**Managerial, organizational, and procedural challenges faced by nurses while caring for COVID-19 Patients: A qualitative study**

**Introduction**

Currently, all health and medical systems all over the world are responding to the spread of COVID-19 (1). The first country in the Middle East to experience the spread of COVID-19 was Iran (2). It is estimated that hospital-acquired COVID-19 happens in %40 percent of cases. The diagnosis of physicians and nurses with COVID-19 has caused grave (particular) concerns among physicians and personnel active in health care centers (3, 4). The personnel working in health care systems who are at the forefront of the fight against COVID-19 are in danger of infection in that they are those who are directly involved in the diagnosis, and treatment of COVID-19 patients. There are several factors which are likely to add to the psychological stress health care personnel are experiencing, including the ever-increasing number of confirmed and suspect COVID-19 cases, workload pressure, the lack of enough Personal Protective Equipment (PPE), wide press coverage, the lack of effective medications, and the feeling that they are not receiving adequate support (5). The results of the studies done in 2003 on the spread of SARS revealed that the health care staff felt uncertain and afraid that they might pass on the infection to their family members, friends, and colleagues (6, 7). Moreover, there are some reports that health care staff were unwilling to go to work, or were considering resignation (6). There are similar concerns for the health staff who take care of COVID-19 patients. Researchers in South Africa listed that the challenges faced by the nurses who were taking care of patients infected with AIDS were in the following areas: organizational and managerial challenges, personal and organizational support, financial and human resources, and psychological and physical influences (8, 9). In their study on the experiences of nurses involved in the treatment of SARS patients, Bergeron et al. found out that operational, organizational, and personal problems were among the most important challenges faced by the health care staff in Canada (10).

The organization is a process that is in direct interaction with all other management processes and procedures. When a system is well-organized, it is likely to work more effectively and efficiently, with the staff feeling higher levels of satisfaction (with the job satisfaction of the staff increasing) in that organization provides a structure in which roles, responsibilities, decision-making centers, and methods for the creation of a communication network are specified. Every individual in such a system knows his or her responsibilities in such a way that the work stress of the staff is lowered while their efficiency and work skills improve (11). Hence, the present study was designed to explore the managerial, organizational, and operational challenges faced by the nurses involved in the treatment of patients infected with COVID-19 in Iran.

The present study was aimed at investigating the managerial, organizational, and procedural challenges nurses faced in hospitals in Iran in the process of caring for COVID-19 patients. The results obtained in the present study revealed that nurses have faced with a wide variety of challenges in the areas of the management in controlling corona situation, mental and physical well-being in working in hard corona conditions, shortage of nurses, and the lack of sufficient equipment and facilities nurses need in the fight against corona. Reports are indicating that in China, nurses faced several challenges during the corona epidemic including a shortage of man force, lack of personal protective equipment, lack of experience, high work stress, fear, anxiety, and unfamiliarity with the corona situation, and infection with corona (12). In a study by Morley et. al., it has been reported that the three most important moral points causing concerns among nurses were the safety of nurses, patients, and colleagues, the devotion of rare resources, and the change in the nurse's interaction with patients and their families (13).

Based on the findings of the present study the nurses participating in the interviews showed their complaints about the prevalent challenges caused by mismanagement in the control of the corona epidemic and the prevalent injustice and discrimination that exist between nurses and doctors concerning their presence next to the corona patients. It seems that inter-professional and inter-organizational cooperation is a priority if the health care system is to ensure the provision of a high quality and more efficient health care for the patients. Nurses play an important role in facilitating communication and cooperation between the health care team members. Therefore, a sense of mutual trust in a respectful environment, maintaining efficient relations (connection), the transparency of responsibilities of individuals and teams, implementing standard protocols, and increasing the sense of belonging (team membership) are to be developed (14). Many managers and leaders can make use of a variety of strategies and interventions to provide due support for the nurses in their teams and organizations(15). Policymakers should do their best to fight against and minimize the structural injustice and inequality the nurses are faced within medical centers (13).

One of the serious challenges the majority of participants in this study referred to was the mental, psychological, and physical difficulties they experienced in corona working conditions. In such situations, the nurses are at serious risk of infection. Therefore, they suffer from poor mental health, experiencing different levels of mental (psychological distress). Based on the findings obtained from the interviews, the nurses did not receive the timely psychological intervention (12).

It is of paramount importance to take all the necessary measures to obviate the psychological, and mental problems of nurses so that they can work more efficiently in the current corona crisis. To do so, Liu et al. proposed that psychological counseling lines and psychological clinics be formed which can provide timely online and off-line services for nurses (16).

