

Midwives' Knowledge of the Use of Personal Protective Equipment During the Covid-19 Pandemic at Mr. Rondahaim Pamatang Raya Regional Hospital Simalungun Regency

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ABSTRACT

Pneumonia Coronavirus Disease 2019 or COVID-19 is a lung inflammation disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Personal Protective Equipment is a set of equipment that functions to protect its users from certain dangers or health problems, such as viral or bacterial infections. This research was conducted at Tn. Rondahaim Pamatang Raya Regional Hospital, Simalungun Regency. This type of research is descriptive research conducted to describe or illustrate a phenomenon that occurs in society (Notoatmodjo, 2010). The purpose of this study was to determine the knowledge of midwives about the use of personal protective equipment during the Covid-19 pandemic at Tuan Rondahaim Pamatang Raya Regional Hospital, Simalungun Regency in 2020. The results of the study found that the majority of midwives at Tn. Rondahaim Regional Hospital already have a good level of knowledge. Of the 38 midwives working at Tuan Rondahaim Regional Hospital, it was found that 65.8% of respondents had good knowledge about the use of personal protective equipment. It is recommended for midwives to always comply with the use of personal protective equipment in accordance with standard operating procedures while working to prevent and reduce the risk of infection in hospitals.

Keywords: PPE, Covid-19, Midwife Knowledge

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1. INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is an inflammatory lung disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Clinical symptoms range from the common cold (cough, runny nose, sore throat, muscle aches, headaches) to severe complications (pneumonia or sepsis). COVID-19 is transmitted through contact with respiratory droplets from an infected person. Droplets are small particles from the mouth containing germs produced by coughing, sneezing, or talking. Droplets can travel a certain distance (usually 1 meter). Droplets can settle on clothing or objects around the infected person when coughing or sneezing. However, droplet particles are large enough that they will not remain or settle in the air for long. Therefore, people who are sick are required to wear masks to prevent the spread of droplets [1]. To date, there are no recommendations for specific management of COVID-19 patients, including antivirals or vaccines. Management that can be carried out is symptomatic therapy and oxygen [2].

As of March 28, 2020, the number of confirmed COVID-19 infections reached 571,678. Italy had 86,498 cases, the United States had 85,228 cases, and China had 82,230 cases. The virus has spread to 199 countries. Deaths from the virus have reached 26,494. The mortality rate from this disease reaches 4-5%, with the highest number of deaths occurring in the age group over 65 years. Indonesia reported its first case on March 2, 2020, suspected to have been infected by a foreigner visiting Indonesia. Cases in Indonesia continue to increase, as of March 29, 2020, there have been 1,115 cases with 102 deaths. Indonesia's mortality rate is 9%, among the highest (Paru et al., 2019). Data on Covid-19 cases in Simalungun Regency updated on August 6, 2020, there are 26 suspected cases of Covid-19, 33 confirmed cases, 88 cases declared cured, 15 probable deaths, 7 confirmed deaths of Covid-19, 12,312 travelers, 4 close contacts, 218 people completed isolation, 1 person discarded. (Simalungun Regency Health Office).

The COVID-19 Task Force recorded 55 deaths of medical personnel during the COVID-19 pandemic in Indonesia. These fatalities included 38 doctors and 17 midwives. The Indonesian National Midwives Association (PPNI) then updated the number of midwives who died while serving COVID-19 patients to 20 as of May 19, 2020. Data from the International Council of Nurses states that at least 90,000 healthcare workers worldwide are believed to have been infected with the COVID-19 virus, and the number may have increased severalfold [3]. This is certainly very worrying, because such large data is not just statistics but human beings who have sacrificed their lives and bodies [4].

The use of PPE appropriate to the risk is one of the efforts to prevent and control Covid-19 infection. Rational and consistent use of PPE and hand hygiene will help reduce the spread of infection. In routine patient care, PPE use must be guided by a risk assessment/anticipation of contact with blood, body fluids, secretions, and broken skin [5]. PPE used refers to the Technical Guidelines for Infection Control in accordance with contact, droplet, and airborne precautions. The type of personal protective equipment (PPE) related to COVID-19 is based on the location, officer, and type of activity [6].

Medical personnel treating COVID-19 patients in isolation rooms must also wear complete Personal Protective Equipment (PPE). Personal protective equipment, better known as PPE, is essential for medical personnel, especially in the face of the current coronavirus outbreak. Medical personnel cannot wear just any PPE, as there are different levels of use that must be tailored to the healthcare setting, profession, and activities. PPE is designed to act as a barrier against the penetration of free particles, liquids, or air and to protect the wearer from the spread of infection. Proper use of PPE provides a barrier against infections caused by viruses and bacteria. (Monik Krisnawati, et al., 2020).

Medical personnel working in direct contact with patients suspected or confirmed to have Covid-19 and performing surgical procedures that generate aerosols are required to wear complete PPE, including a head covering, face shield, eye protection or goggles, an N95 mask, a face shield, surgical gloves, and waterproof boots [7]. Another crucial piece of PPE is the face shield. The use of this face shield is crucial, adjusted to the level of risk of transmission. Healthcare workers working in areas with high infection rates are required to wear a face shield capable of containing blood fluids, droplets, and aerosols [8].

