CRITICAL MEDICAL AND SURGICAL NURSING JOURNAL
Vol. 11, no. 2, October 2022
Journal Homepage: https://e-journal.unair.ac.id/CMSNJ

Nurses' Experiences of Critical Care in the COVID-19 Intensive Nursing Unit

Alireza Mirjalili[1], Samaneh Mirzaei[2], and Khadijeh Nasiriani[2]

[1] Islamic Azad University, Yazd, Iran

[2] Shahid Sadoughi University of Medical Sciences and Health Services, Iran

ARTICLE HISTORY
Received: September 28 , 2022
Accepted: December 20, 2022
Published: July 31, 2023

KEYWORDS
Nursing, Critical Care, Intensive Care Unit, COVID-19, Qualitative Study, Content Analysis

CORRESPONDING AUTHOR

Khadijeh Nasiriani
nasiriani@gmail.com
Shahid Sadoughi University of Medical Sciences and Health Services, Iran

ABSTRACT

Introduction: Hypertension is a disease characterized by increased blood pressure in the body. One of the non-pharmacological management of hypertension is to do a combination of aerobic and ergonomic exercises to optimize the heart and blood vessels. This study describes the effect of a combination of aerobic and ergonomic gymnastics on blood pressure in adult sufferers in Kepuh Village, Palimanan District, Cirebon.

Methods: This study was qualitative content analysis. Participants were 12 nurses who were selected based on purposive sampling. Data collected by semi and unstructured interview. Data analysis was performed based on Graneheim and Lundman (2004) at three-phase. Research trustworthiness was confirmed by four criteria of credibility, transferability, dependability, and conformability.

Results: In this study, a total of 1311 meaning units were extracted; after condensation and abstraction, 257 codes were obtained, which were extracted into 32 primary subcategories, eight secondary subcategories, and two themes. The first theme was nursing care inhibitors in the COVID-19 (Coronavirus disease) Intensive Care Unit included five categories: "Problems with personal protective equipment, lack of care supplies, Insufficient preparation of intensive care nurses, burnout of nurses, and care burden." The second theme was the strengths of nursing care in the intensive care unit in the COVID-19 included three categories: "Acquiring new knowledge and experience of intensive care, upgrading and developing the intensive care system and improving the image of nursing in the community".

Conclusion: The COVID-19 pandemic was associated with challenges and problems for nursing and nursing care, the identification of which can help prepare for future crises. Also, due to its positive achievements for nursing, it can be used to improve the position of nursing and its care.

Cite this as: Mirjalili, A., Mirzaei, S., & Nasiriani, K. (2023). Nurses' Experiences of Critical Care in the COVID-19 Intensive Nursing Unit. Crit. Méd. Surgical. Nurs. J, 11(2),76-82.

1. INTRODUCTION

The intensive care unit (ICU) is one of the essential and vital wards of hospitals that accommodate critically ill patients who are at risk of death. This department can be effective in restoring health to seriously diseased patients and provide continuous and comprehensive care by making optimal use of modern medical equipment, utilizing experienced and qualified staff, and group decision-making by the treatment team (Jahromi, 2013; Cappellini et al., 2014; Matlakala et al., 2014).

Nurses, as one of the largest groups of health care providers, play an important role in the continuity of care, promotion, and maintenance of health at various levels of the health-related service delivery system (Greer, 2012). Due to responsibilities, multiple and extensive tasks; Nurses are known as the front line of service delivery in the health care system (Ravani pour et al., 2014). Although nurses play a key role in

providing care to clients and patients and leading hospitals and health care systems, being a nurse is still very difficult (Mahran et al., 2017).