The subjects interviewed in the present study stated that while they are home they are constantly worried about passing on an infection to the family members. The results of the studies on the spread of COVID-19 and other respiratory infectious diseases showed that nurses are seriously concerned about their personal health and the health of their family members when they come in close contact with these potentially deadly viruses, and concerned about ways to find a fair balance between their professional moral commitments and their personal health worries (17-20).

Another important set of challenges nurses were faced with was the physical stresses they went through. Compared to other medical staff, nurses spend more time providing care services for every individual COVID-19 patient. Given the fact that COVID-19 is a highly contagious disease, those who are in close and direct contact with corona patients providing health care for them, are exposed to high risks of infection. Thus, it is logical to assume that nurses are those who are at risk (21).

The participants indicated that they lost their original motivation to care for patients due to the lack of financial and spiritual support from the hospital authorities. Insufficient support given to a medical staff working on different fronts in the health care system puts their highly important and vital profession under the question (13). Another serious reported by the participants in the present study was the lack of sufficient man force and equipment necessary to deal with the COVID-19 condition. The dissatisfaction of the medical staff with the lack of sufficient man force and the shortage of necessary equipment and facilities makes the health care staff more vulnerable (21). The participants noted that the shortage of protective personal clothing and equipment necessary for providing health care for corona patients was so acute that they did not have access to the necessary equipment to perform invasive care protocols (processes, practices) for the patients. During the COVID-19 epidemic, some of the nurses lost their lives because of the lack of sufficiently high-quality personal protective equipment and clothing. The international council of nurses (ICN) has demanded all countries to put the provision of these facilities and equipment as their top priorities so that the loss of lives of more nurses can be prevented (22). All employees are required to support their employees to have access to personal protective clothing and equipment; any damage caused to nurses or patients due to the lack of personal protective equipment and clothing is indicative of the flaws in the system, not of the individuals (13). Nurses active in the Intensive Care Unit (ICU) in other countries experiencing the spread of COVID-19 were similarly faced with a lack of sufficient man force and personal protective clothing and equipment (12, 23-25).

The participants of the present study got confused and angry when faced with the lack of sufficient personal protective clothing and equipment. The lack of the provision of adequate protection for the nurse personnel makes them angry and hopeless, causing them to feel insecure at work in that they are highly at risk of infection at work, and at home worried to pass on the infection to family members (15). The serious lack of sufficient personal protective clothing and equipment puts nurses in danger of infection, increasing the risk of infection for patients, medical staff families, and society dramatically (22).

The participants in the present study stated that wearing masks and protective gloves and gowns was a factor that increased the difficulty of their work conditions. They also indicated that the problems and limitations associated with wearing personal protective clothing were unbearable for them (15). After putting on the protective overalls, breathing was so difficult for the nurses. To save time, energy, and costs associated with wearing protective clothing, nurses avoid drinking water and going to the bathroom, and this increased the difficulties related to working while they are in protective gowns and overalls. In such situations, as time passes, nurses lose their mental and physical energy more and more and feel exhausted and distressed. If this stress (tension) lasts for longer periods, it can make nurses prone to burnout and fatigue. Occupational burnout (fatigue) is closely related to the mental and physical health of nurses and has direct impacts on the safety and quality of their jobs (26). Therefore, managers in medical centers need to employ more man force and manage their human resources scientifically and logically so that the workload and stress can be minimized for all the medical staff (27).

Another important challenge encountered during the corona epidemic was the shortage of nurses. Due to this shortage, the working nurses had long work shifts, which in turn, increased the risk of infection for the working nurses (28).

Working for extremely long hours can lead to job burnout (fatigue), inefficiency, and mental and physical fatigue and exhaustion of nurses (29). The shortage of nurses, coupled with the high number of COVID-19 patients, make nurses unable to provide timely due care for the patients, and thus lowering their working efficiency. Therefore, hospital authorities and managers need to employ enough nurses in response to the number of patients in the hospitals in such a way that they can ensure their nurses can take enough rest after each working shift (12).

Nurses have been under great physical and mental (psychological) stress during the corona epidemic. Apart from their worries and concerns for infection and for making their family members infected, the physical and mental stresses they go through because of wearing personal protective clothing and working for long hours in protective overalls have reduced the efficiency of their work overtime. The results of a study have shown that stress has been considered as one of the most important factors which negatively impacts the performance of nurses in mental health care (30). Moreover, many research studied have revealed that working for long hours during a week can increase work stress, which can be due to the employee’s concerns over getting infected or due to his or her decreased physical condition (31-33). In other studies, a number of stress factors have been introduced including concerns over the shortage of man force and personal protective clothing and equipment, moving along an uncharted road (health care system), and the lack of organizational support (34-36).

The medical staff who are responsible for providing health care for the patients have experienced a constant feeling of panic because the coronavirus is highly contagious because it can be passed on in diverse unknown ways, because they are in close contact with infected patients, and because they have seen their colleagues got infected. During the corona epidemic, the transmission of infection among colleagues has been of the bothering challenges experienced by health care staff in medical centers (37).

