

ORIGINAL ARTICLE

Nurse preparedness in emergency department during the Covid-19 outbreak; nurse's perspective

Ilfa Khairina^{a*} | Nelwati^a | Esthika Ariany Maisa^a | Dally Rahman^b

^a Basic Nursing-Fundamental Nursing, Universitas Andalas, Padang, Indonesia

^b Medical Surgical-Emergency Nursing, Universitas Andalas, Padang, Indonesia

* Corresponding Author:: ilfakhairina@nrs.unand.ac.id

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ABSTRACT

Introduction: The Emergency Department (ED) is one of the first accesses reached by people affected by Covid-19 or suspected of having Covid-19. Changes in the ED during the Covid-19 Outbreak and the adaptation to the new normal made ED health services and adjustments to nurses. The ED is one area that has the potential to have a high risk of transmitting Covid-19. **Objectives:** This study aimed to determine the experience of emergency room nurses in dealing with the Covid-19 outbreak at a government hospital in Padang. **Methods:** This study is qualitative, with semi-structured interviews conducted with nurses who serve in the ED, who were selected based on inclusion criteria. These nurses had served in the ER during the Covid-19 outbreak for at least 6 months. The results of the interviews were processed using the Collaizi technique. The participants in this study were five emergency room nurses. **Results:** The results obtained three themes and 11 sub-themes. The themes that can be found are Nurses' Preparation for the Pandemic, Coordination and Health Promotion with Families, and Hospital and Emergency Room Readiness **Conclusions:** Hospital management has to prepare and coordinate human resources and facilities following non-natural disaster conditions so that the nurse's response ability in dealing with the Covid-19 pandemic becomes responsive and better.

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1. Introduction

An infectious disease of the upper respiratory system called The Novel Coronavirus 2019 (Covid-19) occurred at the end of 2019. It spread quickly worldwide in early 2020 (González-gil et al., 2021). The spread of Covid-19, which is so high and fast among humans, has made the health service system into chaos. Many countries have stated that their healthcare systems have exploded due to exposure to Covid-19. The World Health Organization announced in March 2020 that there were 118,000 cases of Covid-19 in 114 countries, and 4,219 victims died (World Health Organization [WHO], 2020). As of December 2021, the number of new cases added was 1.7 million, with an average daily new case of 1.3 million (World data, 2022). In Indonesia, the peak of the highest case spread occurred in July 2021; from 163,000 tests, 50 thousand patients were diagnosed with Covid-19 with a positivity rate of 30% (World data, 2022). This situation makes healthcare facilities adapt to meet the challenges caused by these conditions (González-gil et al., 2021). The spread of Covid-19 causes unrest in the community (Dwi et al., 2022).

Countries directly or indirectly affected by the spread of Covid-19 can endanger the health system, such as hospitals (A & Alshammari, 2020). This condition makes hospitals in Indonesia have to prepare to accept patients confirmed to be Covid-19 or suspected of being Covid-19. Nurses' readiness as one of the health workers in charge of handling Covid-19 in the ER illustrates

the optimization of Covid-19 management in the ER at the Covid-19 referral hospital (Hou, Yongchou, Zhou, Qian, Li, Dongzhi, Fan, Jingjing, Wang, 2020).

Prevention and control of Covid-19 have a high priority in Indonesia. This means all health facilities must strengthen work guidelines to achieve this goal (Dianingsih, Hartono, Mustafa, No, & Selatan, 2021). Hospitals through the ER are areas that have a high risk of transmitting Covid-19. This condition happens because the ER services people diagnosed with Covid-19 and patients suspected of having Covid-19. In addition, nurses and other health workers on duty during the Covid-19 pandemic have a high risk of exposure (Lockett, Nelson, & Hales, 2021). The rapid spread of COVID-19 through droplets and contact with sufferers makes hospitals prepare themselves to provide care (Gordon, Magbee, & Yoder, 2021). In managing Covid-19 in a globalized world, the role of nurses is an essential element in the treatment process.

