COVID-19

Original article

DOI: https://doi.org/10.5114/nan.2023.130412

Exploring the psychological effects of COVID-19 on patients in Iran: a qualitative study

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Neuropsychiatria i Neuropsychologia 2023; 18, 3–4: 1–6

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Abstract

Introduction: COVID-19, a new disease infecting a large number of people, undoubtedly has psychological effects. This study aimed to explore the experiences of psychosocial effects in patients with COVID-19 in Iran.
Material and methods: The content analysis qualitative study was conducted from April to September 2021 in Iran. Participants were twelve patients with COVID-19 selected through purposive sampling. Data were collected using telephone interviews. After recording and transcribing interviews, data were analyzed using the method proposed by Graneheim and Lundman. The rigor of data was assessed using the criteria proposed by Guba and Lincoln.
Results: Patients with COVID-19 described the four psychological effects arising from the pandemic: post-traumatic stress disorder, depression, sleep disorders, and fear of remaining COVID-19 complications.
Conclusions: The results showed that patients with COVID-19 experienced a variety of psychological effects during the pandemic. It is necessary to monitor psychological problems in patients after discharge and implement interventions such as psychological counselling and strengthened crisis support systems.

Key words: COVID-19, patients, psychological effects, qualitative study.

Introduction

COVID-19 is a newly emerged infectious disease which was first identified in Wuhan, China on December 31, 2019 (Hui *et al*. 2020). In January 2020, the World Health Organization (WHO) declared the outbreak of a new coronavirus disease (COVID-19) as a public health emergency of international concern. In March 2020, the WHO characterized COVID-19 as a pandemic (WHO announces COVID-19… 2020). In Iran, the number of people with COVID-19 was 6,051,642 with the death toll standing at 128,406 on November 17, 2021 (Reported Cases and Deaths by Country… 2020).

The pandemic has not only risk of death from the viral infection but also psychological effects on patients with COVID-19 and the rest of the world (Xiao 2020). Epidemic outbreaks of emerging infectious diseases including severe acute respiratory syndrome (SARS), Ebola, influenza A (H1N1), and Middle East respiratory syndrome (MERS) have also led to serious psychological impacts on patients including stress, anxiety, fear, and depression (Sun *et al*. 2021). Post-traumatic stress disorder (PTSD) and other psychological disorders have also occurred (James *et al*. 2019).

There have been reports on the psychological effects of the COVID-19 pandemic on the general population, patients, healthcare staff, children, and older adults (Yang *et al*. 2020; Li *et al*. 2020). For example, 50% of patients with Ebola exhibited mild distress or depression, anxiety, sadness, and social problems. Approximately 20% of patients required psychotropic medications and interventions (Kamara *et al*. 2017). Similarly, H1N1 survivors retained psychological barriers and poor quality of life one year after discharge from the intensive care unit (ICU) (Luyt *et al*. 2012). The MERS epidemic increased the risk of psychological disorders and

mental diseases, with 70.8% of survivors having psychological symptoms and 41.7% diagnosed and treated for mental symptoms during hospitalization (Kim *et al*. 2018).

Patients with suspected or confirmed COVID-19 exhibited a higher level of psychological stress. A study of 3,947 participants from Vietnam showed that those with suspected symptoms of COVID-19 had higher depression and lower quality of life (Nguyen *et al*. 2020). A survey of 714 clinically stable patients with COVID-19 in Wuhan, China, found that prevalence of major post-traumatic stress symptoms associated with COVID-19 was as high as 96.2% (Bo *et al*. 2021). Consequently, it is necessary to explore the psychological effects of COVID-19 on patients in order to plan for psychological supportive interventions.

The purpose of this study was to explore the experiences of psychosocial effects in patients with COVID-19 in Iran. This study could expand the scope of available information on the topic from a different geography and culture. The results of this study may guide non-governmental organizations and the state in establishing necessary policies via psychosocial support to improve mental well-being of COVID-19 patients in Iran.

Material and methods

This qualitative study was carried out with a conventional content analysis method from April to September 2021. Twelve patients with COVID-19 were recruited from hospitals affiliated to Jahrom University of Medical Sciences (Motahari and Peymanie hospitals). Seven participants were male, and five were female. The age ranged from 21 to 52 years. Participants were selected using purposive sampling. Maximum variation was taken into consideration in sampling in terms of age, gender, employment status, marital status, and level of education. Prior to the telephone interviews, a written consent form and an invitation letter including information sheet were sent to the patients *via* WhatsApp and Telegram. Additional information was also provided by the research team to these patients by telephone if requested.