In late 2019, the new coronavirus Momeni & Negah, (2020) posed a major health threat to global public health Nikpouraghdam et al., (2020) and a wide range of challenges for healthcare systems that could negatively affect nurses and other health care workers (Alharbi et al., 2020; Jackson et al., 2020). Meanwhile, it is estimated that about five to ten percent of patients with COVID-19 need intensive care due to the severity of symptoms and high risk of death (Baud et al., 2020). COVID-19 has made extremely rapid changes in the structure of hospitals and has included the expansion of ICUs (Bambi et al., 2020). Therefore, intensive care nurses are directly involved in the care of these patients, and in addition to the need to play previous roles, they also faced new challenges that need to be investigated and identified. The aim of this study was to explain the nurses' experiences of nursing care in the COVID-19 ICU.

2. METHODS

The This study was a qualitative approach using conventional content analysis. Nurses were selected through Purposive sampling from the ICUs of a referral teaching hospital (Shahid Sadoughi) and Shahid Rahnemoun hospitals in Yazd, Iran. The inclusion criteria were at least two months of work experience in the ICU of COVID-19 and the ability and willingness to express experiences. Data were collected through unstructured or semi-structured interviews with 12 nurses, which took place from October 2020 to February 2020. For this purpose, the researcher attended the wards, explaining the nature and purpose of the research, and if he consented to participate in the study, conducted an interview. First, personal characteristics including age, sex, level of education, marital status, employment status, work experience, and position were questioned. The interview begins with the question, "What do you describe COVID-19 nursing in the ICU?" This open-ended question provided an opportunity for the participant to present their experience, followed by questions such as "How would you describe COVID-19 patient care, what are the problems of nurses in the ICU in the COVID-19 crisis? And what effect did COVID-19 have on the nursing and intensive care nursing profession?" Other questions, depending on the participants' experiences and answers, were asked based on the main research question. For example, "Describe working with a protective cover, how did you communicate with the patient, what was the result of your care, what was your work environment?" Also from general exploratory questions such as "What do you mean by this?" Can you explain more about this? Why? How about? And ... » were used. At the end of each interview, the participant was asked to indicate an unspoken topic or experience other than the one mentioned. Also, the questions asked of the next participants were based on the results of data analysis of previous interviews. The sampling procedure continued until data saturation. The interview lasted between 18 and 41 minutes. The interview session for all participants was a formal meeting.

Qualitative conventional content analysis was used to analyses data (Renz et al., 2018). Written words from the narratives were used for the analysis. All the audio recordings were transcribed verbatim. According to Graneheim & Lundman, (2004), the texts were read several times to acquire a first general understanding of the participants' statements in line with the study objectives. The analysis was performed in the following three main steps: preparation, organizing, and reporting. From each description, the investigators extracted all the significant statements directly mentioning the studied issue. the text was divided into meaning units (words, sentences, or paragraphs), based on their content and context. The meaning units were condensed while maintaining their core intent and labeled with a code. The codes were compared and sorted according to differences and similarities and the condensed codes subcategories were created. The next step was to create categories that were the core features of qualitative content analysis. Although the analysis process was systematic, there was a back-and-forth movement between the whole and parts of the text. Finally, a theme that unified the content in the sub-themes was formulated. To analyze the data, MAXQDA software version 10 was used.

The trustworthiness in this study was based on the suggestion of Guba and Lincoln which includes credibility, dependability, conformability, and transferability or generalizability of results Connelly, (2016) To gain credibility; efforts were made to select participants with the maximum diversity of experience and position. Sampling was continued until the data saturation was reached and by carefully reviewing the transcripts of the interviews, the most appropriate meaning units were selected. The text of the interview and the extracted codes were also confirmed by the KHN supervisor. To confirm the dependability the complete description of the research stages, including data collection, analysis, and formation of the theme has been done to provide the possibility of auditing the research by the audience and readers. The work process was also provided to the research colleagues to approve the confirmability of the research. Participants were selected with maximum diversity to confirm transferability. Also in the present study, by accurately describing the background and characteristics of the participants, an attempt was made to provide a rich description of information for the readers.

