

COVID-19 nurses' experiences of caring: a qualitative study

Doświadczenia personelu pielęgniarskiego w opiece nad chorymi na COVID-19 – badanie jakościowe

Elham Kheirandish¹, Mozghan Rahnama², Abdolghani Abdollahimohammad², Hajar Noorisanchooli³, Zohrehsadat Hashemi⁴

¹Student Research Committee, Nursing and Midwifery School Zabol University of Medical Science, Zabol, Iran

²Department of Nursing, Zabol University of Medical Sciences, Zabol, Iran

³Faculty Member of Nursing and Midwifery School, Zhedan University of Medical Sciences, Zahedan, Iran

⁴School of Nursing and Midwifery, Zabol University of Medical Sciences, Zabol, Iran

Medical Studies/Studia Medyczne 2020; 36 (4): 239–245

DOI: <https://doi.org/10.5114/ms.2020.102317>

Key words: COVID-19, self care, qualitative research, patient care.

Słowa kluczowe: COVID-19, samoopieka, badania jakościowe, opieka nad pacjentem.

Abstract

Introduction: Nurses at the frontline of providing direct care to COVID-19 patients are at risk of infection, exposure to severe physical and mental challenges and stress, which can have negative consequences for patient care. The nurses' experiences can be useful for planning a safe healthcare system in the face of infective pandemics. So, their experiences should be used to identify and solve the related problems, because by using the experiences of these nurses, the relevant problems can be identified.

Aim of the research: This study aimed to describe COVID-19 nurses' experiences of caring.

Material and methods: This qualitative content analysis study was conducted on 10 nurses of the COVID-19 ward of the educational Amir Al-Momenin Hospital from 10 May to 30 August, 2020 in Zabol, southeast Iran. Data were collected using semi-structured interviews. The data were analysed using the Graneheim and Lundman approach.

Results: The present qualitative content analysis was conducted on 10 nurses of a COVID-19 ward. The following main themes and sub-themes were included: COVID-19 nurses' experiences of caring, multiple aspects of caring for COVID-19 patients, the challenges and requisites of COVID-19 care, and the fear of being infected by the virus and the nurses' protective self-care.

Conclusions: The results show the importance of taking care of patients, meeting the existing safety challenges and being able to take good care of themselves.

Streszczenie

Wprowadzenie: Personel pielęgniarski sprawujący bezpośrednią opiekę nad chorymi na COVID-19 narażony jest nie tylko na zakażenie, lecz także liczne wyzwania o charakterze fizycznym i psychicznym oraz stres. Czynniki te mogą mieć negatywny wpływ na jakość opieki nad pacjentami. Doświadczenie pielęgniarek może być przydatne przy planowaniu bezpiecznego systemu opieki zdrowotnej na wypadek epidemii i należy je wykorzystywać przy identyfikacji problemów oraz opracowywaniu rozwiązań.

Cel pracy: Opisanie doświadczeń personelu pielęgniarskiego związanych z opieką nad pacjentami chorymi na COVID-19.

Materiał i metody: Badanie jakościowe z wykorzystaniem analizy treści przeprowadzono w grupie 10 pielęgniarek od 10 maja do 30 sierpnia 2020 r. na oddziale dla chorych na COVID-19 w szpitalu klinicznym Amir Al-Momenin w mieście Zabol w południowo-wschodnim Iranie. Dane zebrano metodą częściowo ustrukturyzowanych wywiadów i przeanalizowano, stosując podejście zaproponowane przez Graneheima i Lundmana.

Wyniki: W analizie uwzględniono następujące czynniki główne i dodatkowe: doświadczenie pielęgniarek związane z opieką nad pacjentami z COVID-19, wieloaspektowość opieki sprawowanej nad chorymi, wyzwania i wymogi związane z pracą w okresie pandemii COVID-19, obawa przed zakażeniem oraz samoopieka.

Wnioski: Wyniki wskazują, że w dobie COVID-19 personel pielęgniarski kładzie szczególny nacisk na wszechstronną opiekę nad pacjentami, stawianie czoła wyzwaniom związanym z bezpieczeństwem oraz samoopieką.