Due to the critical nature of the questions, some of the nurses were unwilling to have their voices recorded, but when we assured them of the confidentiality of the data, and the use of data under unanimity, they show their consent to cooperate with the researcher. After the end of the interviews, a small present was given to the interviewees in return for their favor. Another limitation of the present study was gathering part of the needed data over the telephone. This not only made the data collection process a bit harder but also made the interpretation of the collected data more time consuming in that there were no nonverbal clues to help the research have a deeper grasp of the content of the data.

COVID-19 is considered the greatest challenge in public health all over the world. As nurses are in the frontline of the fight against the coronavirus, they play a significant role in this concern. Hence, hospital managers and authorities should do their best to meet the financial needs of nurses, providing them with financial and non-financial incentives (motivations), and eliminating the prevalent discrimination observed in medical centers. The findings obtained in the present study can help hospital authorities and managers to get a deeper understanding of nurses’ experiences so that they can take effective measures to solve the serious challenges nurses are faced with in current and future public health emergencies.

**Author Contribution**

 Ebrahimipour H and Vejdani M contributed to the study design, Jamili S and Salehabadi R contributed to data collection, and Foji S, Ebnehoseini Z, and Adel A contributed to analysis; Vejdani M and Foji S drafted the manuscript; Ebrahimipour H critically reviewed the manuscript and supervised the whole study; All the authors read and approved the final manuscript.

**Conflict of Interest**

Disclosures The authors have no conflicts of interest.

**Ethical Statement**

The study protocol was reviewed and approved by the ethics committee of the Golestan University of Medical Sciences.

**Acknowledgment**

The present study was the result of a research proposal confirmed by the Research Ethics committee of Mashhad Medical University (code IR.MUMS.REC.1399.380). Especial thanks go to all the nurses who took part in this study despite all their personal and family preoccupations and worries.

**References**

1. Greenland JR, Michelow MD, Wang L, London MJ. COVID-19 infection: implications for perioperative and critical care physicians. Anesthesiology. 2020;132(6):1346-61.

2. Wang J, Wang Z. Strengths, weaknesses, opportunities and threats (Swot) analysis of china’s prevention and control strategy for the covid-19 epidemic. International Journal of Environmental Research and Public Health. 2020;17(7):2235.

3. Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus–infected pneumonia in Wuhan, China. Jama. 2020.

4. Organization WH. WHO Director-General’s remarks at the media briefing on 2019-nCoV on 11 February 2020. 2020.

5. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to Coronavirus disease 2019. JAMA network open. 2020;3(3):e203976-e.

6. Bai Y, Lin C-C, Lin C-Y, Chen J-Y, Chue C-M, Chou P. Survey of stress reactions among health care workers involved with the SARS outbreak. Psychiatric Services. 2004;55(9):1055-7.

7. Maunder R, Hunter J, Vincent L, Bennett J, Peladeau N, Leszcz M, et al. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. Cmaj. 2003;168(10):1245-51.

8. Mammbona A, Mavhandu‐Mudzusi A. Enrolled nurses’ experiences of caring for patients living with HIV in a South African rural hospital. International nursing review. 2019;66(1):139-46.

9. Nilsson L, Berg M. Nurses experiences of caring for patients with HIV/AIS in Dar es Salaam: A qualitative study at Muhimbili National Hospital and Buguruni Healthcare Center, Tanzania. 2015.

10. Bergeron SM, Cameron S, Armstrong-Stassen M, Pare K. Diverse implications of a national health crisis: A qualitative exploration of community nurses' SARS experiences. Canadian Journal of Nursing Research Archive. 2006;38(2).

11. Salehmoghaddam A, Halakou S, Heshmatinabavi F, Mazlum S. Relationship between head nurses' technical-clinical and organization competencies and newly nurses' clinical competencies in teaching hospitals: a cohort study. Quarterly Journal of Nursing Management. 2016;4(3):29-41.

12. Tan R, Yu T, Luo K, Teng F, Liu Y, Luo J, et al. Experiences of clinical first‐line nurses treating patients with COVID‐19: A qualitative study. Journal of nursing management. 2020.

13. Morley G, Grady C, Mccarthy J, Ulrich CM. Covid‐19: Ethical Challenges for Nurses. Hastings Center Report. 2020.

14. Karam M, Brault I, Van Durme T, Macq J. Comparing interprofessional and interorganizational collaboration in healthcare: A systematic review of the qualitative research. International journal of nursing studies. 2018;79:70-83.