Nursing care development in nursing interventions is essential in the prevention, preparedness, and response to the Covid-19 pandemic (Mubarak, Baalharith, & Mary, 2021). Nurse preparedness is essential to be able to provide the proper response to the conditions of the community. Nurses are a group of professional health workers who play a role in managing Covid-19. Nurses play an essential role in reducing the impact caused by Covid-19 on society (Hou, Yongchou, Zhou, Qian, Li, Dongzhi, Fan, Jingjing, Wang, 2020). The emergency room nurse is directly related to the patient's condition, and the nurse's readiness to respond to this situation can be a proven step to protecting nurses' health. The ability of nurses to prepare themselves and the emergency room as a health facility that provides the first response to Covid-19 in hospitals is vital as a step to breaking the chain of Covid-19 transmission.

This research aims to determine the readiness of Emergency Department Nurses and Strategies for dealing with the Covid19 pandemic. This research will enrich nursing knowledge, especially in management and emergency nursing. For nursing services, this research is expected to provide input on nurse strategies and emergency department readiness in managing Pandemic conditions.

2. Methods

Qualitative research with a semi-structured interview technique is used in this study. The study aims to explore the readiness of nurses during the Covid-19 pandemic. Researchers involved in this study have experience in qualitative research and understand research design well. Participants who participated in this study were selected based on inclusion criteria. The Padang City Referral Hospital is a type C hospital with an emergency department operating 24 hours per seven days. These nurses had a history of serving in the ED during the Covid-19 pandemic for at least six months. Face-to-face interviews were conducted using the purposive sampling technique. 12, the population of nurses served in the Covid-19 Referral Hospital ED, and five nurses participated because they had met the saturation criteria in the data. According to the research instrument, data saturation was obtained when no new participant themes emerged. None of the participants stated that they had left the data collection process.

The interview guide used in this study was an interview with a semi-structured technique; the Collaizi technique is used in the data analysis process to determine the research's themes. The interview was conducted comfortably and in the nurse's discussion room. Only interviewers and interviewed nurses were present during the interview process. The interview process was carried out in July-August 2021. The Collaizi technique can assess the readiness of nurses and the readiness of the Emergency Room during the Covid-19 pandemic. Seven steps in the Collaizi Technique were carried out to process the results of the interviews. With the Collaizi technique, the interview results are distinguished according to clear, logical, and sequential steps to increase the validity and reliability of the data obtained. The four researchers analyzed each verbatim result to avoid personal judgments and subjectivity and ensure the results were reliable and valid.

3. Results and Discussion

The characteristics of the participants in this study can be seen in table 1.

No	Participants	Gender	Age	Educational Level	Working Experience (Covid-19 Nurses)	Working Experience (ED)	Carrier Ladder
1	N1	F	42	RN	2 Years	12 Years	2 nd Clinical Nurses
2	N2	F	38	RN	2 Years	11 Years	2 nd Clinical Nurses
3	N3	M	33	Diploma	2 Years	7 Years	2 nd Clinical Nurses
4	N4	M	33	Diploma	2 Years	7 Years	2 nd Clinical Nurses
5	N5	F	38	RN	1 Year	15 Years	2 nd Clinical Nurses

Table 1 shows that more than half of the participants (60%) are women, and 60% are between the ages of 31-45. More than half of the participants had more than ten years of experience working in the emergency room, and most (80%) had worked as a Covid-19 emergency room nurse for 1-2 years. More than half of the participants (60%) have an education level as a professional nurse (Ners), and all of the respondents have a career path as a clinical nurse 2.

Research Theme

There are three themes generated in this study:

Nurses Prepare for the Covid-19 Pandemic

1) Efforts to find new knowledge about Covid-19

*N1: "Reading a lot and finding out the information, we know how the Covid-19 spreading of".
N2: "There are new things that we can not find in theory. We can find in the hospital the knowledge and information about Covid-19".
N3: "We were looking for more accurate information."
N5: " We can get more information in the emergency department in monthly meetings and PPNI (Persatuan Perawat Nasional Indonesia) in Hospital groups. We can access The Head Nurses in Emergence Department about the Covid-19 patient care plan.*

2) Efforts to increase immunity

*N1: "We are given the vitamins. Protein is twice as much as usual."
N3: "Increasing the nutrition for handling covid-19, vitamins, water, milk, and fruit."
N4: "I had to increase the nutrition. I had to eat regularly, sunbathe, and do sports while quarantined, and more rest".
N5: "Drink a lot and take many multivitamins."*

3) Work with complete Personal Protective Equipment (PPE)

*N1: "We should wear complete PPE while working. Because we did not know the patient had a positive or negative Covid-19 test before they came to ER."
N3: "The positive coping while working as PPE. Everything was excessive. Apply the mask up to 2-3 layers. Almost no gaps at all. We were wearing two-ply gloves and wear boots too. I did that because I was afraid of Covid-19."
N5: "Also, because the PPE differs from the Covid."*

Installing personal protective equipment (PPE) that is extra careful and following standard operating procedures for Covid-19 has several impacts on nurses while working. These uncomfortable impact conditions, heat, shortness of breath, and lack of communication with patients on duty.

