



The Relationship between the Availability of Personal Protective Equipment (PPE) and Compliance with the Use of Personal Protective Equipment (PPE) by Nurses in the Inpatient Unit of PKU Muhammadiyah Hospital, Sukoharjo

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ABSTRACT

The usage of personal protective equipment (PPE) is crucial since nurses are at a greater risk of contracting infections while doing their duties. Nonetheless, there are still issues with compliance with its use, and one of them is influenced by PPE availability. The purpose of this study is to ascertain the association between nurses' adherence to PPE use and its availability in the inpatient unit of PKU Muhammadiyah Sukoharjo Hospital. This study used a cross-sectional design, a quantitative methodology, and saturated sampling approaches to include 40 respondents. The Spearman Rank test is used for data analysis, and the instrument is a questionnaire. According to the findings, 67.5% of respondents were fairly compliant in using PPE, and 80% of respondents said that it was available. Compliance and PPE availability were significantly correlated ($p = 0.037$; $r = 0.331$). In order to prevent infection, hospitals are supposed to improve their compliance culture and make more personal protective equipment (PPE) available.

INTRODUCTION

Hospitals as health institutions have an important role in providing curative, preventive, and rehabilitative services to the community. However, hospitals are also a work environment with a high risk of exposure to infectious agents, including through blood, body fluids, and medical sharp objects. Nurses as health workers who interact with patients for the longest time are particularly susceptible to nosocomial infections or Healthcare-Associated Infections (HAIs). WHO (2024) noted that the prevalence of HAIs in developing countries, including Indonesia, ranges from 6% to 16%, much higher than in developed countries which ranges from 3.5%–12%. In Indonesia, the rate of HAIs even reaches 15.74%, which means that 1 in 10 patients is at risk of infection during treatment (Ministry of Health, 2024). For this reason, the use of Personal Protective Equipment (PPE) is one of the main strategies in preventing infections in hospitals. However, the level of nurse compliance in using PPE is still low, with only 44.6% of nurses complying (Ministry of Health, 2020).

Various studies show that one of the factors that affect nurse compliance is the availability of PPE. If PPE is available in sufficient quantities and types, then nurses tend to be more compliant in their use (Nahrisah & Ardilla, 2021; Wahyuni, 2020). Conversely, if PPE is limited or not up to standard, nurses may ignore safety procedures. Essential PPE types such as masks, face shields, goggles, gowns, gloves, and head shields are often not consistently available in some hospitals, including PKU Muhammadiyah Sukoharjo Hospital. The results of the preliminary study show that some PPE such as gowns and goggles are considered conditional, so their availability is limited, even though they are needed in the treatment of infectious infection patients. In addition, the limitations of non-sterile gloves also result in nurses being forced to use sterile gloves for routine procedures, which are not in accordance with procedure. The audit of the second semester of 2024 at the hospital recorded 26 cases of compliance violations, which were dominated by non-conformities in the use of masks, gloves, and head coverings.

The purpose of this study was to ascertain the link between the availability of personal protective equipment (PPE) and nurses' adherence to its use in the inpatient unit of PKU Muhammadiyah Sukoharjo Hospital. In general, this study seeks to determine the relationship between nurse compliance and PPE availability; in particular, it seeks to determine the degree of PPE availability, the degree of nurse compliance with its use, and the relationship between the two. It is anticipated that this study will help researchers apply their knowledge in the field of hospital administration, hospitals use it as assessment tools to improve PPE availability and compliance, and academics use it as a reference for future research and similar studies.

This study refers to and compares with several previous studies. Fauzia et al. (2023) examined the relationship between the availability of PPE and nurse compliance at South Sulawesi Hospital, with a quantitative approach and a chi-square test, while this study used the Spearman test and was conducted at PKU Muhammadiyah Sukoharjo Hospital. Another study by Wulandari & Zen (2023) examined the gender variables and availability of PPE on the use of PPE

at South Tangerang Hospital, with the same sampling approach and technique, but the research variables were different. Meanwhile, research by Dewi & Widowati (2022) covers the knowledge, attitudes, and availability of PPE towards compliance behavior, with questionnaire and observation data collection tools, in contrast to this study which only uses questionnaires. This comparison reinforces the relevance and position of research in the existing literature.