Introduction

Today coronavirus disease 2019 (COVID-19) is a global public health emergency [1]. This disease was first reported in Wuhan, China in December 2019 [2]. In late December 2019, a group of patients affected by pneumonia were identified with unusual symptoms. This specific pneumonia was caused by a new coronavirus (SARS-CoV-2) [3]. The prevalent symptoms of this virus include a body temperature of over 37.8°C, tiredness, dry cough, shortness of breath, sore throat, and muscle pain [4]. COVID-19 has rapidly spread all over the world [5]. On March 11th, 2020, the World Health Organization (WHO) declared this new disease a global pandemic [6].

According to the latest statistics available on December 12, 2020, more than 64,343,747 people in the world have been infected with COVID-19, and more than 1,490,144 people have lost their lives. Also in Iran, more than 989,572 people have been infected and 48,990 have died due to COVID-19. The virus kills more than 400 people daily in Iran [7].

The elderly and people with a weak immune system are at higher risk of experiencing severe disease [8]. Children are usually at lower risk of being infected by this virus. However, it has been reported that about 1–2% of COVID-19 patients are children [5]. Patients with the symptoms of fever, dry cough, and respiratory distress, and patients affected by more severe forms of the disease are usually hospitalized for subsequent treatments [2].

Currently, COVID-19 treatment is symptomatic and there is no specific anti-virus treatment and no vaccine. So, the only solution is to take preventive measures. Therefore, many countries have adopted public health protocols to control the spread of this virus. These measures include social distancing, washing hands, and quarantine. Also, respiratory training has been suggested for protection against the virus [4].

According to a Newsweek report, by April 4th, 2020, COVID-19 had caused the deaths of more than 100 doctors and nurses. This report can indicate the significance of the problem [9]. According to Hung's report, nurses are highly vulnerable to COVID-19, and it is necessary to adopt special protocols in hospitals to decrease the infection risk in the nurses in contact with COVID-19 patients [9]. So, efforts should be made in preventing spread of the infection among hospital personnel [10]. Since health care providers are considered vital human resources in every country, their health and safety is crucial not only in caring for the patients, but also for controlling the disease prevalence [9]. So, it is necessary to investigate the health care providers' needs and problems to develop a safe healthcare system in response to a national disease. Furthermore, it is necessary to adopt strategies to protect the health care providers against physical and mental pressures [11]. Particularly, the mental effects of this pandemic

on the workforce will impact the healthcare system and the consequent care provided for the patients [12].

The nurses' experiences can be useful for planning a safe healthcare system in the face of infective pandemics. So, their experiences should be used to identify and solve the related problems. In this regard, the present qualitative study has been performed by a content analysis approach aiming to explain the caring experiences of the nurses working in COVID-19 wards. Qualitative studies are useful when we wish to obtain an in-depth understanding of a phenomenon [13]. Particularly, COVID-19 is a new disease, and the difference in the medical systems and cultures dominating the countries [14] cause some differences in the nurses' experiences.

Aim of the research

This study aimed to describe COVID-19 nurses' experiences of caring.

Material and methods

Design

This qualitative conventional content analysis study was conducted on 10 nurses working in the COVID-19 ward of an educational hospital of Zabol University of Medical Science, Zabol city in south-east Iran from 10 May to 30 August, 2020. Inclusion criteria were: having work experience of 2 months in COVID-19 wards, degree of BSc in nursing. Participants were selecting using purposive sampling.

Data collection

First, the research goals and procedure were fully described for the subjects. Then the consent forms were completed. Data were collected using in-depth semi-structure face-to-face interviews in a comfortable room at a COVID-19 ward in 45–60 min. Interviews were continued until reaching data saturation. The interviews were recorded using a SAMSUNG voice recorder. The criterion of data saturation was finding no further concept and code in the interviews. Observing the maximum variety in sampling, it was attempted to select different nurses in terms of age, gender, working record, and marital status.