N1: "The workload with PPE was scorching then. The facility was limited; we only worked to give a nursing care plan for four hours because of PPE. Wearing a third level of PPE (hazmat) makes it hot, and wearing a mask makes it suffocating."

N2: "Communicating with the patient when using PPE was infrequent, and shortness of breath while wearing it." **N3:** "Exhausted. Working with PPE is hot. So when the patient is going from end to end, we will take turns (taking care of the patient). Before you put on PPE, you wear wet stencils; you can even squeeze out the sweat." Participant 4: "PPE influences our performances, setting our breathing patterns. Energy is more drained."

Nurses' anxiety was reduced with in-house training and direction from the Ministry of Health and coordination between hospitals in West Sumatra regarding the management of Covid-19 and how to use PPE correctly. Based on [Chua, Cosmas, & Arsat \(2021\)](#) the dimension that 22.7% of nurses experienced anxiety by the dimensions of epidemiology and surveillance as the main predictors.

N1: "There was a lack of knowledge (Covid-19 management); the protection was stringent. There were no gaps, and even the air must be plastered all over the face (gaps between PPE). That is what makes it difficult for us. Still, after a team from Jakarta came in to give direction, we enjoyed it." **N2:** "...communicating with patients was rare, and shortness of breath when wearing it (PPE). We were afraid. If it's currently at the stage of undergoing it, so it was normal." **N3:** "Almost no gaps at all. Wearing two ply of gloves, wear boots too. It was just because you're afraid, right?" **N5:** "To reduce my anxiety, I ensure personal safety through complete PPE and continue to seek information on how the service for COVID patients should be."

4) Nursing Professional Values

Nursing professional values are one of the reasons that nurses put forward to provide nursing care to patients. Professional values that prepare the nurse to face health challenges during the Covid-19 pandemic.

N1: "It was not sincere at the beginning, but after it was passed, I can enjoy giving the nursing care plan to the patient. Because I was the disaster team, I had to be there." **N2:** "I was shocked when join the Covid-19 team for the first time. But when I started to work, I did not think it was a problem anymore." **N3:** "Maybe that's our job at the hospital. We must be ready to accept the task. Just accept the risk, and ready when the patient needs us." **N4:** "Because it is a professional requirement, it is a job."

a. Coordination with Family

1) Family Approval

N2: "Psychologically, anxiety is waiting for the PCR result, it will affect my family too." **N3:** "we already have a family. We were afraid to go home. Fortunately, the RSUD and the Padang City Government (PEMKO) have provided a place for hotel quarantining." **N4:** "The family was excommunicated from society, my parents also were shunned by the community. So, in the beginning, I explained to my family how I carried out health protocols, what I wore when I was on duty.. After the family get what that means, the family accepts what I do."

2) Health Protocol and Health Promotion to Families

N2: "Managing the schedule for our activities, the roles at home have been managed." **N4:** "I have explained to my family from the beginning of the Covid-19 pandemic, how I do health protocols, and what I wear when on duty. After the family understood, the family accepted what I did." **N5:** "Besides that, I always clean myself when I go home and use a mask after treating a patient with a positive rapid antigen result."

b. Preparedness from Hospital and Emergency Department

1) Inter-Agency Coordination

N1: "The team (The Health Ministry) was visited. RSUP Dr. M. Djamil Padang also explained how to use PPE properly. **N2:** "The hospital management prepared places and facilities to receive patients with outbreaks. Several things must be changed, as far as possible, where is the patient came in, make a plot. Doctors and PPI (Pencegah Pengendali Infeksi) from other hospitals came in, such as RSUP Dr. M. Djamil, RS. Achmad Muchtar. So we knew how to wear hazmat and don and doff hazmat. It was new knowledge to us, and I think management has paid enough attention to things like that."

Chua, Cosmas, & Arsat (2021) also showed that the greatest dimension which influenced nurse's preparedness were decontamination and communication in emergency preparedness to respond Covid-19.