Strict health protocols must be implemented both in the community and for healthcare workers directly treating COVID-19 patients, one of which is the proper use of PPE. With the increasing number of healthcare workers infected with COVID-19, the author is interested in researching "Midwives' Knowledge of the Use of Personal Protective Equipment (PPE) During the COVID-19 Pandemic at Tuan Rondahaim Pamatangraya Regional Hospital."

2. LITERATURE REVIEW

Knowledge is the result of knowing that is done by humans about a certain object through the sensory process which is more dominant through the process of seeing with the eyes and hearing with the ears. Knowledge or cognitive is a dominant factor that is very decisive in forming a person's habits or actions (overt behavior) [9].

Personal Protective Equipment is a set of equipment that functions to protect the user from certain dangers or health problems, such as viral or bacterial infections. When used correctly, PPE is able to prevent the entry of viruses or bacteria into the body through the mouth, nose, eyes, or skin [10]. is a tool that has the ability to protect someone in work whose function is to isolate the body of the worker from dangers in the workplace. PPE is personal protective equipment used by workers directly to prevent accidents caused by various factors that exist or arise in the work environment [11].

An apron is a protective covering worn by healthcare workers to protect the outside of their gowns from the patient's infectious fluids. Aprons can be made of 100% polyester with a PVC coating, 100% PVC, 100% rubber, or other waterproof materials. Aprons are reusable after disinfection or decontamination.

Gloves are the most important physical barrier to prevent the spread of infection and have been proven to be very effective in preventing contamination of the hands of healthcare workers. However, the use of gloves cannot replace the function of hand hygiene, because even the best quality gloves may experience minor, invisible damage or tears during use, which can lead to hand contamination. Gloves have a function to protect the hands of medical personnel from contact with infectious fluids during midwifery and patients. Gloves can be made of rubber latex, polyvinyl chloride (PVC), nitrile, polyurethane. Ideal gloves should be tear-resistant, leak-proof, biocompatible (non-toxic), non-irritating, flour-free, and fit the hand. Gloves are recommended for single use [12].

Head Cap All healthcare workers should wear a head covering that covers the head and neck. It is recommended that the head covering be separate from the gown so that it can be removed separately. This is done while providing clinical care to patients with COVID-19 to prevent exposure to the virus. The purpose of the head covering is to protect the scalp, neck, and hair from contamination with the virus and the possibility of subsequent unrecognized transmission to the mucous membranes of the eyes, nose, or mouth. Hair and hair extensions must fit snugly inside the head covering. Head covering specifications [13]:

- a. Single use
- b. Fluid resistant
- c. Adjustable and immovable once adjusted

- d. There is an open section (the face section) that is not elastic. In addition to covering the face, this section extends to the top of the gown (the facial opening is constructed without elastic, reaching the upper part of the gown or coverall). The head covering is made of waterproof, tear-resistant material and fits snugly to the wearer's head. This head covering is for single use [14].

Protective footwear is used to protect the feet from injury from sharp objects/heavy objects that may accidentally fall on the feet and to provide protection from contamination from spills of blood/body fluids from splashes of infectious fluids. Boots or closed shoes are made of rubber or leather, latex and PVC materials, are non-slip, and waterproof with completely closed soles [15]. Protective footwear can be reused after disinfection or decontamination. If rubber boots are not available, healthcare workers should wear closed shoes (slip-on without shoelaces and completely covering the dorsum of the foot and ankle). Shoe covers, non-slip ideally should be used over closed shoes to facilitate decontamination. Boots can be worn until the end of the work or shift.

How to use coverall PPE according to WHO 2020 [16]:

- a. Remove all personal items such as: jewelry, watches, telephones.
- b. Wear scrubs and boots
- c. Move to a clean area at the isolation unit entry point.
- d. Check and ensure all PPE sizes are correct and of appropriate quality.
- e. Perform the procedure for using PPE under the guidance and supervision of trained personnel (co-workers).
- f. Practice hand hygiene
- g. Wear gloves (nitrile material)
- h. Wear coveralls
- i. Wear a face mask
- j. Wear a face shield or protective glasses
- k. Wear a head and neck covering and head sides or head protector
- l. Wear a disposable apron if one is not available, use a heavy duty, waterproof, reusable apron.
- m. Put on the second pair of gloves after that.

Don't use tape to reinforce the glove. If the glove or coverall isn't long enough, create a thumb hole in the sleeve of the coverall to ensure your forearm isn't exposed during heavy movement [17].

