

Managing the Nursing Shortage During the Covid-19 Pandemic: A Qualitative Study

Abstract

Background: Nursing care contributes to the safety and the quality of care of patients. During the COVID-19 pandemic, nurses became frontline care providers. **Materials and Methods:** A qualitative study was conducted using an online focus group discussion of eight nurse committee members from six hospitals. After the data were collected, the study continued with inductive thematic analysis. The data were organized and extracted to identify meaningful statements and formulate meanings. Inductive thematic analysis was used, resulting in three themes and six subthemes. **Results:** The themes related to managing the nursing workforce, schedules, rosters, shifts, goals of re-design staffing, and the nurse-patient ratio. **Conclusions:** The management of the nursing staffing was modified to protect nurses during the COVID-19 pandemic. The nurse manager redesigned workforce planning to ensure a safe environment for nurses.

Keywords: COVID-19, nurse manager, staffing and scheduling

Introduction

The ongoing COVID-19 outbreak has become a global threat, and nurses are now frontline care providers. Consequently, nurses manage a heavy workload that includes screening, assessment, intervention, monitoring, and the management of emergencies for patients who are near the end of life.^[1] In addition, nurses must quickly recognize and respond to clinical deterioration.^[2] Nurses use Protective Personal Equipment (PPE) to avoid infection transmission, which may cause them discomfort. Thus, the management of the nursing workforce had to be modified during the pandemic.^[3,4]

The shortage of nurses resulted from the high incidence of COVID-19 and the high number of patients who required treatment. Minimal research has been conducted in Indonesia regarding nursing management during the COVID-19 pandemic. Thus, the team was motivated to conduct the current study and explore the management of nursing staff during a pandemic. This study aims to explore staffing management and the protection of nurse safety in the COVID-19 Era.

Materials and Methods

This study is a preliminary study of the role of nurses in maintaining patient safety. This study used a qualitative approach by conducting a Focus Group Discussion (FGD) from March 2020 to July 2020. The study included eight participants from the hospital nursing committee, and the participants gave nearly identical answers, so saturation was reached. Nursing committee members were selected as informants because the hospital nursing committee is responsible for compiling rules regarding the arrangements, credentials, and placements for nurses based on their competence.

The interviews included the following questions: (1) How was re-designed the shift model for nursing manpower during the COVID-19 pandemic? (2) How was the nursing workload managed with the increased number of patients? (3) Considering the PPE requirements, how was scheduling arranged? (4) How long were the shifts during the pandemic?

The researcher provided sufficient time for all participants to explain their experiences in managing the nursing shortage. After the

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data were collected, the study continued with inductive thematic analysis. The data were organized and extracted to identify meaningful statements and formulate meanings. Thereafter, the data were categorized into themes. A structured interview group discussion was conducted using “What’s-up online” group media, which is a collection of nursing committee boards from several large hospitals in Indonesia that handle COVID-19 referrals. Six hospitals were chosen for this study because it describes the management of nursing scarcity in government hospitals in Jakarta, Central Java, West Java, and the Special Region of Yogyakarta. To maintain the credibility of the data, the researcher used a member check to clarify the data.

Ethical considerations

A Research Committee from the Faculty of Nursing, Universitas Indonesia, (SK-266/UN2.F12. D1.2.1/ETIC/FIK/2019) provided ethical clearance for the study. All participants agreed to participate in the study and maintained confidentiality by not mentioning the names of their hospitals.

Results

Each participant had more than 20 years of professional experience. One participant had a nursing specialist degree and seven participants had Master’s degrees. Two of the participants were male, and the others were female.

Table 1 shows the modified workforce management. The scheduling included morning, afternoon, and evening shifts and off days. The use of PPE was restricted to a maximum duration of 3.5–4 hours. Every shift included direct and indirect care teams and a correction of the nurse-patient ratio up to 50%.

Figure 1 shows the themes and subthemes of the FDG and the scheduling and rostering models for inpatient wards. The schedule was divided into morning, afternoon, and evening shifts. Each shift averaged 3.5–4 hours of direct patient contact and PPE usage. The nursing department, nursing committee, and other departments discussed workforce planning. The model teams were modified by requiring 14 days on duty, followed by 14 quarantine days. Furthermore, nurses worked a 30-day assignment in the COVID-19 ward and then worked in a non-COVID-19 department. Nurse Managers provide training on how to use personal protective equipment, how to reduce stress, and how to manage the nurse-patient ratio to ensure the safety of nurses.