This study was performed based on the approval of the ethics committee of Shahid Sadoughi University of Medical Sciences, Yazd, Iran. Also, the participants were assured about the confidentiality of the information and the voluntary nature of participation

in the study. Verbal consent was obtained prior to the interview file and informed written consent was obtained.

3. RESULTS

Data analysis showed that the participants were six male and six female nurses whose demographic characteristics are presented in Table 1.

Table 1 Demographic characteristics of the participants

Variable	Subgroup	N	%
Gender	Man	6	50
	Female	6	50
Level of Education	Bachelor of Science	9	75
	Master of science & upper	3	25
marital status	Single	6	50
	Married	6	50
Employment status	Employment	9	75
	Contractual	3	25
position	Supervisor	2	16.66
	Nurse	10	83.34
Variable		**mean**	**SD**
Age		32.63	9.12
work experience		9.63	7.13

In the first phase of coding, a total of 1311 meaning units were extracted from the descriptions of the participants. By condensing, a total of 257 codes were extracted. Then the initial codes were compared based on similarities and differences of codes and 32 initial subcategories were obtained. The primary subcategories were also compared again, and eight secondary subcategories were extracted. in the final was extracted from the secondary subcategories the two themes: "Nursing care inhibitors in the ICU in the COVID-19 pandemic" and "Nursing care strengths in the ICU in the COVID-19 pandemic" (Table 2).

Table 2: The coding process and formation of the themes

themes	categoris
Nursing care inhibitors in the ICU in the COVID-19 pandemic	Problems with personal protective equipment
	Lack of care supplies
	burnout of nurses
	Care burden
Strengths of nursing care in the ICU in the COVID-19 pandemic	Acquiring new knowledge and experience of intensive care
	Upgrading and developing of the intensive care system
	Improving the image of nursing in the community and recognizing intensive care

The major theme of "nursing care inhibitors in the ICU in the COVID-19 pandemic related to nurses" included five secondary subcategories: "Problems with personal protective equipment, lack of care supplies, inadequate competence of intensive care nurses, burnout of nurses and care burden". The secondary subcategory "Problems related to personal protective equipment" was extracted from the two primary subcategory "Inadequate quality of personal protective equipment and difficulties at work due to the use of personal protective equipment". Participants expressed concern about "lack of proper masking, the effect of personal protective equipment on the face, difficulty in covering, shortness of breath due to the mask, warmth, and sweating in clothing, failure to perform procedures skillfully due to protective equipment"??

Participant 12: "... We used to guide with our eyes now with Shield I wanted to repent the patient or, for example, do aggressive work on him, why, it was harder, it was much harder ..."

Participant five: "... with this cover that we have, it is very difficult, it is really hot ..."

Secondary subcategory "Lack of care supplies " were extracted from the seven primary subcategory "Lack of defects and equipment of hospital equipment, lack of beds, lack of medicine and contradictory effectiveness of drugs, lack of specialized manpower, lack of space and unsuitable environmental health, lack of amenities and insufficient experience of senior managers in crisis management". Participants point to issues such as "shortage and wear of equipment, lack of central suction in some ICUs, lack of Para clinical equipment such as echocardiography and endoscopy, oxygen blood pressure monitor, difficulty in crisis management due to lack of necessary facilities in the hospital, Displacement of patients from other hospitals, constant occupancy of beds during the peak of the disease, insufficient access to medicines, lack of improved plasma, lack of skilled ICU staff, severe shortage of staff due to simultaneous infection of a number of staff, inadequate space Physical due to disease transmission conditions, inadequate ventilation, late visits and counseling due to distance from the main hospital building, Inadequate water supply of personnel, weak management of wards and hospitals due to shortcomings and lack of adequate preparation, weak management in support, lack of management on public assistance, lack of effective action of the management system in staff morale and less attention to non-reference hospitals by managers."

Participant No. 11: "... and we had very little labor, the labor force had to work two shifts or, for example, send us labor from another department, but then those who came were not who worked in ICU, for example, knew how to work in ICU. They were working because they really had to be kind to the children who were not there and fill their shoes. The work pressure of the other children was clear, so the children were very annoyed ..."