- a. Remove all personal items such as: jewelry, watches, telephones
- b. Wear scrubs and boots in the locker room.
- c. Move to a clean area at the isolation unit entry point.
- d. Check and ensure all PPE sizes are correct and of appropriate quality.
- e. Perform PPE usage procedures under the guidance and supervision of trained personnel.
- f. Practice hand hygiene
- g. Wear gloves
- h. Wear a disposable gown made of fabric that has been tested for resistance to the entry of blood or body fluids or blood-borne pathogens.
- i. Wear a face mask
- j. Wear a face shield or protective eyewear
- k. Wear a head and neck covering, a surgical cap that covers the neck and sides of the head (preferably with a face shield or head protection)
- l. Use a disposable apron or a reusable apron.

When working in the midwife's room and patient, outer gloves should be changed after caring for the last patient. This technique requires appropriate glove size when the outer gloves are too tight or the outer gloves are too loose or the hands are too sweaty, the outer gloves may need to be removed separately after removing the apron. Proper decontamination of boots includes dipping the boots in a 0.5% chlorine solution [18]. Boots should be disinfected once a day by soaking them in a 0.5% chlorine solution for 30 minutes, then rinsing and drying.

3. METHOD

The research used was a quantitative descriptive study using a *cross-sectional approach*. This study employed a descriptive approach. Descriptive research is defined as research conducted to describe or illustrate a phenomenon occurring in society [19]. The purpose of this study was to describe midwives' knowledge of the use of

personal protective equipment during the COVID-19 pandemic at Tuan Rondahaim Regional Hospital, Pamatang Raya, Simalungun Regency in 2020.

Population is the entire object of research or the object studied and determined by the researcher to be studied and then drawn conclusions [20]. This study uses total sampling, namely research that involves a population that is not too large and usually the entire population is studied. The population of midwives at Tuan Rondahaim Pamatang Raya Regional Hospital, Simalungun Regency, is 38 midwives.

According to Sugiyono [21] a sample is a portion of the number and characteristics of a population, while the sampling technique is called sampling. According to Sugiyono [14] the sampling technique in this study is total sampling. Total sampling is a sampling technique where the number of samples is equal to the population. The reason for taking total sampling is because the population is less than 100. So the sample in this study was 38 midwives at Tuan Rondahaim Pamatang Raya Regional Hospital, Simalungun Regency.

This research will be conducted at Tuan Rondahaim Pamatang Raya Regional Hospital, Simalungun Regency, in 2020. The researcher is currently working as a midwife at Tuan Rondahaim Pamatang Raya Regional Hospital, Simalungun Regency. The research will be conducted from September to October 2020.

The instruments used in this study were questionnaires, observation sheets, documentation, and computers. A questionnaire is a guideline used by researchers to collect data, where researchers obtain information from one of the respondents. A questionnaire is a list of written questions to be asked to respondents. The questionnaire is created based on a research pattern that has been determined by the researcher based on previous research and supplemented with other literature. This questionnaire includes questions that measure knowledge, attitudes, actions, and the availability of personal protective equipment. In this study, researchers collected data using an instrument in the form of a questionnaire. This questionnaire consists of midwives' knowledge about the use of personal protective equipment during the COVID-19 pandemic. The midwife knowledge questionnaire contains 20 statements accompanied by the correct answer marked with an X. Each statement gets a score of 1 for a correct answer and a score of 0 for an incorrect answer. The assessment is carried out by comparing the total score of the answers with the expected score (the highest) then multiplied by 100%, the result is a percentage. The formula used is:

$$N = \frac{Sp}{Sm} \times 100\%$$

Information :

N= Knowledge value

Sp = Score obtained

Sm = Maximum highest score

This validity test was conducted by correlating each item score with the total score of the questionnaire used (Notoatmodjo, 2010; Sugiyono, 2007). Each questionnaire answered by the respondents as the target of the trial was given a score. Next, the correlation between the score of each statement and the total score of the questionnaire was calculated. The results can be compared with the *r* product moment value table. In the product moment value table, the correlation value for 10 respondents with a significance level of 5% is 0.632 and with a significance level of 10% is 0.765. This means that if the calculated *r* value is greater than the *r* table, then the statement is said to be valid. However, if the calculated *r* value is smaller than the *r* table, then the statement is said to be invalid. This study used 10 respondents for the validity and reliability tests of the questionnaire.

According to Notoatmodjo [22] reliability is an index that indicates the extent to which a measuring instrument is trustworthy or reliable. This means that the measurement remains consistent if it is measured twice or more using the same measuring instrument. Instrument reliability testing is conducted using several techniques. In this study, reliability testing uses internal consistency, which is done by testing the instrument only once. The instrument assessment score produces a dichotomous score, namely a value of 1 for a correct answer and a value of 0 for an incorrect answer. Instrument reliability can also be analyzed manually, namely using the KR 20 formula (Kuder Richardson).