The questions were mainly about the care provided by the nurses. For example, "What is the difference between a COVID-19 patient and the other patients? What is the difference between caring for a COVID-19 patient and the other patients? What are the important points to be considered in caring for a COVID-19 patient? Talk about your memorable experiences in caring for these patients, if you have any (favourable or unfavourable memory)". Without directing the discussions, the researcher helped the participants to express their experiences. Where necessary, they used exploratory questions.

Data analysis

Data analysis was done by the method proposed by Graneheim and Lundman [15]. All the interviews were recorded, typed, reviewed, coded, and analysed by the researcher. In fact, data analysis was done simultaneously with data collection. The data were analysed by conventional content analysis. For this purpose, first each interview was carefully read and its significant expressions were highlighted to be recorded as a code (primary coding). The primary coding was done by using the participants' words and the implying codes (the researcher's perception of the expressions). Then, the similar codes were summarized to clarify their concepts, and they were classified in some categories and sub-categories.

In order to determine the reliability of the findings, the coded interviews were given to the participants and they were asked to approve the texts corresponding to their experiences. The necessary modifications were made in some cases. In order to promote the reliability, the resulting codes and concepts were studied by the experts and the co-researchers. Also, some of them were asked to code some parts of the interview texts. Then, the agreement between the codes was assessed. In order to approve the transferability of the findings, it was attempted to select nurses with different demographic characteristics and experiences, so that the researcher could study all the behaviours, incidents, and experiences. Conformability of the findings was achieved by the researcher's description of the research phases. Meanwhile, the details were carefully documented to provide the possibility of using the opinions of other supervisors.

Ethical consideration

This study was approved by the instructional review board (IRB) of Zabol University of Medical Sci-

ence (ethics approval code: IR.ZBMU.REC.1399.049). Written consent forms were completed by participants. Also, they were assured that their identity would be kept private. For this purpose, each of the subjects was assigned a specific number to keep them anonymous. In the case of unwillingness to continue, they could leave the research in any phase. The COREQ checklist was used to report the study [16].

Results

Ten nurses (7 female, 3 male) participated in the study. The mean age of participants was 36.6 years. All participants had more than 2 years' work experience. Most participants had a bachelor degree ($n = 9$), and were married ($n = 8$). Mean work experience of participants was 17 years (Table 1).

The following main themes and sub-themes were included: COVID-19 nurses' experiences of caring, multiple aspects of caring for COVID-19 patients, the challenges and requisites of COVID-19 care, and the fear of being infected by the virus and the nurses' protective self-care (Figure 1).

Multiple aspects of caring for COVID-19 patients

The nurses' experiences implied physical and mental care provided for COVID-19 patients.

Physical aspect of caring for COVID-19 patients

The participants stated that COVID-19 patients had a high physical dependence on healthcare, because they were so weak and they had an unstable condition. So, they had a tendency to sedentariness. Due to shortness of breath, they were usually agitated, and they needed inhalation therapy and oxygen intake control. The nurses were usually faced with the deteriorating condition of COVID-19 patients.

Table 1. Nurses' demographic information

ID	Age	Gender	Work experience [years]	Degree	Marital status
1	42	Female	16	Bachelor	Married
2	33	Female	11	Bachelor	Married
3	30	Male	7	Bachelor	Married
4	41	Female	17	Bachelor	Married
5	30	Male	8	Bachelor	Married
6	42	Female	10	Bachelor	Married
7	44	Female	18	MSc	Single
8	51	Male	25	Bachelor	Married
9	28	Female	5	Bachelor	Single
10	25	Female	2	Bachelor	Married