Secondary subcategory "Insufficient preparation of intensive care nurses" was obtained from the four primary subcategories "Insufficient knowledge about

intensive care, insufficient experience and skills in intensive care, insufficient knowledge of COVID-19 disease and its treatment and inability to communicate effectively with the patient". Participants addressed issues such as "scientific weakness of some personnel working with NIV masks, lack of knowledge of staff on how to care for patients and lack of knowledge of awareness of patients' hemodynamic changes, unfamiliarity with equipment and drugs, lack of information about disease and drugs, doctors are unfamiliar with this disease and its effective treatment and perform some useless treatment measures due to lack of definitive treatment, lack of communication with the patient due to the risk of infection, lack of familiarity of staff in dealing with moody patients."

Participant number three: "... the issue of care in coronary heart disease that we dealt with. First, there was no awareness. The staff did not know at all how they could take care of these patients. What should they do ….?"

The secondary subcategory "Nurses' burnout" was obtained from the six primary subcategories "Nurses' mental and emotional turmoil, staff stress and fear of getting or transfer of COVID-19, feeling of unnecessary care of the patient, nurses' physical fatigue, low energy with inadequate nutrition" "Personnel, job security threats and care pressure." Participants report such things as "Negative psychological impact of sudden and high mortality of patients, difficulty of separation from family for staff, stress due to the inability to provide a hopeful response to the patient's family, feelings of discomfort due to co-worker's illness, stress due to patients' poor condition and lack of recovery and self-morbidity of nurses, stress due to providing respiratory care to patients, stress in how to take care of one's safety, stress and fear of transmitting disease to co-worker and family, use excessive means of protection due to high fear and remorse of being a carrier for others, failure to conclude cardiopulmonary resuscitation, inability to provide care for some patients, feeling of ineffective care at the beginning of the corona due to more pulmonary involvement, reduction of care due to special protective cover, fatigue due to overwork and high working hours, inadequate nutrition of staff due to severe protective restrictions, staff suffering from COVID-19, prolonged illness, positive re-test and non-return to work, simultaneous infection "A lot of staff,"

Participant number nine: "... When we saw that this conscious patient was suddenly stopping his heart for any reason, his place was empty or ... I mean, I remember being in charge of the shift. I told the kids that the kids on the side beds are some of them awake. Stop it, don't cry any more. Whatever we did, they treated the patient for about an hour and ate CPR, but he did not return ..."

Participant number eight: "... Maybe it's been a year now that we have not been able to see many relatives up close. With all these negative burdens that are accumulated in our working conditions due to the pressure of the work environment, we could not unload it. In this regard, it causes a bit of mental exhaustion ..."

Participant number six: "... even though we work so hard as if the ICU is not so useful, we communicate a lot with the patient, for example, we take care of him, we turn the whole patient upside down, then we come and see the patient either dead or connected to the device."

The secondary subcategory of "care burden" was extracted from the four primary subcategories "difficulty of care, increased burden of care, impossibility of family participation and family-centered care approach and insufficient readiness of medical and paramedical team to manage COVID-19". Participants mentioned items such as "difficult care conditions in ICU COVID-19, difficult care for patients due to severe respiratory involvement and advanced supportive care, difficulty due to patients' mental disorders, need for moment-to-day care of COVID-19 patients, Rapid course of the disease and sudden severe deterioration of the patient, low recovery of patients, especially intubated patients, care of the patient with conscious respiratory distress, difficulty in providing care with strict protective standards, performing procedures without the presence of a doctor and performing all patient tasks by the nurse due to lack of Patient companion and the general ban on appointments, late arrival of the doctor, urgent visit of doctors, lack of experience in the ICU, delay in the presence of the resident, absence of the doctor in all shifts, staying in the morning due to congestion after late visits, Lack of a doctor for invasive procedures, delaying in the presence of anesthesia, the lack of nutrition counseling, delaying in performing physiotherapy for patients, and the last priority of coronary patients in receiving Para clinical services."