The validity and reliability test of the instrument was conducted from October 5, 2020, to October 8, 2020. The questionnaire was piloted on midwives working at Tuan Rondahaim Regional General Hospital. The validity of each questionnaire item was determined using *Pearson product moment correlation analysis* [23]. The knowledge questionnaire tested consisted of 20 statements with 10 respondents. The statement was declared valid if the $r_{\text{calculated}} > r_{\text{table}} (0.05) = 0.632$ and the statement was declared invalid if $r_{\text{calculated}} < r_{\text{table}} (0.05) = 0.632$. Meanwhile, the statement was said to be reliable if the r_{Alpha} was positive and greater than the minimum limit (0.600) and if the r_{Alpha} was negative or smaller than the minimum limit (0.600) then the statement was said to be unreliable. In this study, the research questionnaire consisted of 20 statements and had a validity between 0.645-0.760. This means that the questionnaire that had been tested was declared

The research procedure begins after the proposal is approved by the supervisor. The researcher submits the proposal to the Training and Education Department at Tuan Rondahaim Pamatang Raya Regional Hospital, Simalungun Regency, along with a research permit from the Faculty of Midwifery and Efarina University. After obtaining permission from the hospital, the researcher requests permission from the head of the ward by explaining

the purpose and objectives of the research. The researcher then explains the purpose of the research to potential respondents. After the potential respondents agree, they are asked to complete an *informed consent form*. The researcher provides the research instrument to be filled out by marking an X with the appropriate question. The questionnaire is then immediately returned to the researcher. The researcher bases a group of raw data using a specific formula to produce the necessary information [24]. Data processing aims to obtain good data presentation and conclusions. The data obtained from the research is still raw and cannot provide information, so data processing is necessary [24]. Several activities carried out in data processing by the researcher include: *editing, coding, tabulating, and scoring*.

4. RESULTS AND DISCUSSION

Chapter five presents research data on the level of midwives' knowledge regarding the use of personal protective equipment during the COVID-19 pandemic at Tuan Rondahaim Regional Hospital, Pamatang Raya, Simalungun Regency. This study used descriptive data analysis techniques, a data processing procedure that depicts and summarizes data scientifically in the form of tables or graphs. Descriptive analysis serves to summarize, classify, and present data [25].

Respondent Characteristics

Respondent characteristics are divided based on the variables of age, gender, and education level.

Respondent Age

Respondent age category data was analyzed using descriptive statistics, namely minimum, maximum, mean, and standard deviation.

Table 1. Analysis based on age characteristics of respondents at Tuan Rondahaim Regional Hospital

Variables	N	Minimum	Maximum	Mean	Standard deviation
Age	38	25	54	30.66	5,710

Based on the data obtained, the average age of respondents was 30 years old, with a standard deviation of 5.710 years. The youngest was 25 years old, and the oldest was 54 years old.

Respondents' level of knowledge regarding the use of personal protective equipment during the Covid-19 pandemic.

The level of midwives' general knowledge regarding the use of personal protective equipment during the COVID-19 pandemic was analyzed using a frequency distribution. Respondents' knowledge levels were divided into three groups: good knowledge, sufficient knowledge, and poor knowledge.

Table 2. Analysis of the level of knowledge of midwives' respondents regarding the use of PPE during the Covid-19 pandemic at Tuan Rondahaim Regional Hospital

Level of knowledge	Frequency	Percentage
Good	25	65.8
Enough	13	34.2
Not enough	-	-
Total	38	100

Based on the table, it is known that of the 38 midwives working at Tuan Rondahaim Regional Hospital, it was found that 25 (65.8%) respondents had good knowledge about the use of personal protective equipment, while 13 (34.2%) had sufficient knowledge about the use of PPE.

Level of knowledge based on respondent characteristics

The description of respondents' level of knowledge was analyzed based on respondent characteristics, namely age, gender, and level of education.

Level of midwives' knowledge about the use of personal protective equipment during the Covid-19 pandemic based on the respondent's age.

Respondents' ages were divided into two groups: those between 20 and 40 years old, referred to as young adults, and those between 41 and 65 years old, referred to as middle adults. Midwives' knowledge of PPE use during the COVID-19 pandemic was analyzed using frequency distribution [26].

Table 3. Distribution of midwives' knowledge about the use of PPE during the Covid-19 pandemic based on age.

Age	Level of knowledge						Total	
	Good		Enough		Not enough			
	n	%	N	%	n	%	n	%
20 – 40 years	24	66.7	12	33.3	0	0	36	100
41 – 65 years	1	50	1	50	0	0	2	100
Total	25	65.8	13	34.2	-	-	38	100

Based on table, the results show that 24 (66.7%) respondents aged 20-40 years had a good level of knowledge about the use of PPE during the Covid-19 pandemic, while 12 (33.3%) respondents had a sufficient level of knowledge about the use of PPE during the Covid-19 pandemic. 1 (50%) of respondents aged 41-65 years had a good level of knowledge, and 1 (50%) of respondents had a sufficient level of knowledge about the use of PPE during the Covid-19 pandemic [27].

Level of midwives' knowledge regarding the use of PPE during the Covid-19 pandemic based on respondent gender.

The level of midwives' knowledge regarding the use of PPE during the Covid-19 pandemic based on gender was analyzed using frequency distribution.