THEORETICAL REVIEW

Hospital

In the national health system, hospitals play a crucial role as health service providers. The World Health Organization states that hospitals are an essential component of social and health organizations that work to offer comprehensive medical care, including preventative and therapeutic measures. Furthermore, hospitals serve as hubs for medical research and health professional education (Pangerapan et al., 2018). The Indonesian Ministry of Health (2020) has a similar definition, defining a hospital as an institution that offers emergency, outpatient, and inpatient care. The Law of the Republic of Indonesia No. 44 of 2009 states that hospitals have a number of primary responsibilities, including the provision of medical services, the maintenance and enhancement of health, the training and education of healthcare professionals, and the advancement of health-related research and technology. Hospitals also have the main task of providing comprehensive individual health services through medical services, nursing, medical and non-medical support, public health services, education and research, as well as general administration and finance. In terms of classification, referring to Government Regulation No. 47 of 2021, hospitals are divided into two types, namely general hospitals and special hospitals. Both are further classified based on their capacity and service capabilities into classes A, B, C, and D (for general hospitals), as well as classes A, B, and C (for special hospitals). This classification is also adjusted to the availability of beds, for example, class A general hospitals have at least 250 beds, while class C special hospitals have at least 25 beds. These overall functions, duties, and classifications show that hospitals are not only a place of healing, but also an important institution in the development of national health as a whole.

Healthcare-Associated Infections (HAIs)

Healthcare-Associated Infections (HAIs) are infections that appear in patients during or after being admitted to a hospital or other health care facility, that are not visible or not during the incubation period when they first enter, and can also affect healthcare workers. WHO and Permenkes RI No. 27 of 2017 both emphasized that HAIs occur after a minimum of 48 hours of treatment or even after the patient goes home, and can also affect health workers who are exposed during work. HAIs are divided into five main types, namely Primary Bloodstream Infections (IADPs), Phlebitis Infections, Urinary Tract Infections (UTIs), Ventilator-Associated Pneumonia (VAP), and Operating Area Infections

(IDOs), each of which has different causes depending on the invasive medical device used. The HAIs infection chain consists of six important components, namely the infection agent, reservoir, exit, transmission method, entrance, and vulnerable host. This chain must be understood and broken to prevent infection from occurring. Infectious agents can be bacterial, viral, fungal, or parasitic, and can be transmitted from sources such as humans, medical devices, or the environment through direct contact, droplets, airborne, contaminated food or water, as well as vectors. Infections can enter the body through various routes such as the airways, digestive, urinary, or damaged skin. Susceptible hosts are individuals with weakened immunity, which can be caused by age, nutritional status, chronic disease, or invasive medical measures. Risk factors for HAIs include extreme age (neonatal or elderly), immunosuppressive conditions, immune system damage due to the use of catheters, ventilators, cannulas, surgical procedures, burns, trauma, and the use of medical implants. All of this knowledge is an important basis for medical personnel and hospital management to prevent and control infections that can prolong treatment life, increase costs, and endanger the lives of patients and health workers.

Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) is equipment used to protect part or all of the body from potential dangers in the work environment, especially in health care facilities (Fasyankes). PPE does not eliminate the source of danger, but serves to reduce the amount of exposure that enters the body directly. According to the Ministry of Health (2020), PPE is exclusive and specific, and is used as a complement to ineffective hazard control efforts. The main purpose of using PPE is to prevent occupational accidents and occupational diseases, as well as to protect health workers from exposure to biological and chemical risks (PPI, 2023). The types of PPE at health facilities include head coverings, ear coverings, special goggles (safety goggles), face shields, masks (including N95 respirators), gloves, foot protection (boots or safety shoes), lab coats and aprons, and coveralls. Each type of PPE has a specific protective function against certain potential hazards, for example eye protection against chemicals, or coveralls for comprehensive protection from infectious body fluids. The principle of selecting PPE must consider suitability with the type of hazard, comfort, flexibility of use, not causing new risks, not restricting movement, and meeting applicable standards (Wati, 2020). In addition, the provisions for the use of PPE also need to be considered, such as the disposal of disposable PPE into infectious trash cans (yellow plastic) to be destroyed, as well as the rewashing of PPE that can be reused according to procedures. Officers who conduct inspections are also required to maintain a safe distance of at least 1 meter when using equipment such as thermo scans or thermal imaging cameras. All of these principles and provisions are an important part of efforts to prevent infection and occupational safety in the health service environment.

Availability of Personal Protective Equipment (PPE)

In healthcare facilities, having Personal Protective Equipment (PPE) on hand is essential to preventing mishaps and safeguarding medical personnel.

Under the Regulation of the Minister of Manpower and Transmigration No. 8 of 2010, employers must provide PPE at no cost in accordance with the Indonesian National Standard (SNI), both for workers under their authority and visitors who enter the work area. In the context of hospitals, the availability of adequate PPE plays a very important role in increasing nurses' compliance in its use (Prasetyo, 2019). PPE facilities that are available in a complete, clean, and as needed basis act as a supporting factor in the formation of safe work behavior, especially in the implementation of universal vigilance (Mahayanti, 2019). Wulandari et al. (2023) said that the level of PPE availability must meet the requirements such as adjusted to the type of work, meet quality and safety standards, be fully available, and be in clean condition. The PPE availability indicator includes four main aspects: suitability with the type of work, fulfillment of quality requirements, completeness of the type of PPE, and cleanliness of the tool before use. To measure the level of PPE availability, a structured method such as a questionnaire designed to assess health workers' perceptions of the condition of PPE availability is used, accompanied by the use of a measurement scale. Based on the measurement results, the availability of PPE can be categorized into three levels: available (complete and without constraints), sufficiently available (some indicators are met but there are limitations), and unavailable (minimal PPE or does not meet protection needs). Therefore, the existence and feasibility of PPE in hospitals is not only a managerial responsibility, but also greatly affects the quality of protection for medical personnel in dealing with daily work risks.

Nurses and Personal Protective Equipment (PPE)