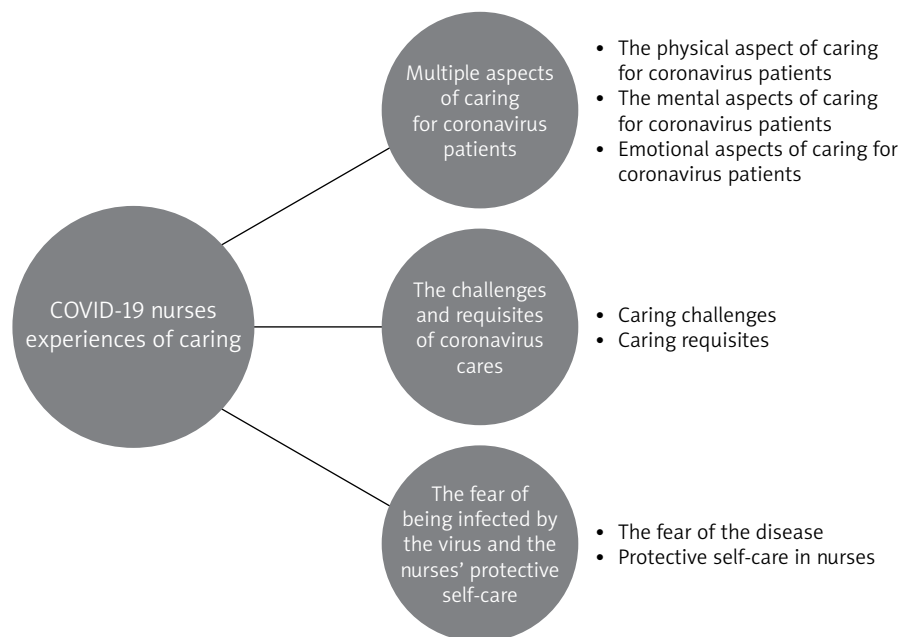


Figure 1. Main theme and subthemes of COVID-19 nurses experiences of caring

A 42-year-old female nurse with a 16-year working background stated that: “COVID-19 patients are affected by severe shortness of breath and quick oxygen saturation decline. Their symptoms changed suddenly and their condition changed into coma”.

Mental aspects of caring for COVID-19 patients

According to the participants’ statements, COVID-19 patients were mentally affected, too. They experienced frustration, delusion, anxiety, anorexia nervosa, fear, depression, low life expectancy, lack of motivation, agitation, mental dependence on oxygen, and the sense of death. So, they needed to receive psychological care. In this regards, a 44-year-old female nurse with an 18-year working background stated: “The patients think they will die if they do not receive oxygen. Once, I removed a patient’s mask and I said: note that you are OK without oxygen; but the patient said: don’t remove my mask, I will die without oxygen”.

Emotional aspects of caring for COVID-19 patients

The participants stated that caring for COVID-19 patients had involved them emotionally. They cried with the patients’ crying, they tried to relieve them, and they felt sympathy towards them. A 41-year-old nurse with 17 years of working background stated: “Although I was scared of COVID-19 patients, I went to them and talked to them. I encouraged them not to be worried and assured them that they would recover.”

Challenges and requisites of COVID-19 care

The nurses’ experiences suggested the challenges and the important tips to be considered in caring for COVID-19 patients.

Caring challenges

The nurses mentioned the following challenges in caring for COVID-19 patients: the patients’ inability to receive education due to their unfavourable condition, the difficulty of working with protective clothes in COVID-19 wards, being forced to work during their sick leave period, the high probability of being affected by the virus, coping with the COVID-19 patients’ fears, caring deficiencies, lack of staff, mental stress during caring for the patients, the difficulty of resting with protective clothes at night, difficulty of caring for COVID-19 patients, lack of protective equipment, fear of being affected by the virus during working, inability to satisfy the patients due to the deficiencies, being forced to work in double shifts due to the shortage of staff, long-term staying in hospital for the risk of virus transmission, facing the patients’ problems caused by the absence of any companion, difficulty of communicating with the patients due to wearing protective guards, being affected by the old and young patients’ death, instability of the patients’ condition and their unfavourable situation, difficulty of working with anxious and worried patients, lack of standard distance between the hospital beds, lack of isolation rooms in hospitals, congestion of the beds, the further tasks created for the nurses due to answer-

ing the patient companions' calls, and bearing the heat when wearing protective clothes. A 30-year-old male nurse with 7 years of working background stated: "This disease has doubled the difficulties of our job. We have to take the responsibility of caring for COVID-19 patients for a 20-day period. We have been faced with different problems such as wearing the protective clothes, safety glasses, hats, and masks".