Table 4. Distribution of respondents' level of knowledge about midwives and COVID-19 patients based on gender

Gender	Level of knowledge						Total	
	Good		Enough		Not enough			
	N	%	n	%	N	%	n	%
Woman	26	64.7	12	35.3	0	0	38	100

The table shows that 26 (64.7%) female respondents had a good level of knowledge about the use of PPE during the COVID-19 pandemic, while 12 (35.3%) male respondents had a sufficient level of knowledge.

Level of knowledge about the use of PPE during the Covid-19 pandemic based on respondents' education level.

Respondents had educational levels consisting of Diploma III in Midwifery and Bachelor of Midwifery. The level of knowledge regarding the use of PPE during the COVID-19 pandemic was analyzed using frequency distribution.

Table 5. Distribution of respondents' knowledge levels regarding the use of PPE during the COVID-19 pandemic, based on education level

Level of education	Level of knowledge						Total	
	Good		Enough		Not enough			
	n	%	n	%	n	%	N	%
D-III Midwifery	21	67.7	10	32.3	0	0	31	100
Bachelor of Midwifery	4	57.1	3	42.9	0	0	7	100
Total	25	65.8	13	34.2	0	0	38	100

Based on the results of data analysis, it is known that respondents with D-III Midwifery education who have a good level of knowledge about the use of PPE during the Covid-19 pandemic are 21 (67.7%) respondents, while respondents who have a sufficient level of knowledge are 10 (32.3%) respondents. Respondents with S1 Midwifery education are 4 (57.1%) respondents who have a good level of knowledge about the use of PPE during the Covid-19 pandemic and 3 (42.9%) respondents have a sufficient level of knowledge about the use of PPE during the Covid-19 pandemic.

This chapter discusses the research findings, including an overview of midwives' knowledge of PPE use during the COVID-19 pandemic. It also discusses the implications of the research findings for midwifery and the study's limitations [28].

Interpretation and discussion of research results

Demographic characteristics of midwives

Age influences a person's comprehension and thought patterns. As a person ages, their comprehension and thought patterns develop, thus enhancing the knowledge they acquire. Those aged 20-40 years enter the young adulthood stage. At this age, individuals are required to assume new roles in the workplace, home, and society, as well as develop interests, values, and attitudes related to these roles. At this stage, individuals have a higher level of maturity and ability to think and work. Meanwhile, those aged 41-65 years are middle adulthood. At this stage, cognitive and intellectual abilities do not experience significant changes. At this stage, cognitive and intellectual abilities do not experience significant changes. Reaction time does not decrease, memory and problem-solving abilities remain the same, and the learning process continues and can be developed with increasing motivation [29].

And the results of the study showed that respondents aged 20-40 years as many as 24 (66.7%) respondents had a good level of knowledge about the use of PPE during the Covid-19 pandemic, while as many as 12 (33.3%) respondents had a sufficient level of knowledge about the use of PPE during the Covid-19 pandemic. Respondents aged 41-65 years as many as 1 (50%) had a good level of knowledge, and as many as 1 (50%) respondents had a sufficient level of knowledge about the use of PPE during the Covid-19 pandemic.

Based on the data obtained, this research is in line with the theory put forward by Astutik (2013) and Triyani (2012) that age affects a person's comprehension and thought patterns. The older a person is, the more developed a person's comprehension and thought patterns are. After passing middle age (40-60 years), a person's comprehension and thought patterns will decline.

From the results of the study, it was found that 26 (64.7%) female respondents had a good level of knowledge about the use of PPE during the Covid-19 pandemic, while 12 (35.3%) female respondents had a sufficient level of knowledge. Based on the data obtained, this study is in line with the theory stated by Moekijat (1998), gender factors have a direct or indirect relationship with a person's level of knowledge about something.

According to Iffada (2010), there is no meaningful relationship that can be linked between a person's level of knowledge and their gender, but research conducted by Yohani [30] found that men and women have the same level of knowledge, this is because they are in the same environment.

Knowledge is also influenced by education. The results of the study revealed that 21 (67.7%) respondents with a Diploma III degree in Midwifery had a good level of knowledge regarding the use of PPE during the COVID-19 pandemic, while 10 (32.3%) respondents had sufficient knowledge. Four (57.1%) respondents with a Bachelor's degree in Midwifery had a good level of knowledge regarding the use of PPE during the COVID-19 pandemic, and three (42.9%) respondents had sufficient knowledge regarding the use of PPE during the COVID-19 pandemic. This finding is inconsistent with Notoatmodjo who stated that the higher a person's education, the easier it is for them to receive information and the more knowledge they gain about health. Knowledge is closely related to education, so a person with a higher education is expected to have broader knowledge. Research conducted by Sudrajat (2008) shows that midwives with a Bachelor's degree in Midwifery can fulfill their patients' rights better than midwives with a Diploma III in Midwifery.