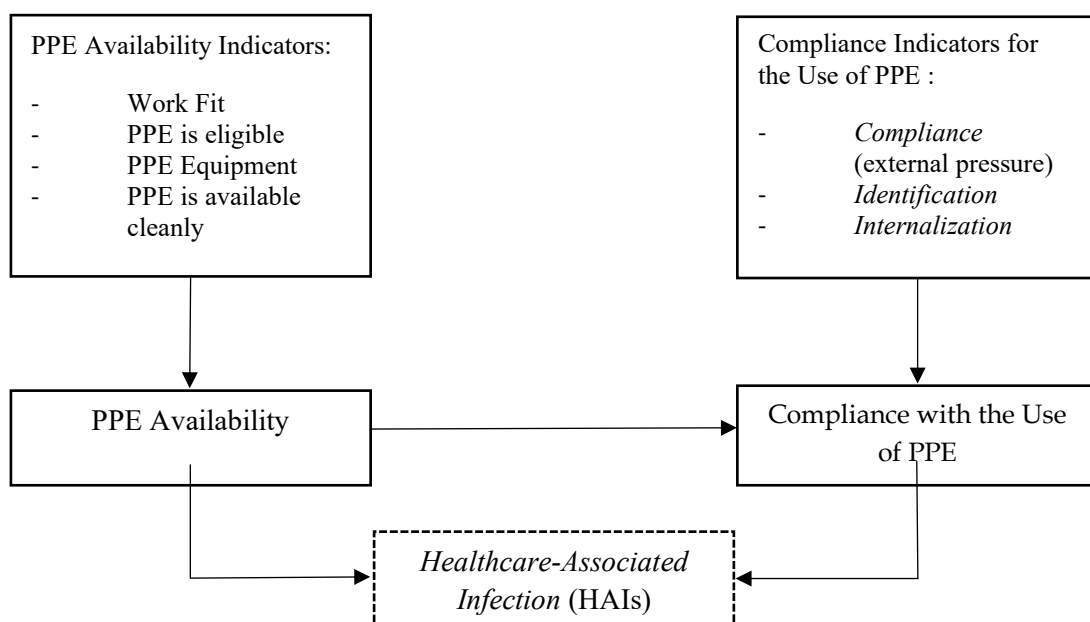
Nurses are health professionals who have undergone higher nursing education and have the authority to provide care to individuals, families, and communities in healthy and sick conditions (Permenkes, 2019). The main role of nurses, as explained by Nopriyanti (2023), is as a nursing caregiver, which includes assessing the client's condition, determining diagnoses, planning interventions, implementing actions, and evaluating patient responses. In addition, nurses also play the role of extension workers, counselors, service managers, researchers, and task implementers under limited conditions, with full authority in the nursing process including referrals, consultations, and prescription-based drug administration. In carrying out their duties, nurses are highly dependent on the availability and use of proper Personal Protective Equipment (PPE). The PPE used must be able to provide protection against specific hazards, be lightweight, comfortable to use, durable, and meet occupational safety standards (Heru & Sahputri, 2022). The types of PPE recommended for nurses include masks (surgical and N95), face shields, eye protection (goggles), aprons, protective gowns (gowns) both disposable and reusable, gloves, head coverings, and protective shoes. Each of these devices has an important function, such as N95 masks for maximum protection against airborne particles, face shields and goggles for protection of the face and eye area, and protective gowns and shoes to prevent direct contact with the patient's body fluids. The suitability of the type of PPE with the duties of nurses

is very important to prevent disease transmission and maintain occupational safety, especially in infectious situations or medical emergencies.

Compliance with the Use of PPE by Nurses

Compliance in the context of the use of Personal Protective Equipment (PPE) by nurses refers to the level of compliance in following work procedures according to operational standards, especially in efforts to prevent work risks and disease transmission in health facilities. According to Mahayanti (2019), obedience is characterized by a change in behavior from previously disobeying rules to obedient behavior. This compliance does not only depend on individual awareness, but is also greatly influenced by environmental factors, the availability of tools, supervision, and the attitude of health workers themselves (Dewi & Widowati, 2022). Istigfari and Dwianto (2022) also emphasized the importance of sustainable strategies to raise awareness of the importance of a safe work environment. Fuady and Rosana (2014) identified three main indicators of compliance: compliance (obedience due to external pressure), identification (compliance because they want to adjust to the organizational culture), and internalization (compliance due to personal awareness). Compliance measurements are typically conducted through questionnaires designed to evaluate nurses' perceptions and behaviors regarding PPE use, using a specific assessment scale. Based on the measurement results, the level of compliance is categorized into three, namely: compliant (using PPE according to the guidelines), moderately compliant (there are still minor shortcomings in implementation), and non-compliance (not following procedures, high risk to personal and patient safety) (Fauzia et al., 2023). Therefore, nurses' compliance with the use of PPE not only reflects the aspect of professionalism, but is also an important element in the infection prevention and occupational safety system in the hospital environment.

Theoretical Framework



METHODOLOGY

In order to ascertain the association between independent and bound variables simultaneously, this study employs a cross-sectional research design and a quantitative technique. In June 2025, this study will be conducted at PKU Muhammadiyah Sukoharjo Hospital's inpatient unit. All inpatient unit nurses make up the study's population, and 40 respondents in all were selected using the total sampling technique, which uses the full population as a research sample.