Discussion

The novel coronavirus (COVID-19) pandemic has created an unprecedented global health challenge. There is a shortage of nurses during the pandemic, so proper staffing management is necessary. This study demonstrated various models for rostering and shift cycles. Wearing PPE for long

Table 1: Managing nurse work-force in COVID-19 Era

| Themes | Sub-Themes | Model | Characteristic |
|----------------------|---------------------|------------------|----------------------------------------------------------------------------------|
| Schedules | Rostering | A | M, A, E, O, O |
| | | B | M, M, A, A, E, E, O, O |
| | | C | M, M, A, A, E, O, O |
| | | D | M, E, O, A, O |
| Re-design | Goals | Safety for Staff | |
| | | Reduce fatigue | |
| | | Preparing | Short training |
| Ratio Nurse: Patient | Changed Nurse Ratio | A | Continuous shift |
| | | B | 14 days on duty, 14 quarantine days |
| | | C | 30 days on duty in Covid-19, then change in the Non-Covid-19 ward |
| Ratio Nurse: Patient | Changed Nurse Ratio | Up to 40% -50% | 24. Count increased by 40% to 50% depend on number and patient classification |

hours may cause hypoxia and affect basic human needs,^[5] so regulations were implemented to limit PPE use to four hours. The nurse-patient ratio was also an important factor and was modified based on patient classification and a correction of up to 50%. This correction helped to reduce morbidity and fatigue.

The results of the study revealed that Indonesia implemented three models. The first rostering model was morning (M), afternoon (A), evening (E), off (O), and off (O). The second model was M, M, E, E, M, O, O, and the third model was M, M, E, E, M, M, O, O. The second and third models were often used during general conditions, but the first model was an innovation that aimed to speed up workdays and holidays and reduce burnout. Head nurses played an important role in applying competency-based nursing scheduling, and they arranged the rostering according to COVID policies and the nursing mission. The goals of modifying the scheduling and rostering were to reduce fatigue and the incidence of staff transmission of COVID-19.

This study also highlighted a shift cycle model developed from a layering system. Using this layering system, the nurses worked continuously for 14 days and then took off 14 days to allow them time for quarantine and time to recover from exhaustion and prepare for their return to service. Another model used was the barter model, in

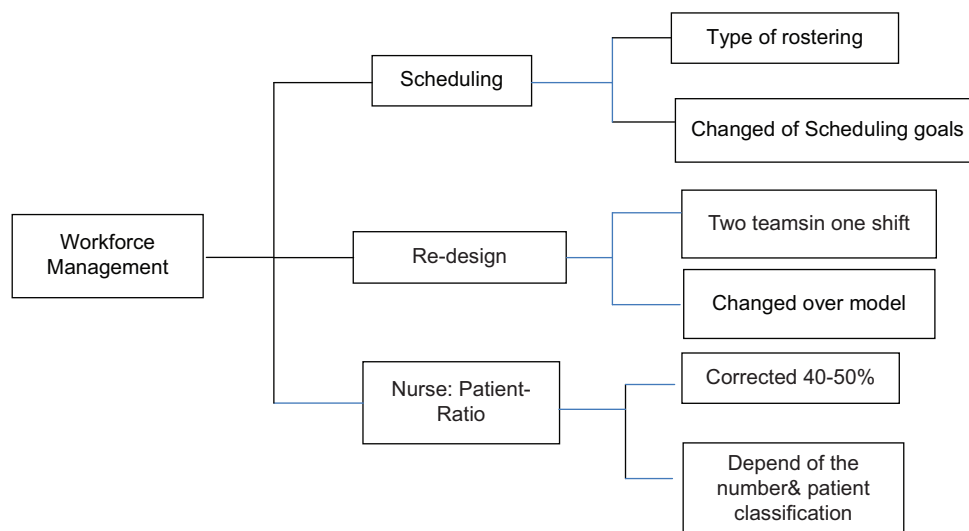


Figure 1: Themes of nursing workforce management in Covid-19

which nurses served in the COVID-19 unit during the first period, and then another group of nurses replaced them for one month. The advantage of this model was that it required all nurses to be responsible for treating patients with COVID-19. The innovations and modifications to the scheduling model aimed to ensure the safety of nurses and to adjust to the availability and quantity of PPE.^[3]

Many hospitals suspended rotations because of the shortage of masks, gowns, and other medical supplies. Nursing managers had to competently arrange and modify schedules according to the conditions.^[6] The safety of nurses had to be maintained during the pandemic. The study referred to the previous study that explained nursing care providers are vital resources for hospitals.^[7] The health and safety of nurses are crucial to continuous and safe patient care, but also to the control of any outbreak. This study also relates to previous research that explained that three categories and seven subcategories emerged from workforce management during an outbreak.^[8]

In addition to providing care to patients, wearing PPE for long hours caused physical distress for nurses, especially for those who had to work in isolation wards for their entire shifts. A balanced nurse-patient ratio led to improved safety for patients and nurses. In addition to considering the scheduling model, it was crucial to compare the number of nurses and patients.^[9,10] Nurse shortages occurred during the pandemic, and the management of the PPE requirement reduced the duration of nurse-patient interaction to only 3–4 hours. Nurses spent the remaining time on their shifts completing documentation and engaging in non-nursing and administrative activities. Two calculation models were often used in Indonesia, namely the nurse-patient ratio comparison model and the calculation that involved the Indonesian Ministry of Health (MOH) formula. The ratio and MOH models had to be corrected to account for the mandatory PPE factor. During the first pandemic, some

nurse managers used a correction factor of up to 100%, but most used a correction factor of up to 50%.