Caring requisites

The nurses' experiences suggested the requisites of caring for COVID-19 patients that should be considered. These requisites included: the necessity of multi-dimensional activity of experienced and skilled nurses, regarding the risk of bed sore, falling off the bed and aspiration, the necessity of providing a calm space, talking to the patients, emotional support, and encouraging the patients especially in the case of the absence of companions, the necessity of continuous control of the patients' needs such as nutrition, observing the multiple symptoms and respiratory support. A 30-year-old married male nurse with 8 years of working background stated: "Since COVID-19 patients are alone and they do not have any companion, nurses should communicate with them more than other patients".

Fear of being infected by the virus and the nurses' protective self-care

Fear of the disease

The nurses' experiences indicate their fear of working in COVID-19 wards. Most of the nurses had been forced to work in these wards by random selection. They were scared of going to the patients, because they assumed a high probability of being infected by the virus. Some of the nurses experienced the physical symptoms of the anxiety of working in COVID-19 wards and being exposed to the disease risk. Sometimes, shortage of protective equipment intensified their fear. A 51-year-old male nurse with 25 years of working background stated: "In the early days of working in this ward, I was scared of COVID-19 patients".

Protective self-care in nurses

The nurses' experiences suggest their efforts to protect themselves against COVID-19 and their fear of this disease. So, they adopted protective strategies in their workplace. They wore protective clothes despite the heat. They observed protective considerations in their contacts with their colleagues. Also, they adopted preventive measures at home by disinfecting their hands and their instruments before entering their home for their family's safety. A 41-year-old female nurse with 17 years of working background stated: "Due to the fear of the disease, we always wear protective clothes when going to the patients."

Discussion

In this study, the findings resulted in extraction of 3 major categories including the multiple aspects of caring (the challenges and requisites, the fear of disease, and the nurses' protective self-care) and 7 subcategories. According to the results, the nurses provided multiple forms of care (physical, mental, and emotional care) for COVID-19 patients. Ghafari's study also stated that nursing care can be divided into the two categories of physical care and mental care [17]. Approving the importance of emotional care, Zamanzadeh reported that empathy is the main motive for caring and hence the main characteristic of nursing. In this regard, the nurses are expected to show empathy to the patients [18]. Also, Ghafari suggests that the caring elements include emotional support, ensuring the patient's peace and comfort, and proper communication [17]. According to the findings, the nurses mentioned various challenges in caring for COVID-19 patients. The rapid spread of COVID-19 has led to different challenges and pressures for the nursing staff [19], because nurses are considered the frontier actors of providing service for COVID-19 patients and the key members of healthcare teams preventing the spread of infectious diseases [20]. They care for patients with suspected disease and those with a positive COVID-19 test. So, they are exposed to the risk of infection and its consequences. They are required to care for patients experiencing severe forms of the disease and to wear protective guards for long hours [21].

Liu *et al.* investigated the challenges of working in COVID-19 wards (working in a ward with new conditions, using protective equipment, fear of infection (being infected) and transmission of the virus to other people) as one of the extracted themes [8]. Shen *et al.* mentioned the challenges of caring for COVID-19 patients as the following: the mass of workload, long-term tiredness, infection threat, frustration, patients' death, and their concern about their families [22]. Eghbali *et al.* suggest that these nurses may be worried about the risk of transmission of the virus to their families, friends, and colleagues [23]. Meanwhile, Black has suggested that nurses may face critical diseases or their colleagues' death. Also, due to the limitation of resources, they may face moral dilemmas in providing service for the patients [24]. All the mentioned findings are consistent with the results of the present study. These findings suggest the inclusive nature of the mentioned challenges and the necessity of taking proper measures to resolve them. Hung *et al.* mentioned a significant challenge: since the rapid growth of the number of patients leads to a shortage of nurses, it is crucial to develop a scientific and logical plan for the nurses' working shifts [11]. In this regards, Liu *et al.* proposed some solutions including resilience, using multiple resources, social support, and adopting self-management strategies to cope with

this situation [8]. In this study, the nurses mentioned different requisites for caring for COVID-19 patients. Also, Liu *et al.* mentioned the nurses' responsibilities as the following: providing the COVID-19 patients' relief and comfort with their maximum efforts. This item was one of the themes extracted in this study [8].