Participant number one: "... there were many problems because it was a new and unknown disease and the nurses themselves and all the treatment staff and doctors were all unfamiliar. The situation was difficult ..."

Participant number three: "... we have to call many times to discuss the counseling we have, and in the end the work of the patients remain. All units put coronary patients at the end. Physiotherapy puts these patients last, Counseling is the last resort. "Maybe the patient will not be consulted until night''

Participant number ten: "... Another problem we have is that we do not have a resident doctor, and if it is, it is much better, for example, the doctor is not available until night or morning or evening, and the doctor dose

not answer the phone for some hours. The moment the patient gets worse, most of the time we have to manage until the doctor answers ..."

The major theme "Strengths of nursing care in ICU in the COVID-19 epidemic was about the nurses." which included three secondary subcategories: "Acquiring new knowledge and experience of intensive care, upgrading and developing the intensive care system and improving the image of nursing in the community and recognizing intensive care."

The secondary subcategory "Acquiring of new knowledge and experience of intensive care" was extracted from the two primary subcategories " Acquiring of intensive care nursing skills and acquisition of intensive care nursing knowledge". Participants in this field include "Gaining practical experience in ICU, familiarity with medical equipment, learning abilities in crisis, learning intubation by a nurse, using the experiences of ICU staff, the experience of understanding critical situations, more specialized familiarity with respiratory support systems and prevention of patient hypoxia."

Participant number eight: "... the staff was trained, as the saying goes "They formed a breathing team and taught the staff to work with the device."

The other secondary subcategory was "Upgrading and developing of the intensive care system", which was obtained by extracting the four primary subcategories: "Changing and equipping hospital wards, improving the performance of units, increasing intra-departmental cooperation in the treatment system and increasing out-department cooperation to the treatment system." Participants state such things as "changing the ward space to improve the welfare and health of the staff, providing some additional equipment for use when needed, Providing a ventilator with MNV mode, assigning a psychiatrist for moody patients in the recent pandemic period, increasing cooperation between staff, experienced staff in setting up the ward and training colleagues, presence of operating room staff in the ward and compensating for staff shortages by facilitating employment conditions ,cooperation between the people and the medical staff, the emergence of empathy throughout society in an pandemic situation, solidarity between personnel, patients and companions, the provision of equipment through public assistance, cooperation and popular empathy similar to wartime."

Participant No. 11: "... They provided us with a bed. Some of our beds had problems. They provided us with a device or a mask ..."

Participant No. 11: "... His management process, perhaps at first, was not known to everyone, it was a crisis and they were harassed. But little by little, everyone understood what everyone should do in their place. Gradually, everything got better ..."

Participant number eight: "... the cooperation we saw between people and nurses or as the saying goes the group of medical staff expressing the love that the people had, it was really clear that there was an empathy between everyone and in general, and empathy had occurred in the whole society."

Finally, the secondary subcategory "Improving the image of nursing in society and recognizing intensive care" was extracted from three subcategories: "Seeing nurses 'self-sacrifice in society, improving attitudes toward the nursing profession and promoting nurses' job satisfaction." participants cite such issues as "voluntary attendance, self-sacrifice in times of power shortages, and shift coverage, follow up the situation of patients out of shift, endure the hardships of self-sacrifice due to helping others, overcome the crisis with the cooperation of nursing staff, prioritize patient care over the issue of distance, compensate for shortcomings by sacrificing staff, value family life more Self-reliance and not using the opportunity of rest, promotion of nursing position in the matter of treatment among people, more acceptance of nursing job after Corona and expressing popular love for nursing, feeling happy with the improvement of patients and appreciation of families, motivation to continue attending The recovery and discharge of each patient, the continuation of the presence due to the intimate atmosphere in the ward, the feeling of encouragement through public assistance, increase self-confidence and increase the trait of self-sacrifice".