Level of midwives' knowledge regarding the use of personal protective equipment (PPE) during the COVID-19 pandemic

Notoatmodjo [31] stated that knowledge is the result of a person's perception of an object through their senses. This study showed that of 38 midwives working at Tuan Rondaheim Regional Hospital, 25 (65.8%) respondents had good knowledge about the use of personal protective equipment, while 13 (34.2%) had sufficient knowledge about the use of PPE. The results of this study indicate that the level of midwives' knowledge about the use of PPE during the COVID-19 pandemic was good, but its implementation was not optimal. This is likely because some midwives were concerned about their work and its impact on their personal lives. In addition to the risk of infection, fear of infecting family members, stigma, and limitations in interacting with others were the things that midwives thought about most.

Research limitations

This study has limitations in that it used a knowledge questionnaire for midwives that the researcher developed based on a literature review. Each respondent did not complete the questionnaire on the same day, which allowed for information sharing between midwives.

Obstetric implications

Midwifery services

Midwives are among the largest healthcare professionals on the frontlines of the health system's response to the pandemic. Because midwives are in close contact with infected individuals, they are a key link in the chain of infection transmission, and their knowledge of COVID-19 prevention and protection procedures can help prevent

transmission. COVID-19 is a very new infectious disease, and policies and guidelines are being rapidly revised, creating confusion with each new *update*. This confusion also exacerbates midwives' anxiety and perceptions of risk.

Communication of information is often perceived as difficult and cumbersome, adding to confusion and distress for already busy midwives [32]. Therefore, it is crucial for midwives to have knowledge about the use of PPE during the COVID-19 pandemic to effectively provide midwifery services and provide accurate information about PPE use to patients and their families. The results of this study can serve as a reference for midwives to improve their knowledge, especially regarding the implementation of PPE use during the COVID-19 pandemic. Local hospitals are also expected to improve their midwives' knowledge by conducting regular and ongoing training [33].

Study

The results of this study can serve as a basis for further research. Given the increasing incidence of midwives' lack of knowledge regarding the use of PPE during the COVID-19 pandemic, it is necessary to improve midwives' knowledge regarding the use of PPE during the COVID-19 pandemic.

5. CONCLUSION

Based on the results of research and analysis of the variables studied regarding midwives' knowledge about the use of personal protective equipment during the Covid-19 pandemic at Tn Rondahaim Pamatangraya Regional Hospital, Simalungun Regency in 2020. It can be concluded as follows: Midwives' knowledge about the use of personal protective equipment during the Covid-19 pandemic at Mr. Rondahaim Pamatangraya Regional Hospital. Attitudes regarding the use of personal protective equipment during the Covid-19 pandemic at Tn. Rondahaim Pamatangraya Regional Hospital, Simalugun Regency in 2020. The relationship between the availability of personal protective equipment at the Tn Rondahaim Pamatangraya Regional Hospital during the Covid-19 pandemic. Knowledge of midwives in the emergency room of Mr. Rondahaim Pamatangraya regarding how to use personal protective equipment during the Covid-19 pandemic at Mr. Rondahaim Pamatangraya Regional Hospital, Simalungun Regency 2020.

Based on the results of the research I have conducted, the suggestions I can give are as follows: There needs to be outreach regarding the importance of using personal protective equipment for midwives in order to maintain the quality of midwifery services. There is a need for training in the use of personal protective equipment for the sake of service eligibility at Tn. Rondahaim Pamatangraya Regional Hospital, Simalungun Regency in 2020. There needs to be special attention from the management of Tn. Rondahaim Pamatangraya Regional Hospital, Simalungun Regency regarding the policy on the use of personal protective equipment for implementing midwives, that occupational health and safety efforts in providing services.

REFERENCES

- [1] A. O'farrell, A. Chatzi, En O. Doody, "Midwives' Experiences Using Personal Protective Equipment During Covid-19: A Scoping Review", *Br. J. Midwifery*, Vol 31, No 3, Bll 157–164, Mrt 2023, Doi: 10.12968/Bjom.2023.31.3.157.
- [2] S. Novelia, R. Lubis, R. Murniati, En B. T. Carolin, "Practices Of Midwives In The Use Of Personal Protective Equipment When Aid Labor During The Covid-19 Pandemic", *Nurs. Heal. Sci. J.*, Vol 1, No 2, Bll 173–179, 2021.
- [3] D. N. M. D. Puspitaningrum En N. D. Indrawati, "Midwives' Knowledge About Antenatal Care Services During The Covid-19 Pandemic", In *Proceedings Of The 1st Lawang Sewu International Symposium 2022 On Health Sciences (Lsishs 2022)*, 2023, Vol 60, Bl 40.
- [4] A. O'farrell, A. V. Chatzi, En O. Doody, "Midwives' Experiences Of Utilising Personal Protective Equipment During The Covid-19 Pandemic: A Qualitative Descriptive Study", *Int. J. Infect. Control*, 2023, Doi: 10.3396/Ijic.V19.23085.
- [5] E. A. Kassahun, B. A. Kassie, S. Y. Tilahun, En A. D. Bizuneh, "Depression, Anxiety And Stress, During Covid-19 Pandemic Among Midwives In Ethiopia: A Nationwide Cross-Sectional Survey", *Front. Psychiatry*, Vol 13, Bl 867040, 2022.
- [6] M. S. S. De Moura, R. K. Dos Santos E Silva, P. M. Mendes, A. S. De J. Sousa, En F. J. De Carvalho Neto, "Knowledge And Use Of Personal Protective Equipment By Nursing Professionals During The Covid-19 Pandemic", *Rev. Da Esc. Enferm. Da Usp*, Vol 55, Bl E20210125, 2021, Doi: 10.1590/1980-220x-Reeusp-2021-0125.
- [7] D. Maritalia, S. Rahmah, En A. Malia, "Implementation Of Childbirth Assistance By Independent Midwifery Practice During The Covid-19 Pandemic", In *The 1st International Conference On Research In Social Sciences And Humanities (Icorsh 2020)*, 2021, Bll 752–757.
- [8] N. Valverde-Espinoza *Et Al.*, "Personal Protective Equipment: Analysis Of Supply Among Midwives During The Covid-19 Pandemic In Peru", *Midwifery*, Vol 118, Bl 103583, Mrt 2023, Doi: 10.1016/J.Midw.2022.103583.