The participants were hospitalized patients or discharged ones with COVID-19, who were selected by purposeful or snowball technique. Inclusion criteria for the participants were: 1) confirmed cases of COVID-19 with positive PCR test, 2) history of hospitalization due to COVID-19, 3) willingness to participate in the study. Those patients not using a mobile phone were excluded from the study.

Data collection and interview guide

Data collection was continued until data saturation in which no new category was obtained. Since face-to-face interviews were risky for both the researchers and patients, we gathered data through semi-structured in-depth telephone interviews. Each interview lasted on average 30 to 45 min based on convenience and patient tolerance. First, characteristics of participants were gathered from their medical records available at the hospitals' nursing offices. Then, we contacted the patients. After explaining the aims of the study and acquiring verbal consent from the patients, the proper time for the interview was agreed with the patients. All interviews were conducted with prior agreement of the participants. An electronic device was used to record all the interviews with the permission of the participants. In order to record voices of the participants, audio recording software was installed on smartphones. The recorded conversations with participants were transcribed in a Microsoft Word file for analysis. The first author, who had experience in conducting qualitative studies, carried out the interviews. The interviews were conducted by telephone, and WhatsApp and Telegram were used to send and complete the informed consent form.

The participants were asked some key questions: "Please tell us about the time you had COVID-19. How did it go?", "How did you feel during hospitalization as a patient with COVID-19?", "What were your main concerns during hospitalization?", "What unpleasant experiences did you have during COVID-19?", and "How did the illness affect you?". Also, based on participants answers, more in-depth questions were asked such as "What do you mean?", and "Please explain more about this". The participants were assured that demographic information would remain confidential, and that withdrawal from the study was optional at any time after the start of the study.

Data analysis

The data were analyzed using Graneheim and Lundman's content analysis approach. Furthermore, the interviews were transcribed verbatim in Microsoft Office Word. The MAXQDA 10 software was used to manage the coding process. We listened to the interviews and read

the transcripts several times to obtain a general perception. The units of meaning were groups of sentences which gave an identical meaning or were relevant to the same concept in some ways. Accordingly, this units were condensed and coded. The codes were compared with each other and classified into more abstract categories according to their resemblances. Finally, the categories were compared with each other and sorted into higher level main categories (Graneheim and Lundman 2004).

Trustworthiness

Credibility, dependability, confirmability, and transferability were used to determine the rigor, according to Lincoln and Goba criteria (Cohen and Crabtree 2006). The credibility of data was ensured by prolonged engagement with data, spending quite a long time in the field, collecting and analyzing data and using member check and peer check. In the member check, coded interviews were returned to four participants to reach an agreement between the researchers and patients via WhatsApp and Telegram. In peer check, comments of the two faculty members with qualitative research experience were used to determine codes and categories. For dependability and conformability, the external audit technique was used. Thus, interviews, codes and categories were examined and confirmed by two independent experienced researchers. Transferability was enhanced through maximum variation in sampling, development of questions, the method of coding and category extraction. Transferability was also obtained by description of rich data.

Ethics approval and consent to participate

The present research was approved by the ethics committee in Jahrom University of Medical Sciences (IR.Jums.Rec.1400.029). Before data collection, the researchers obtained oral and written informed consent to ensure the confidentiality of the names of individuals, privacy and an emphasis on voluntary participation. At the beginning of the interviews, the research goals and method were explained to the participants and they were assured of confidentiality of information.

Results

Since this qualitative study was a conventional content analysis, collected information is inductive, and all data and results are inductively extracted from the interviews with the participants.

Four main categories were revealed by content analysis: 1) Post-traumatic stress disorder, 2) depression, 3) sleep disorder, and 4) fear of the persistence of COVID-19 complications. Each category had several different sub-categories, as shown in Table 1.

Post-traumatic stress disorder

One of the most important psychological effects of COVID-19 on patients was post-traumatic stress disorder. The majority of participants were under stress from re-infection as well as transmission of the disease to family members as carriers of the disease. A participant addressing this issue mentioned that: "I am more worried about my son. He is six years old… and these children have no understanding of the disease, and they do not know about health protocols… generally you have a feeling of guilt that you may infect someone, and that is stressful". Another participant mentioned: "I am very worried about my mother, who has diabetes. Every time I leave home, I am afraid to be a carrier and transmit the disease to her".