Furthermore, the nurses' stated that they were concerned about transmission of the virus to their family members, so that it became a great fear for them. Sterling mentioned the nurses' exposure to the risk of virus transmission as one of the extracted themes [25]. Explaining the nurses' experiences of caring for MERS patients in South Korea, Kim mentioned the nurses' going to the risky zones as one of the extracted themes [13], consistent with the results of our study.

According to the results, the nurses reported the use of protective equipment to protect themselves against infection. So, they were aware enough about this point. According to Nava *et al.*, since the Italian nurses were not educated enough to use protective equipment and clothes, they were less careful in protecting themselves [9]. Ogolodom suggested that lack of knowledge about COVID-19 is an effective factor increasing infection by this virus, because the individuals' knowledge can directly increase their proneness to the infection [26]. According to Sterling *et al.*, the risk of exposure to COVID-19 is intensified by the healthcare providers' unawareness of the way of protecting themselves and the patients [25]. Approving the necessity of self-care, Blake *et al.* suggest that since healthcare providers usually ignore their health in caring for the patients, it is necessary to promote self-care measures in this pandemic [24].

However, some of the nurses complained about the shortage of protective equipment. Regarding the large number of patients and the spread of this disease, other countries have also been faced with the same problem. According to Nava, most of the Italian hospitals were not ready to cope with this pandemic. So they faced a shortage of masks, safety glasses, and protective equipment [9]. To address the necessity of paying attention to this problem, Sterling *et al.* suggest that the risk of exposure to COVID-19 for healthcare providers is intensified by the shortage of protective equipment [25].

The most important limitations of the present study were that due to the type of study, which was qualitative, it should be noted that the generalization of the results is limited. Another limitation of the present study was the small sample size.

Conclusions

The experiences of the COVID-19 nurses suggest their efforts to provide physical, mental, and emotional healthcare services for COVID-19 patients. Although they have faced various challenges in providing these services, they noted some requisites that should be observed in caring for these patients. Mean-

while, the nurses reported that they were scared of being infected by the virus, and so, they have taken self-care measures to prevent their infection. In other words, the nurses were required to protect themselves against the diseases in addition to performing their tasks in caring for the patients. So, simultaneous caring for the patients and self-care can be considered the main principle in the nurses' experiences.

Acknowledgments

This paper is the result of a master's thesis in medical-surgical nursing in Zabol University of Medical Sciences. The research has been conducted under the ethics code (IR.ZBMU.REC.1399.049). The authors appreciate the authorities of Zabol University of Medical Sciences, the nurses participating in the research, and all the people assisting us in conducting this research.

Conflict of interest

The authors declare no conflict of interest.

References

1. Smith N, Fraser M. Straining the system: Novel coronavirus (COVID-19) and preparedness for concomitant disasters. American Public Health Association 2020.
2. Tian H, Liu Y, Li Y, Wu CH, Chen B, Kraemer MU, Li B, Cai J, Xu B, Yang Q, Wang B, Yang P, Cui Y, Song Y, Zheng P, Wang Q, Bjornstad ON, Yang R, Grenfell BT, Pybus OG, Dye C. An investigation of transmission control measures during the first 50 days of the COVID-19 epidemic in China. *Science* 2020; 368: 638-642.
3. Jamaati H, Dastan F, Esmaili Dolabinjad S, Varahram M, Hashemian SM, Nasirirayeini S, Farzanegand B, Monjazebie F. COVID-19 in Iran: a model for Crisis Management and Current Experience. *Iran J Pharm Res* 2020; 19: 1-8.
4. Mehta P, McAuley DF, Brown M, Sanchez E, Tattersall RS, Manson JJ, HLH Across Speciality Collaboration, UK. COVID-19: consider cytokine storm syndromes and immunosuppression. *Lancet* 2020; 395: 1033-1034.
5. Shereen MA, Khan S, Kazmi A, Bashir N, Siddique R. COVID-19 infection: origin, transmission, and characteristics of human coronaviruses. *J Adv Res* 2020; 24: 91-98.
6. Pan F, Ye T, Sun P, Gui S, Liang B, Li L, Zheng D, Wang J, Hesketh RL, Yang L, Zheng C. Time course of lung changes on chest CT during recovery from 2019 novel coronavirus (COVID-19) pneumonia. *Radiology* 2020; 295: 715-721.
7. Worldometers. COVID-19 CORONAVIRUS PANDEMIC 2020 [Available from: https://www.worldometers.info/coronavirus/?utm_campaign=homeAdUOA?Si].
8. Liu K, Chen Y, Lin R, Han K. Clinical features of COVID-19 in elderly patients: a comparison with young and middle-aged patients. *J Infect* 2020; 80: e14-e18.
9. Nava S, Tonelli R, Clini EM. An Italian sacrifice to the COVID-19 epidemic. *Eur Respir J* 2020; 55: 2001445.
10. Zandifar A, Badrfam R. Iranian mental health during the COVID-19 epidemic. *Asian J Psychiatr* 2020; 51: 101990.
11. Huang L, Lin G, Tang L, Yu L, Zhou Z. Special attention to nurses' protection during the COVID-19 epidemic. *Crit Care* 2020; 24: 120.