- [9] H. Rosyidah, E. Sutrisminah, En I. K. Tamang, “Midwives’ Knowledge, Risk Perceptions, Preventive Behaviour And Adherence To Infection Control Regarding Covid-19: Cross-Sectional Study In Indonesia”, *J. Heal. Technol. Assess. Midwifery Issn*, Vol 2620, Bl 5653, 2022.
- [10] S. Fumagalli, S. Borrelli, S. Ornaghi, P. Vergani, En A. Nespoli, “Midwives’ Experiences Of Providing Maternity Care To Women And Families During The Covid-19 Pandemic In Northern Italy”, *Women And Birth*, Vol 36, No 1, Bll E57–E64, 2023.
- [11] Q. He *Et Al.*, “Knowledge, Attitude And Practice Regarding Occupational Protection Against Covid-19 Among Midwives In China: A Nationwide Cross-Sectional Study”, *Int. J. Disaster Risk Reduct.*, Vol 79, Bl 103184, Sep 2022, Doi: 10.1016/J.Ijdr.2022.103184.
- [12] W. Deressa, A. Worku, W. Abebe, M. Gizaw, En W. Amogne, “Availability And Use Of Personal Protective Equipment And Satisfaction Of Healthcare Professionals During Covid-19 Pandemic In Addis Ababa, Ethiopia”, *Arch. Public Heal.*, Vol 79, No 1, Bl 146, 2021.
- [13] N. Terkeş En S. U. Yamaç, “The Experiences Of Nurses And Midwives Providing Care For Covid-19 Patients And Their Special Precautions For Protection”, *Turkish J. Heal. Sci. Life*, Vol 5, No 1, Bll 28–34, 2022.
- [14] C. Çiriş Yildiz, H. Ulaşlı Kaban, En F. Ş. Tanriverdi, “Covid-19 Pandemic And Personal Protective Equipment: Evaluation Of Equipment Comfort And User Attitude”, *Arch. Environ. Occup. Health*, Vol 77, No 1, Bll 1–8, 2022.
- [15] R. Izhar, S. Husain, M. A. Tahir, En S. Husain, “Knowledge And Practices: Risk Perceptions Of Covid-19 And Satisfaction With Preventive Measures At Workplace Among Maternity Care Providers In Pakistan”, *Eur. J. Midwifery*, Vol 5, Bl 3, 2021.
- [16] N. Sya’bin, “Knowledge Of Anxiety In Midwives In The Covid-19 Pandemic”, *Placenta J. Ilm. Kesehat. Dan Apl.*, Vol 9, No 3, Bl 70, Des 2021, Doi: 10.20961/Placenta.V9i3.54704.
- [17] F. Hearn, L. Biggs, H. Wallace, En E. Riggs, “No One Asked Us: Understanding The Lived Experiences Of Midwives Providing Care In The North West Suburbs Of Melbourne During The Covid-19 Pandemic: An Interpretive Phenomenology”, *Women And Birth*, Vol 35, No 5, Bll 447–457, 2022.
- [18] S. Mayimbo, K. Chitundu, M. Zulu, D. N. Mushamba, L. Mwape, En P. K. Mukwato, “Study Protocol On Availability And Accessibility Of Personal Protective Equipment: Fears Of Acquiring Covid-19 Among Nurses And Midwives Attending To Women At The Women And New Born Hospital And First Level Hospitals, In Lusaka, Zambia”, *J. Prev. Rehabil. Med.*, Vol 3, No 1, Bll 26–30, 2021.
- [19] P. Galanis, I. Vraika, D. Fragkou, A. Bilali, En D. Kaitelidou, “Impact Of Personal Protective Equipment Use On Health Care Workers’ Physical Health During The Covid-19 Pandemic: A Systematic Review And Meta-Analysis”, *Am. J. Infect. Control*, Vol 49, No 10, Bll 1305–1315, 2021.
- [20] D. B. Mawarni, F. M. Ekawati, L. P. Putri, En H. Bismantara, “The Use Of Personal Protective Equipment (Ppe) In Maternal Care During The Covid-19 Pandemic”, *Rev. Prim. Care Pract. Educ.*, Vol 7, No 2, Bll 43–50.
- [21] M. Göransson, J. Lundberg-Rasmussen, V. Sengpiel, En K. Linden, “‘If I Blink Twice Everything Is Ok’ – A Qualitative Study Of Swedish Midwives’ Strategies For Supporting Birthing Women While Working In Full Personal Protective Equipment”, *Women And Birth*, Vol 37, No 2, Bll 436–442, Mrt 2024, Doi: 10.1016/J.Wombi.2024.01.004.
- [22] F. Haegdorens, E. Franck, P. Smith, A. Bruyneel, K. G. Monsieurs, En P. Van Bogaert, “Sufficient Personal Protective Equipment Training Can Reduce Covid-19 Related Symptoms In Healthcare Workers: A Prospective Cohort Study”, *Int. J. Nurs. Stud.*, Vol 126, Bl 104132, Feb 2022, Doi: 10.1016/J.Ijnurstu.2021.104132.
- [23] M. Gayatri, O. Akingbade, E. O. Adesuyi, N. Van Antwerpen, M. Herlina, En A. D. Laksono, “Midwives’ Risk Perception Of And Preventive Behavioural Responses To Covid-19”, *Afr. J. Nurs. Midwifery*, Vol 24, No 3, Bll 17-Pages, 2022.
- [24] A. González-Timoneda, V. H. Hernández, S. P. Moya, En R. A. Blazquez, “Experiences And Attitudes Of Midwives During The Birth Of A Pregnant Woman With Covid-19 Infection: A Qualitative Study”, *Women And Birth*, Vol 34, No 5, Bll 465–472, 2021.
- [25] S. Z. Zulfa, O. Emilia, En A. Hidayat, “Midwives Preparation To Provide Delivery Services In Independent Midwife Practice During Covid-19 Pandemic”, *Int. J. Health Sci. (Qassim)*, Vol 5, No 3, Bll 344–351, Okt 2021, Doi: 10.53730/Ijhs.V5n3.1554.
- [26] M. Eagen-Torkko, M. R. Altman, I. Kantrowitz-Gordon, A. Gavin, En S. Mohammed, “Moral Distress, Trauma, And Uncertainty For Midwives Practicing During A Pandemic”, *J. Midwifery Womens. Health*, Vol 66, No 3, Bll 304–307, Mei 2021, Doi: 10.1111/Jmwh.13260.
- [27] N. Bhamra, K. Gupta, J. Lee, S. Al-Hity, K. Jolly, En A. Darr, “Personal Protective Equipment: Knowledge Of The Guidance”, *Br. J. Nurs.*, Vol 30, No 1, Bll 16–22, Jan 2021, Doi: 10.12968/Bjon.2021.30.1.16.
- [28] R. Maina *Et Al.*, “Knowledge, Attitudes, And Preparedness For Managing Pregnant And Postpartum Women With Covid-19 Among Nurse-Midwives In Kenya”, *Sage Open Nurs.*, Vol 8, Bl 23779608221106444, Jan 2022, Doi: 10.1177/23779608221106445.