Depression

The majority of participants described depression as another psychological effect of the

Table 1. Categories and sub-categories extracted from the data

Categories	Sub-categories
Post-traumatic stress disorder	Stress due to re-infection Stress regarding the health of family members Fear of being a carrier
Depression	Depression from quarantine Rumination of bitter memories of the days of involvement with COVID-19
Sleep disorder	Sleep disorder The emergence of obsessive thoughts Dreams and nightmares
Fear of persistence of COVID-19 complications	Fear of persistent symptoms such as fatigue Excessive attention to symptoms

disease. Participants were depressed because they had been quarantined for some time due to COVID-19. A participant addressing this issue mentioned that: "I was in quarantine for about 2 weeks, and I felt very lonely. Poor communication with family members and friends has led to depression due to health protocols and disease prevention". Another participant mentioned: "The days I was hospitalized because of COVID-19 were terrible. It was very difficult to breathe. Every day I go through unpleasant experiences of having COVID-19. This mental rumination makes me more depressed".

Sleep disorder

Another psychological effect was sleep disorders. Some participants had nightmares after being infected with COVID-19, which led to sleep disturbances. A participant addressing this issue mentioned that: "I have nightmares and fear at nights. Fear of re-infection, fear of losing family members due to COVID-19, etc. make me wake up". The participants' experiences revealed that patients refused to eat and drink outside home because of obsessive thoughts. Another participant mentioned: "I have to wash my hands with every contact with garments or equipment, that is, I have to do this constantly for every purchase of home supplies". Another participant mentioned: "I cannot sleep well at night. I do not know how it affects thoughts of a person and causes depression and sleep disturbances".

Fear of ongoing COVID-19 complications

Another psychological effect was fear of lasting COVID-19 complications. Participants were concerned that symptoms of COVID-19 might be permanent. A participant addressing this issue mentioned that: "Although a few weeks have passed since I got COVID-19, sometimes I get fatigue and headache. I'm worried these symptoms will be with me forever". Another participant mentioned: "After getting infected with coronavirus, I am very obsessed about signs and symptoms of the disease, and I think every symptom is related to this virus".

Discussion

According to the results of this study, psychological effects of COVID-19 on patients are identified in four categories of post-traumatic stress disorder, depression, sleep disorders, and fear of the persistence of COVID-19 complications. In line with the results of this study, PTSD, depression and anxiety, and reduced quality of life were reported one year after infection with SARS and MERS (Ahmed *et al*. 2020b). In addition, a study found that up to 40% of patients who had SARS continued to experience fatigue and psychiatric disease about 3.5 years after the acute infection (Lam *et al*. 2009). These results are similar to those from a 6-month follow-up study of previously hospitalized patients with COVID-19, which showed that patients mainly struggled with fatigue or muscle weakness, sleep difficulties, and anxiety or depression (Huang *et al*. 2021).

In our study, one of the psychological effects of COVID-19 for patients was PTSD. It is well known that surviving life-threatening diseases can induce PTSD (Sparks *et al*. 2020). In line with this study, the level of PTSD was found to be very high among patients during hospital admission for COVID-19 (Bo *et al*. 2021). Similarly, a longitudinal 4-year study showed that 44.1% of SARS survivors developed PTSD and retained psychological distress with lower social performance (Bo *et al*. 2021; Ahmed *et al*. 2020a). Most clinically stable COVID-19 patients experienced PTSD prior to discharge from hospital (Bo *et al*. 2021). Consequently, timely psychological support is necessary (Kim *et al*. 2018; Holmes *et al*. 2020). Therefore, in cases where it is not possible to perform psychological interventions in persons due to prevention and control of the epidemic, online interventions can be performed.

Another psychological effect of COVID-19 on patients was depression. Depression is a relatively common psychological problem that many individuals experience during and after the epidemic (Banerjee 2020). Mak *et al*. (2009) reported that prevalence of psychological and mental disease in SARS survivors was 33.3%, 30 months after the disease, of which 25% of patients PTSD and 15.6% had suffered from depression. According to the results of Idrissi *et al*. (2020), 48% of participants had moderate to severe depression. This is in line with the findings from the SARS-CoV-1 epidemic revealing depressive symptoms among patients during the infection.