15. Maben J, Bridges J. Covid‐19: Supporting nurses' psychological and mental health. Journal of clinical nursing. 2020.

16. Liu S, Yang L, Zhang C, Xiang Y-T, Liu Z, Hu S, et al. Online mental health services in China during the COVID-19 outbreak. The Lancet Psychiatry. 2020;7(4):e17-e8.

17. Jiang Y. Psychological impact and coping strategies of frontline medical staff in Hunan between January and March 2020 during the outbreak of Coronavirus Disease 2019 (COVID‑19) in Hubei, China. Med Sci Monit. 2020;26:e924171.

18. Khalid I, Khalid TJ, Qabajah MR, Barnard AG, Qushmaq IA. Healthcare workers emotions, perceived stressors and coping strategies during a MERS-CoV outbreak. Clinical medicine & research. 2016;14(1):7-14.

19. Kim JS, Choi JS. Factors influencing emergency nurses' burnout during an outbreak of Middle East Respiratory Syndrome Coronavirus in Korea. Asian nursing research. 2016;10(4):295-9.

20. Nickell LA, Crighton EJ, Tracy CS, Al-Enazy H, Bolaji Y, Hanjrah S, et al. Psychosocial effects of SARS on hospital staff: survey of a large tertiary care institution. Cmaj. 2004;170(5):793-8.

21. Jackson D, Anders R, Padula WV, Daly J, Davidson PM. Vulnerability of nurse and physicians with COVID‐19: Monitoring and surveillance needed. Journal of clinical nursing. 2020.

22. Catton H. Nursing in the COVID‐19 pandemic and beyond: protecting, saving, supporting and honouring nurses. International Nursing Review. 2020;67(2):157-9.

23. Tan Z, Khoo DWS, Zeng LA, Tien J-CC, Lee AKY, Ong YY, et al. Protecting health care workers in the front line: Innovation in COVID-19 pandemic. Journal of Global Health. 2020;10(1).

24. Chersich MF, Gray G, Fairlie L, Eichbaum Q, Mayhew S, Allwood B, et al. COVID-19 in Africa: care and protection for frontline healthcare workers. Globalization and Health. 2020;16:1-6.

25. Nagesh S, Chakraborty S. Saving the frontline health workforce amidst the COVID-19 crisis: Challenges and recommendations. Journal of Global Health. 2020;10(1).

26. Liu Y, Aungsuroch Y. Work stress, perceived social support, self‐efficacy and burnout among Chinese registered nurses. Journal of nursing management. 2019;27(7):1445-53.

27. Mo Y, Deng L, Zhang L, Lang Q, Liao C, Wang N, et al. Work stress among Chinese nurses to support Wuhan in fighting against COVID‐19 epidemic. Journal of nursing management. 2020.

28. England N. Coronavirus: principles for increasing the nursing workforce in response to exceptional increased demand in adult critical care. 2020.

29. Miao Q, Liu M, Zheng S, Lin Y, Cao J, Xu L, et al. The lived experience of nurses during the treatment of patients infected with avian influenza A (H7N9) virus: a qualitative research. Chinese Journal of Nursing. 2018;53(6):720-3.

30. Edwards D, Burnard P. A systematic review of stress and stress management interventions for mental health nurses. Journal of advanced nursing. 2003;42(2):169-200.

31. Huang H, Liu L, Yang S, Cui X, Zhang J, Wu H. Effects of job conditions, occupational stress, and emotional intelligence on chronic fatigue among Chinese nurses: a cross-sectional study. Psychology research and behavior management. 2019;12:351.

32. Triana‐Palencia E, Cárdenas‐Cárdenas LM, Juárez‐García A, Quiroz‐Muysina J, Idrovo AJ. Use of assessment scales, turnover and job strain in nursing staff: A study in a Colombian hospital. Journal of nursing management. 2019;27(1):42-51.

33. Wu J, Wu X, Wu F, Dia Y, Dechun C, Gong X. Survey of sleep quality of clinic‐al front‐line nurses and its influencing factors in the fight against new coronavirus pneumonia. Nursing Research. 2020;34(4):558-62.

34. Kim Y. Nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus in South Korea. American journal of infection control. 2018;46(7):781-7.

35. Shih FJ, Turale S, Lin YS, Gau ML, Kao CC, Yang CY, et al. Surviving a life‐threatening crisis: Taiwan’s nurse leaders’ reflections and difficulties fighting the SARS epidemic. Journal of Clinical Nursing. 2009;18(24):3391-400.

36. O'Boyle C, Robertson C, Secor-Turner M. Nurses' beliefs about public health emergencies: fear of abandonment. American journal of infection control. 2006;34(6):351-7.

37. Marjanovic Z, Greenglass ER, Coffey S. The relevance of psychosocial variables and working conditions in predicting nurses’ coping strategies during the SARS crisis: an online questionnaire survey. International journal of nursing studies. 2007;44(6):991-8.