2) Medical Facilities and Equipment

N1: "Hospitals made gradual changes, and the standard operating procedures make every change for handling Covid-19. **N2:** "Our room has been sealed off, there was a room for wearing hazmat. There was another door for the yellow zone, and the red zone. Besides that, there was doff area. The next room has a barrel for clothes and a place for bathing. The plot is obvious."

3) Interprofessional Collaboration

N1: "Doctors visited every day, as well as nurses. In the first year of covid, the PPI and HaiS gave information quite often." **N2:** "I will discuss my patient's need to the doctor, and I always asked the DPJP (doctor in charge), or my colleagues." **N4:** "But it is necessary to increased the administration of the medicine, the diagnostic test. Not all the patient things were nurses take care of it. Such as lack of medicine, which nurses also take care of it. Let did it like adjust it to their respective duties."

4) Increased knowledge about the Covid-19 Pandemic

N1: "For providing special nursing care for Covid-19, it is best to share knowledge so that they are exposed to new knowledge. So that care becomes fast and precise." **N2:** "Because of the new case, we need enlightenment. It was very essential for us. Everything was new." **N5:** "I did not think there was the dissemination of knowledge in the ED. There used to be before Covid-19 Pandemic."

Emergency preparedness is one of the essential things in the management of nursing care in the Emergency Room when facing the Covid-19 pandemic. This relates to the emergency department's knowledge and capacity to actively anticipate, respond and act in the recovery phase after a health crisis (Hou, Yongchou. Zhou, Qian. Li, Dongzhi. Fan, Jingjing. Wang, 2020). Health crises are currently increasing frequently and are caused by unforeseen disaster conditions. The International Nurses Council in 2017 stated that nurses were asked to improve preparedness and develop mastery of the knowledge and skills needed to respond in an emergency (Nursing, 2017). This follows the theme of Nurse Preparation in Facing the Covid-19 pandemic, illustrated in the sub-theme of Efforts to seek new knowledge about Covid-19. Four out of five participants stated the need for adequate knowledge and knowledge to deal with the Covid-19 pandemic. Optimal expertise and knowledge regarding non-natural disaster conditions made nurses psychologically prepared. The nurses have emergency response strategies (Hou, Yongchou. Zhou, Qian. Li, Dongzhi. Fan, Jingjing. Wang, 2020) . Condition in preparedness also conveyed by Mubarak, et al. (2021) who wrote that nurses need adequate knowledge and skills to

provide a practical approach to responding to a pandemic and managing clinical situations (Mubarak et al., 2021).

The finding of this study is Preparedness from Hospital and Emergency departments (Theme 3 and Sub-theme 4). Three out of five participants stated sharing knowledge, disseminating knowledge, and updating information related to nursing care and management of Covid-19. This is also illustrated by research from Asmaningrum, et al (2022) that internal training and internal seminars by hospitals can prepare nurse competencies for developing the spread and management of Covid-19 (Asmaningrum, Ferguson, Zainur, & Kurniawati, 2022). Materials regarding training in managing Covid-19 can include infection prevention, PPE donning and doffing, and case management (Iddrisu et al., 2021).

Health workers who manage Covid-19 have an essential role in controlling the spread of Covid-19 in the community (Hou, Yongchou. Zhou, Qian. Li, Dongzhi. Fan, Jingjing. Wang, 2020). As health workers involved in ED readiness, nurses should also be supported by other participating health workers such as doctors, nurses, nutritionists, pharmacists, laboratories, and other health workers. (Hou, Yongchou. Zhou, Qian. Li, Dongzhi. Fan, Jingjing. Wang, 2020). Collaboration between health workers and colleagues can improve performance and health services to the community. In this study, this is following the third theme was preparedness in Hospital and Emergency Departments. Two out of five participants stated that synergistic collaboration between health workers is needed to provide comprehensive nursing care. These results align with Ardiana, Purwandari, Rochmawati, & Wahyuni (2020) stated in the nurse's working relationship. There is a dimension of the work-world of work relationship, which is the highest dimension in supporting nurses' quality of work, which is as much as 60.4% (Ardiana et al., 2020).