Participant number one: "... God knows we worked hard for the patient Well, inevitably not only our duty, but our conscience for your fellow man was also like this If one day a patient died, it would mean that we would be very sad that day. Even in the shift when we were at home, every now and then we would call the hospital and ask about the patient's condition. We would say what happened, we would be very happy if one of our patients was released. When our patient was released, he gave us morale…"

Participant number five: "... Before Corona, for example, I used to say I was a nurse, everyone said, 'Wow, your job is not good at all, leave your field, leave your job.' Now, in this critical situation that has occurred, I have not seen anyone from the people around me who give me negative feedback. Everyone applauded for my work or gave me hope. It was good for me. It was interesting for me that people's views changed a little bit in general.

4. DISCUSSION

Due to the emergence of the emerging disease of COVID-19 and the importance of nursing care, especially intensive care nursing, this study examined the experiences of nurses in ICUs of COVID-19 patients. The findings showed that "problems related to personal protective equipment, lack of care supplies, insufficient competence of intensive care nurses, burnout of nurses and care pressure" were used as inhibitors of intensive care. In this way, nurses had difficulty in caring for patients due to the use of protective coverings and adherence to strict protocols for the prevention of communicable diseases. And lack of care requirements such as lack of equipment, lack of beds, lack of medicine, lack of medicine and paradoxical effectiveness of drugs, lack of specialized manpower, lack of space and inadequate environmental health, lack of amenities and insufficient experience of senior managers in crisis management made nursing care more complex and difficult. Inadequate nurses' competence such as insufficient knowledge, experience and skills about intensive care, insufficient knowledge of COVID-19 disease and treatment and inability to communicate effectively with the patient were shown as barriers to effective nursing care. And due to the suddenness of COVID-19 disease, this period was associated with burnout of nurses that was facing a challenge Issues such as nurses 'mental and emotional turmoil, staff stress and fear of infection or transfer of COVID-19, feeling of unnecessary care of the patient, nurses' physical fatigue, energy analysis with inadequate nutrition of staff and job security threat in nursing care in the ICU. In this crisis, nurses experienced more care pressure than before, which included the difficulty of care, increased care burden, the impossibility of family participation and family-centered care approach, and the inadequate readiness of the medical and paramedical team to manage COVID-19. However, due to the novelty of COVID-19 incidence, studies in this field are limited. Other studies have pointed to similar findings. Challenges due to the sudden occurrence and pandemic of COVID-19 are specific to this period. In line with the findings of the study, Qiu et al., (2020) write that the sharp increase in critically ill patients with COVID-19 in fever clinic hospitals led to urgent requests for intensive care in terms of space, equipment and staff. Kalkali et al., (2020) write that one of the ways to deal with COVID-19 is to provide medical staff. Kackin et al., (2021) showed that nurses caring for COVID-19 patients need psychological and social support [18]. Also, Moradzadeh & Namdar Joyami (2020) and Asadi (2020) state that the occurrence of emotional problems and anxiety and the emergence of social and psychological injuries are among the negative consequences of the COVID-19 period on nurses. Saffari et al., (2020) also introduce safety problems as one of the main concerns of nurses in the field of self-protection when caring for patients to COVID-19. Nobahari (2020) write that hard work is one of the challenges faced by medical staff in caring for COVID-19 patients. Supady et al. (2021) state that existing medical teams and resources cannot satisfy increased demand in COVID-19 outbreak.

Other findings of the present study showed that the COVID-19 period, although facing several challenges, also had achievements that included gaining new knowledge and experience in intensive care, changing and equipping hospital wards, improving unit performance, and increasing intra-departmental and extra-departmental cooperation in the treatment system. And perhaps one of the most important achievements of this period was seeing the dedication of nurses in society, improving attitudes towards the nursing profession and promoting job satisfaction of nurses, which is very important for a society with a cultural context in Iran. Bambi et al., (2020) in the study "New issues in nursing management during the COVID-19 pandemic in Italy" write that the development of skills can have beneficial effects for nurses.

