In agreement with our study, the patients experienced confusion and a sense of imminent death and something between life and death [26]. The patients in our study were thinking about the death of the disease (mostly hospitalized patients). Patients are confused, anxious, and vulnerable to extreme behaviors [27] and are concerned due to fear of death among patients and uncertainty of the situation, and uncertainty about the time of disease control and severity [28]. The patients reported that there were 1-4 to six patients in a room. The patients were afraid when someone died of the disease in the room. This condition may have a serious psychological effect on the patients. One of the patients reported that one night 3-4 patients died in the room when I was admitted in. The participant added that other patients were seriously anxious and psychologically weak due to this situation. Another patient reported complaining about the high sound of the ambulances to transfer the severe-critic cases to another hospital because our hospital was devoted to the mid-moderate cases. The patient reported that the high sound of the ambulance made negative mental issues on his wife and other patients in the hospital. He added that the patients were screaming and coughing too much.

The literature has approved that hospital environmental factors affect the patient's health outcomes. The following factors have an impact on patients' outcomes; form, unit layout, floor material, room features, medical equipment visibility, nature, lighting, and music [29]. The hospital should create a suitable and calm environment for the patients to sleep and be psychologically strong. The literature has confirmed that noise exposure is responsible for lowered sleep quality, speech processing, and various physiological functions. The noise causes disturbances to the patients. The hospital administration must take into account that sleep is an important factor in aiding patients' recovery and energy for their treatment [30]. Sleep deficits cause negative physiological effects on patients [31].

Surges in COVID-19 patients have made high stress on hospi-

tal systems and negatively affected healthcare and public health infrastructures. Resource limitations like available hospital space, staffing, and supplies resulted in deficits in the standard of care and the most extreme operating condition for hospitals [32]. When hospitals deviate from conventional standards of care, several preventive and elective medical procedures are suspended accordingly. These conditions result in serious consequences and conditions for the patients [33]. Some weaknesses of medical treatment at COVID-19 hospitals in Iraqi Kurdistan have been reported by doctors [34] and nurses [35].

The hospital administration and health authorities must solve the hospital-related issues mentioned by the patients in this region. For example, the noise originating from the ambulances can be solved appropriately. The medical staff must be careful about the death of the patients in the next of other patients. This condition can weaken the psychological status of the patients and longer the healing process of the disease.

But the patients were likely to think about the health of their family members. The patients were afraid that their family members be infected by the virus and die accordingly. One admitted nurse to the hospital was more concerned about the status of her admitted wife rather than himself. The COVID-19 pandemic has prevented families to visit patients in hospital environments and intensive care units. The hospital administration can create a link of connection between patients and their family members to strengthen their psychological status. The technique practiced by Dr. Sahar Osman on her mobile phone using a video app to speak to the mother of a patient in UCI Medical Center's neurological intensive care unit (ICU) could be a convenient choice [36]. The reason for the establishment of this kind of technique is that the families are concerned about the health of their patients [37,38]. Connecting between patients and families could play as a coping strategy for patients.

Considering all mentioned above factors, the patients had some coping techniques for overcoming their diseases such as seeking help, following preventive measures advice, and coping techniques. A patient must announce a family member or friend of their disease. Some patients reported that they hide their diseases from their families to not pose any stress. The most prevalent coping technique for non-hospitalized patients was quarantined. Some other coping strategies have been reported by patients in the literature, such as acting coping, denial, behavioral disengagement, self-blame, and religious coping strategies [39]. The family could act as major support for the patients with COVID-19 either hospitalized or non-hospitalized because there is a substantial correlation between the social support score and total level of stress [40].

A home management scheme for patients with severe COVID-19 as suggested by Hussein *et al.* [41] and tested in Iraqi Kurdistan could be a suitable option through the primary care network because they reported that home care management schemes and hospital treatment have similar case fatality rates. Home care for patients with suspected and documented confirmed COVID-19 and management of their contacts has been suggested and organized by the WHO as well [42].

Recommendations and implications

It is suggested that the weaknesses of the health system be examined from the patients' side in future attempts. The examination of these weaknesses could assist the health system to solve these issues in the coming years. In addition, we recommend that the depression or depressive symptoms be addressed through physical exercise. Physical exercise counteracts several mechanisms

postulated to increase the death risk of depression. Also, exercise can be effective as other first-line treatments without adverse side effects [43]. The experiences of admitted patients in terms of the hospital environment could be explored in the next attempts.

Limitations of the study

We do not yet have the organized registration of the patients with COVID-19 in this region, therefore, we had no access to the names of all HCWs infected by COVID-19 in this region. The current sample may not imply the situation of all HCWs in Iraq. However, it has provided a snapshot of the situations and how patients lived through their health conditions in this region which can be used in future health care. The findings reported in this study may not be generalized to other medical settings as the included HCWs were mostly nurses. However, the study uncovered some important challenges in caring the COVID-19 patients in hospitals.

Conclusions

This study showed that the COVID-19 disease had devastating effects on patients either physically or psychologically, but they had some coping techniques to overcome the disease. The participants had positive and negative perceptions of some conspiracy thinking about the COVID-19 pandemic. The participants were deep concerns about their family members and children. Their lifestyles and mental well-being were either positively or negatively changed. Upon recovering from the disease, the patients had serious concerns about the hospital care environment, respect, and medical care patients. Meanwhile, the patients tried to find social support as a coping mechanism against the psychological effects of the disease. The main message of this study is that the infected HCWs with COVID-19 may expose to serious psychological distress during admission to the hospital or infection.

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