One participant from the study explained that the nurse manager and the nurse committee were involved in workforce planning. These individuals managed complex demands every day by controlling staff, taking work risks, providing working innovations, and collaborating with other disciplines.^[6,11,12] The manager provided adequate education, including training related to PPE use, hand hygiene, management of occupational exposure, and psychosocial support.^[6,7,9,13] For successful staffing, the manager coordinated with the nursing committee and other departments, which improved collaboration, patient safety, and staff protection.

The limitation of this study is that it used a qualitative descriptive approach with a one-shot online FGD. The field notes did not contain observations, and online tools, as well as internet and connection limitations, limited the depth of discussion.

Conclusion

The management of nursing shortages followed the policies of the Ministry of Health (MOH), and the World Health Organization (WHO), which aimed to maintain staff safety and reduce burnout. The nursing department and the nursing committee redesigned workforce planning to ensure a safe environment for nurses. The resulting three themes focused on managing the staff members, their schedules, and the nurse-patient ratio. The subthemes focused on the rostering system, staff management objectives, staff management preparation, shift team models, model changes, and nurse-patient ratio changes. The scheduling and the nurse-patient ratio were modified to address the nursing shortage caused by the COVID pandemic. The method of assigning tasks and layering in the green and red zones. These results can guide disaster mitigation

management, especially from the perspective of nursing staff management.

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Conflicts of interest

Nothing to declare.

References

1. Lucchini A, Giani M, Elli S, Villa S, Rona R, Foti G. Nursing activities score is increased in COVID-19 patients. *Intensive Crit Care Nurs* 2020;59:102876. doi: 10.1016/j.iccn.2020.102876.
2. Liu Q, Luo D, Haase JE. The experiences of health-care providers during the COVID-19 crisis in China: A qualitative study. *Lancet Glob Health* 2020;8:e790-8.
3. Liu Y, Wang H, Chen J, Zhang X, Yue X, Ke J, *et al.* Emergency management of nursing human resources and supplies to respond to coronavirus disease 2019 epidemic. *Int J Nurs Sci* 2020;7:135-8.
4. Wei XS, Wang XR, & Zhang JC. A cluster of health care workers with COVID-19 pneumonia caused by SARS-CoV-2. *J Microbiol Immunol Infect* 2021;54:54-60.
5. Addo, PC, Jiaming F, Kulbo, NB, Liangqiang L. COVID-19: Fear appeal favoring purchase behaviour towards personal protective equipment. *Serv Indus J* 2020;40:471-90.
6. Huang L, Lin G, Tang L, Yu L, Zhou Z. Special attention to nurses' protection during the COVID-19 epidemic. *Crit Care* 2020;24. doi: 10.1186/s13054-020-2841-7.
7. Saibene AM, Allevi F, Biglioli F, Felisati G. Role and management of a head and neck department during the COVID-19 outbreak in Lombardy. *Otolaryngology Head Neck Surg* 2020;162:795-6.
8. Poortaghi S, Shahmari M, Ghobadi A. Exploring nursing managers' perceptions of nursing workforce management during the outbreak of COVID-19: A content analysis study. *BMC Nurs* 2021;20:27. doi: 10.1186/s12912-021-00546-x.
9. Afriani T, Sri Hariyati T, Yetti K, Besral B. Exploring nurses' perceptions of their workload at coronavirus disease 2019 isolation ward in Jakarta, Indonesia: A qualitative study. *Open Access Maced J Med Sci* 2022;10:195-201.
10. Sugianto KMS, Hariyati RTS, Pujasari H, Novieastari E, Handiyani H. Nurse workforce scheduling: A qualitative study of Indonesian nurse managers' experiences during the COVID-19 pandemic. *Belitung Nurs J* 2022;8:53-9.
11. Li N, Liu T, Chen H. Management strategies for the burn ward during COVID-19 pandemic. *Burns* 2020;64:756-61.
12. Malawat KY, Hariyati RTS, Sari KM. Nursing managers' strategies for reducing interpersonal and inter-professional conflict in the Covid-19 pandemic. *Int J Nurs Health Serv* 2020;3:716-21.
13. Jasper E. Preparing hospitals for coronavirus (COVID-19). *Hosp Pract* 2020;48:121-2.