One of the limitations of this study, like other qualitative studies, is caution in generalizing the results according to the background and context of this study. Another limitation of the study is the concurrent effect of a number of interviews with the peak time of the disease on the experiences reported by the participants. It is suggested that in the future, more research in this field, especially to investigate the factors and strategies to eliminate the inhibitors identified in this study, and also to investigate the positive effects of COVID-19 on all areas of nursing.

CONCLUSION

The findings of this study showed that the COVID-19 crisis and pandemic period posed several challenges for nurses and brought some achievements. Identifying the problems and challenges of intensive care nursing in COVID-19 is a guide for nurses and nursing managers, based on which they have designed appropriate programs and interventions to be sufficiently prepared in case of crises and possible pandemics. Based on that, it has designed appropriate programs and interventions to prepare the nursing care system in case of possible crises and pandemics in order to ensure the best quality of nursing care for patients, to ensure the safety and satisfaction of nurses.

REFERENCE

Alharbi, J., Jackson, D., & Usher, K. (2020). The potential for COVID-19 to contribute to compassion fatigue in critical care nurses. In *Journal of clinical nursing* (Vol. 29, Issues 15–16, pp. 2762–2764). https://doi.org/10.1111/jocn.15314

Bambi, S., Iozzo, P., & Lucchini, A. (2020). New Issues in Nursing Management During the COVID-19 Pandemic in Italy. *American Journal of Critical Care : An Official Publication, American Association of Critical-Care Nurses*, *29*(4), e92–e93. https://doi.org/10.4037/ajcc2020937

Baud, D., Qi, X., Nielsen-Saines, K., Musso, D., Pomar,

L., & Favre, G. (2020). Real estimates of mortality following COVID-19 infection. In *The Lancet. Infectious diseases* (Vol. 20, Issue 7, p. 773). https://doi.org/10.1016/S1473-3099(20)30195-X

Cappellini, E., Bambi, S., Lucchini, A., & Milanesio, E. (2014). Open intensive care units: a global challenge for patients, relatives, and critical care teams. *Dimensions of Critical Care Nursing : DCCN*, *33*(4), 181–193. https://doi.org/10.1097/DCC.0000000000000052

Connelly, L. M. (2016). Trustworthiness in Qualitative Research. *Medsurg Nursing : Official Journal of the Academy of Medical-Surgical Nurses*, *25*(6), 435–436.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, *24*(2), 105–112. https://doi.org/10.1016/j.nedt.2003.10.001

Greer, H. (2012). *Nursing Informatics Competencies: Implications for Safe and Effective Practice*.

GS, M., AA, T., & NM, S. (2017). Challenges and work crisis facing critical care nurses. In *Journal Egyptian Nursing* (Vol. 26, Issue 3, pp. 306–319). http://ijpcp.iums.ac.ir/article-1-3271-en.html

Jackson, D., Bradbury-Jones, C., Baptiste, D., Gelling, L., Morin, K., Neville, S., & Smith, G. D. (2020). Life in the pandemic: Some reflections on nursing in the context of COVID-19. In *Journal of clinical nursing* (Vol. 29, Issues 13–14, pp. 2041–2043). https://doi.org/10.1111/jocn.15257

Jahromi, K. (2013). Nurses' Quality of Performance in Intensive Care Units based on Synergy Model. *Iran Journal of Nursing*, *26*, 74–83.