Two factors make up this study: the availability of personal protective equipment (PPE), which is the independent variable, and nurses' compliance with using PPE, which is the dependent variable. The state of having personal protection equipment (PPE) that is appropriate for the sort of job, satisfies quality standards, is completely available, and is clean is known as PPE availability. The behavior of nurses when using personal protective equipment (PPE) is referred to as compliance. This behavior is assessed using three indicators: internalization (compliance resulting from personal awareness of the importance of protecting oneself and one's patients), identification (compliance resulting from the influence of organizational culture), and compliance (compliance resulting from external pressure).

The study's instrument is a closed questionnaire that has undergone validity and reliability testing. Respondents' perceptions and compliance are gauged using the Likert scale. As part of the data gathering process, questionnaires were distributed to all respondents who gave their agreement to participate. The editing, coding, entering, and tabulation processes in the data processing process ensure the completeness and accuracy of the collected data. The data analysis used included univariate analysis to describe the frequency distribution and characteristics of respondents, as well as bivariate analysis using the Spearman Rank test to determine whether there was a relationship between the PPE availability variable and the hospital nurses' compliance with the use of PPE.

RESEARCH RESULTS

This study sought to determine the relationship between the availability of personal protective equipment (PPE) and nurses' adherence to its use in the inpatient unit of PKU Muhammadiyah Sukoharjo Hospital. Thirteen nurses from the children's ward and twenty-seven nurses from the inpatient room of the adult hospital were among the forty responses. The features of the respondents were categorized using internal criteria, including gender, age, education level, and length of time working as a hospital nurse. The respondent's profile is described by each of these traits, which may have an impact on PPE use compliance. The discussion of the condition of each characteristic then aims to provide an overview of the distribution of respondents in the study and its relevance to work compliance behavior.

Gender

Table 1. Table of Respondent Characteristics by Gender

| No | Gender | Frequency (n) | Percentage (%) |
|--------------|------------|---------------|----------------|
| 1 | Male- Male | 10 | 25 % |
| 2 | Woman | 30 | 75% |
| Total | | 40 | 100% |

Source : Primary Data, 2025

The results of the research data based on the gender of the respondents were most found in the female gender where the frequency was 30 people with a percentage of 75%. Meanwhile, respondents with male gender where the frequency is 10 people with a percentage of 25%.

Education

Table 2. Table of Characteristics of Respondents by Education

| No | Education | Frequency (n) | Percentage (%) |
|--------------|-------------------|---------------|----------------|
| 1 | Diploma 3 Nursing | 13 | 32,5% |
| 2 | S1 Nursing | 3 | 7,5% |
| 3 | Nurse Profession | 24 | 60% |
| Total | | 40 | 100% |

Source : Primary Data, 2025

The results of research data based on the education of the respondents were most found at the Nurse Professional level where the frequency was 24 people with a percentage of 60%. Meanwhile, the Diploma 3 Nursing education level where the frequency is 13 people with a percentage of 32.5%. Then the S1 Nursing level where the frequency is 3 people with a percentage of 9.5%.

Age

Table 3. Table of Respondent Characteristics by Age

| No | Age | Frequency (n) | Percentage (%) |
|--------------|------------------|---------------|----------------|
| 1 | 21- 25 years old | 13 | 32,5% |
| 2 | 26-30 years | 24 | 60% |
| 3 | 31-35 years old | 3 | 7,5% |
| Total | | 40 | 100% |

Source : Primary Data, 2025

The results of the research data based on the age of the respondents were most found in the age range of 26-30 years where the frequency was 24 people with a percentage of 60%. Meanwhile, the age range is 21-25 years old where the frequency is 13 people or a percentage of 32.5%. Then the age range is 31-35 years old where the frequency is 3 people with a percentage of 9.5%.

Length of Work

Table 4. Table of Respondent Characteristics by Service Period

| No | Length of Work | Frequency (n) | Percentage (%) |
|--------------|----------------|---------------|----------------|
| 1 | 1-3 years | 27 | 67,5% |
| 2 | 4-6 years | 10 | 25% |
| 3 | >6 years old | 3 | 7,5% |
| Total | | 40 | 100% |

Source : Primary Data, 2025

The results of the research data based on the length of work of the respondents were most found in the period of 1-3 years where the frequency was 27 people with a percentage of 67.5%. Meanwhile, the time span is 4-6 years where the frequency is 10 people or a percentage of 25%. Then the time span is >6 years where the frequency is 3 people with a percentage of 7.5%.