12. Barello S, Graffigna G. Caring for health professionals in the COVID-19 pandemic emergency: toward an "Epidemic of Empathy" in healthcare. *Front Psychol* 2020; 11: 1431.
13. Kim Y. Nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus in South Korea. *Am J Infect Control* 2018; 46: 781-787.
14. Sun N, Wei L, Shi S, Jiao D, Song R, Ma L, Wang H, Wang C, Wang Z, You Y, Liu S, Wang H. A qualitative study on the psychological experience of caregivers of COVID-19 patients. *Am J Infect Control* 2020; 48: 592-598.
15. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004; 24: 105-12.
16. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007; 19: 349-357.
17. Ghafari S, Mohammadi F. Concept analysis of nursing care: a hybrid model. *J Mazandaran Univ Med Sci* 2012; 21: 153-164.
18. Zamanzadeh V, Valizadeh L, Rahmani A, Ghafourifard M. Compassionate care in nursing: a hybrid concept analysis. *J Hayat* 2017; 22: 362-380.
19. Mo Y, Deng L, Zhang L, Lang Q, Liao C, Wang N, Qin M, Huang H. Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. *J Nurs Manag* 2020; 28: 1002-1009.
20. Li Y, Temkin-Greener H, Shan G, Cai X. COVID-19 infections and deaths among Connecticut nursing home residents: facility correlates. *J Am Geriatr Soc* 2020; 68: 1899-1906.
21. Labrague LJ, De los Santos JAA. COVID-19 anxiety among front-line nurses: predictive role of organisational support, personal resilience and social support. *J Nurs Manag* 2020; 28: 1653-1661.
22. Shen X, Zou X, Zhong X, Yan J, Li L. Psychological stress of ICU nurses in the time of COVID-19. *Crit Care* 2020; 24: 200.
23. Eghbali M, Negarandeh R, Froutan R. COVID-19 epidemic: hospital-level response. *Nurs Pract Today* 2020; 7: 81-83.
24. Blake H, Bermingham F, Johnson G, Tabner A. Mitigating the psychological impact of COVID-19 on healthcare workers: a digital learning package. *Int J Environ Res Public Health* 2020; 17: 2997.
25. Sterling MR, Tseng E, Poon A, Cho J, Avgar AC, Kern LM, Ankuda CK, Dell N. Experiences of home health care workers in New York City during the coronavirus disease 2019 pandemic: a qualitative analysis. *JAMA Intern Med* 2020; 180: 1453-1459.
26. Ogolodom MP, Mbaba AN, Alazigha N, Erundu O, Egbe N, Golden I, Ugwuanyi DC, Achi GI, Eke CM. Knowledge, attitudes and fears of healthcare workers towards the coronavirus disease (COVID-19) pandemic in South-South, Nigeria. *Health Sci J* 2020. DOI: 10.36648/1791-809X.S1.002.

Address for correspondence:**Dr Mozhgan Rahnama**

Department of Nursing

Zabol University of Medical Sciences

Zabol, Iran

E-mail: morahnama0@gmail.com