Kackin, O., Ciydem, E., Aci, O. S., & Kutlu, F. Y. (2021). Experiences and psychosocial problems of nurses caring for patients diagnosed with COVID-19 in Turkey: A qualitative study. *The International Journal of Social Psychiatry*, *67*(2), 158–167. https://doi.org/10.1177/0020764020942788

Kalkali, S., Rigi, I., Dadpisheh, S., Sheikhi, F., & Balouch, V. (2020). *Challenges and Strategies to deal with COVID-19 from the perspective of physicians and nurses in southern of*. https://doi.org/10.30491/JMM.22.6.599

Matlakala, M. C., Bezuidenhout, M. C., & Botha, A. D. H. (2014). Challenges encountered by critical care unit managers in the large intensive care units. *Curationis*, *37*(1), 1146. https://doi.org/10.4102/curationis.v37i1.1146

Momeni, J., & Negah, S. S. (2020). *A Review on Grief Process : Complication of Grief during COVID-19 Pandemic*. *May*. https://doi.org/10.22038/NNJ.2020.48585.1208

Moradzadeh, A., & Namdar Joyami, E. (2020). Corona Nurses' Lived Experience of Moral Distress while Performing Organizational Duties TT - تجربه زیسته پرستاران بخش کرونا از دیسترس اخلاقی در حین انجام وظیفه سازمانی. *Ijnv*, *9*(3), 59–73. http://ijnv.ir/article-1-760-en.html

N, A., & F, S. (2020). Investigating the Relationship Between Corona Anxiety and Nursing Care Behaviors Working in Coronary Referral Hospitals. *Iranian Journal of Psychiatry and Clinical Psychology*.

Nikpouraghdam, M., Jalali Farahani, A., Alishiri, G., Heydari, S., Ebrahimnia, M., Samadinia, H., Sepandi, M., Jafari, N. J., Izadi, M., Qazvini, A., Dorostkar, R., Tat, M., Shahriary, A., Farnoosh, G., Hosseini Zijoud, S. R., Taghdir, M., Alimohamadi, Y., Abbaszadeh, S., Gouvarchin Ghaleh, H. E., & Bagheri, M. (2020). Epidemiological characteristics of coronavirus disease 2019 (COVID-19) patients in IRAN: A single center study. *Journal of Clinical Virology : The Official Publication of the Pan American Society for Clinical Virology*, *127*, 104378. https://doi.org/10.1016/j.jcv.2020.104378

Nobahari, A. (2020). *Journal of Research in Behavioral Sciences Health Care Workers Challenges during Coronavirus Outbreak : The Qualitative*. *18*(2), 237–248. https://doi.org/10.29252/rbs.18.2.237

Qiu, H., Tong, Z., Ma, P., Hu, M., Peng, Z., Wu, W., & Du, B. (2020). Intensive care during the coronavirus epidemic. In *Intensive care medicine* (Vol. 46, Issue 4, pp. 576–578). https://doi.org/10.1007/s00134-020-05966-y

Ravani pour, maryam, vanaki, Z., afsar, lila, & Azemian, A. (2014). The standards of professionalism in nursing: the nursing instructors' experiences. *Evidence Based Care*, *4*(1), 27–40. https://doi.org/10.22038/ebcj.2014.2392

Renz, S. M., Carrington, J. M., & Badger, T. A. (2018). Two Strategies for Qualitative Content Analysis: An Intramethod Approach to Triangulation. *Qualitative Health Research*, *28*(5), 824–831. https://doi.org/10.1177/1049732317753586

Saffari, M., Vahedian-Azimi, A., & Mahmoudi, H. (2020). Nurses' experiences on self-protection when caring for COVID-19 patients. *Journal of Military Medicine*, *22*(6), 570–579. https://doi.org/10.30491/JMM.22.6.570

Supady, A., Curtis, J. R., Abrams, D., Lorusso, R., Bein, T., Boldt, J., Brown, C. E., Duerschmied, D., Metaxa, V., & Brodie, D. (2021). Allocating scarce intensive care resources during the COVID-19 pandemic: practical challenges to theoretical frameworks. *The Lancet. Respiratory Medicine*, *9*(4), 430–434. https://doi.org/10.1016/S2213-2600(20)30580-4