Physical and psychological issues can be overcome through interventions that have been made according to patient needs (Nursing, 2009). In addition, the readiness of each health worker, including knowledge, skills, and psychological readiness to face the Covid-19 pandemic itself, also needs to be considered by Hospital Management. Responsive hospital management and disaster teams in disaster mitigation are required (Asmaningrum et al., 2022). The efforts of the hospital management team are establishing a disaster mitigation system, and the Infection Prevention Control team and the IPC (Infection Prevention Control) team are responsible for making standard operating procedures (SOP) for patient handling and infection control. WHO (2020) has announced the crisis standard for the Covid-19 pandemic for the health care provider and also care-role responsibilities for health workers (WHO, 2020) (WHO, n.d.). The American Nurses Association 2020 also made a standard operating procedure to provide nurse care plans based on the patient's ethical standard (Association, 2020).

Sholicha & Ratna (2021) states that nurses' readiness to mitigate against the COVID-19 pandemic comes from a psychological aspect, as much as 37.5 % (Sholicha & Ratna, 2021). Health workers are at the forefront of health management during the pandemic (Mubarak et al., 2021). The readiness of each health worker, for example, nurses, needs to be optimally prepared, including training on natural and non-natural disasters. Training programs and clinical practice can form mental readiness and experienced health workers to deal with non-natural disasters. The nurses can be prepared and able to provide optimal nursing care. In addition, nurses on duty during the Covid-19 pandemic are expected to be nurses who already have experience. Research from Iddrisu et al., 2021 suggests that nurses with long tenure in clinical situations dare to make clinical decisions, undertake challenging tasks, and accept responsibility for treating Covid-19 cases. This aligns with the study's results that all participants on duty during the Covid-19 pandemic were nurses with clinical level 2 (Advanced Beginner). Clinical nurse level 2 is a diploma nurse with a minimum of more than four years of service and a level II clinical period of 6-9 years,

or a nurse with more than three years of work experience and a level II clinical period of 4-7 years (Indonesia, 2017).

The readiness of facilities in the form of personal protective equipment and the readiness of the room can be a barrier and a good defense for nurses in providing comprehensive nursing care and holistic, bio-psycho-spiritual nursing care. Health workers, especially nurses, are assets to the state and society so in their work, they need to be given a sense of security and ensure their safety while working (Lockett et al., 2021). Few health workers or nurses have become victims of the Covid-19 pandemic. Therefore, the availability of PPE, adequate and safe room facilities, immunity and nutrition support are other factors considered by hospital management (Gordon et al., 2021).

This study found that the theme Hospitals and Emergency Departments Preparedness showed the importance of the flow of patient care by ED essential. Nurses can be more prepared when faced with conditions at high risk of transmission. Mubarak et al., 2021 in the study also stated that nurses need Covid-19 triage and screening guidelines while on duty, as has been provided by the World Health Organization regarding readiness, critical preparedness, and Covid-19 response actions (Mubarak et al., 2021). In line with Mubarak's study, hospital preparedness and nurses are ready to triage to screen patients (Mubarak et al., 2021). Based on Khairina, Malini, & Huriani, knowledge was the most influencing factor in emergency nurses' triage (Khairina et al., 2018). Triage knowledge can divide into two dimensions triage category and screening clinical condition (Khairina et al., 2020). Nurses can develop systems related to disease development, prevalence assessment, alternative plans, and interventions to reduce the impact after a disaster in mitigation (Khairina, 2021).

4. Conclusion

The readiness of nurses to carry out the task of caring for Covid-19 cases needs to be considered. Nurses can respond optimally in critical situations such as the Covid-19 pandemic. Nurses' readiness includes obtaining valid information, increasing immunity, using complete PPE, and using professional nursing values to treat Covid-19 patients. In addition, there is also a need for coordination with the family, the hospital's readiness, and the emergency department itself. Hospital management, adequate resource readiness such as experienced and trained health workers, and disaster mitigation teams can respond to non-natural disasters. The hospital management needs to make internal training and seminars simultaneously, the need for a patient admission flow, and guidelines for accepting and managing patients with Covid-19. In addition to standard operating procedures for hospital management, nurse leaders should have policies to guide nurses. Nurses in the ED can provide holistic care according to ethics, well-documented disaster care, and optimal workforce planning (staffing) (American Nurses Association, 2021).

Ethics approval and consent to participate

This research has conducted an ethical test. It passed the ethical test at the Health Research Ethics Committee, Faculty of Nursing, Universitas Andalas, with the letter 016.laiketik/KEPKFKEPUNAND.

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