- [29] I. D. Mirong, D. A. P. M. Kencanawati, U. Zakiyah, En R. Setiadi, "Personal Protective Equipment Compliance In Midwifery Services In Eastern Indonesia", *Indones. J. Glob. Heal. Res.*, Vol 5, No 1, Bll 27–34, 2023, [Online]. Available At: [Http://Repository.Poltekeskupang.Ac.Id/Id/Eprint/4044](http://Repository.Poltekeskupang.Ac.Id/Id/Eprint/4044).
- [30] F. Fitriyani, R. D. Aisyah, En E. Budiarto, "Affecting Factors Of Midwives' Perception Of Challenges In Midwifery Services During Covid-19 Pandemic", In *1st Umsurabaya Multidisciplinary International Conference 2021 (Micon 2021)*, 2023, Bll 955–964.
- [31] E. Khashaba, A.-H. El-Gilany, H. Shalaby, En R. El-Kurdy, "Personal Protective Equipment Used By Obstetricians And Obstetric Nurses During The Covid-19 Pandemic In Mansoura, Egypt", *F1000research*, Vol 11, Bl 413, 2022.
- [32] G. F. Yegin *Et Al.*, "Perceptions Of Obstetricians, Midwives, And Patients Towards The Delivery Table Shield: Survey On A Novel Protective Equipment", *Jinekoloji-Obstetrik Ve Neonatoloji Tıp Derg.*, Vol 19, No 1, Bll 1127–1134, 2022.
- [33] F. Aloweni *Et Al.*, "Health Care Workers' Experience Of Personal Protective Equipment Use And Associated Adverse Effects During The Covid-19 Pandemic Response In Singapore", *J. Adv. Nurs.*, Vol 78, No 8, Bll 2383–2396, 2022.