The main causes of depression in our study were related to quarantine and rumination of bitter memories of the days of being involved with COVID-19. In our study, most patients felt depressed as a result of quarantine. This was caused by separation from their families, social disruption,

and changes to life. Quarantine also led to loneliness, helplessness, and depression, consistent with previous reports of other epidemic illnesses (James *et al*. 2019; Mak *et al*. 2009; Hossain *et al*. 2020). Also, rumination of bitter memories of the days of being involved with COVID-19 directly affects the psychological condition of individuals following the epidemic. Patients displayed rumination behavior, accompanied by depression. Studies have shown that rumination mediates the effects of depression during COVID-19 (Wang *et al*. 2020). Hence, reducing rumination using psychological interventions and promoting deliberate rumination are significant for psychological coping (Parmentier *et al*. 2019). Also, accurate health information may reduce stress, depression, and the psychological effect of the epidemic (Wang *et al*. 2020).

One of the psychological effects experienced by patients with COVID-19 was sleep disorders. Since COVID-19 is a new infectious disease with a high mortality rate, being unfamiliar made patients worried, which might have led to sleep problems. One of the categories extracted in the study of Sun *et al*. (2021) was changes in diet, sleep, and behavior, which is consistent with the results of the present study. Fu *et al*. (2020) reported that more than one-fourth of patients with COVID-19 suffered psychological problems, including anxiety and depression, and about one third had sleep disorders. Also, the results of Idrissi *et al*. (2020) indicated a high level of sleep disorder, especially insomnia in patients.

Another psychological effect of COVID-19 on patients was fear of lasting complications of COVID-19. Similarly, the results of the study of Islam *et al*. (2021) showed that one of the concerns of patients is persistent COVID-19 symptoms, which is consistent with the present study. Also, 20% of patients participating in the study of Islam *et al*. reported that they experienced persistent COVID complications after recovering from COVID-19, with the most frequently reported persistent complications being diarrhea and fatigue during the post-COVID-19 stage. Persistent complications have also been reported in Italy, where 87.4% of individuals reported at least one symptom (e.g., asthma, fatigue) after recovery from COVID-19 (Carfì *et al*. 2020). A study from the Netherlands and Belgium also reported fatigue and asthma as the most common complications among non-hospitalized individuals three months after the onset of COVID-19. In those hospitalized due to COVID-19, persistent symptoms included fatigue, dyspnea, memory loss, poor sleep, and concentration difficulties (Goërtz *et al*. 2020). It is therefore important that follow-up care be offered to persons who have been ill with COVID-19 (Polastri *et al*. 2020).

Strengths and limitations of the study

The findings of the study promote understanding of behavior and voices of COVID-19 patients, providing empathy with their psychology, and performing targeted interventions based on their needs, and promoting both physical and psychological recovery of the patients.

Limitations

Regarding the limitations of this study, it can be said that a qualitative study should be conducted using face-to-face interviews to obtain stronger rigor of data, but in this study, the data were collected through phone interviews; nevertheless, the validity of the data was ensured using alternative methods. Another limitation is that qualitative studies are not concerned with the generalizability of the results; it is recommended that similar studies in other contexts be conducted to make the findings more generalizable. The fact that only the viewpoints of the patients in Jahrom hospitals have been used in this study could be considered as a limitation. Also, the use of the viewpoints of patients regardless of the caregiver's viewpoints is one of the other limitations.

Conclusions

The current study shows comprehensive understanding of experiences of the psychological effects faced by COVID-19 patients. The sources of such distress were related to post-traumatic stress disorder, depression, sleep disorder, and fear of the persistence of COVID-19 complications. During the crisis of outbreaks of diseases and/or natural disasters, individuals and sufferers face various unknown stressors. In order to improve mental well-being, it is required for comprehensive support, especially psychological support during and after such events. Hence, it is necessary to monitor the patient's psychological problems after discharge and implement interventions such as psychological counselling and strengthened crisis support systems.

Funding statement

This study has been financially supported by the Research Department at Jahrom University of Medical Sciences.

Acknowledgments

We sincerely thank all COVID-19 patients who participated in this research.

Disclosure

The authors declare no conflict of interest.

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