Univariate Analysis

Distribution of respondents based on the availability of personal protective equipment (PPE)

Table 5. Distribution of Respondents Based on PPE Availability

| No | Availability | Frequency (n) | Percentage (%) |
|--------------|------------------|---------------|----------------|
| 1 | Available | 32 | 80% |
| 2 | Simply Available | 8 | 20% |
| 3 | Not Available | 0 | 0% |
| Total | | 40 | 100% |

Source : Primary Data, 2025

Based on the results of research at PKU Muhammadiyah Sukoharjo Hospital, it can be seen that the percentage of availability of personal protective equipment (PPE) in the inpatient room is stated to be 80% available and 20% is quite available.

Distribution of respondents based on compliance with the use of personal protective equipment (PPE) in nurses

Table 6. Distribution of Respondents Based on Compliance with PPE Use

| No | Compliance | Frequency (n) | Percentage (%) |
|--------------|---------------|---------------|----------------|
| 1 | Obedient | 13 | 32,5% |
| 2 | Simply Obey | 27 | 67,5% |
| 3 | Non-compliant | 0 | 0% |
| Total | | 40 | 100% |

Source : Primary Data, 2025

Based on the results of research at PKU Muhammadiyah Sukoharjo Hospital, it can be seen that the percentage of compliance with the use of

personal protective equipment (PPE) in nurses stated compliance as much as 32.5% and sufficient compliance as much as 67.5%.

Bivariate Analysis

This study's bivariate analysis attempts to ascertain the connection between nurses' adherence to PPE use and the availability of PPE in the inpatient unit of PKU Muhammadiyah Sukoharjo Hospital. Using the Spearman Rank statistical test, a non-parametric correlation technique suitable for ordinal or non-normally distributed data, the association between the two variables was examined. The purpose of this test is to gauge how strongly and in which direction two variables are related. The study's significance level was set at 0.05, and the criteria for making decisions were as follows: if the p-value was less than 0.05, the alternative hypothesis (Ha) was accepted and the null hypothesis (H0) was rejected. This indicates that there was a significant correlation between PPE availability and use compliance. The Rank Spearman analysis's findings are then used to determine whether making PPE more widely available can boost nurses' adherence to protocol when using it.

Table 7. Spearman Rank Test Results

| | | | Kat_Ketersediaan | Kat_Kepatuhan |
|----------------|------------------|-------------------------|------------------|---------------|
| Spearman's Rho | Kat_Ketersediaan | Correlation Coefficient | 1,000 | ,331* |
| | | Sig. (2-tailed) | . | ,037 |
| | | N | 40 | 40 |
| | Kat_Kepatuhan | Correlation Coefficient | ,331* | 1,00 |
| | | Sig. (2-tailed) | ,037 | . |
| | | N | 40 | 40 |

Correlation is significant at the 0.05 level (2-tailed)

Source : Data processed by SPSS 25

A significant value (p-value) of 0.037 was achieved based on the Spearman Rank statistical test findings, indicating that it is less than the predetermined significance level of 0.05. Therefore, the availability of personal protective equipment (PPE) and nurses' adherence to its use in the inpatient unit of PKU Muhammadiyah Sukoharjo Hospital are significantly correlated. Although the relationship is significant, the value of the Spearman correlation coefficient of 0.331 indicates that the level of the relationship is in the weak category. This means that the availability of PPE does affect the level of compliance of nurses, but the effect is not too strong, and there may still be other factors outside of the availability of PPE that also affect this compliance behavior. These factors can be in the form of individual awareness, organizational culture, supervision system, training, and workload experienced

by nurses. Therefore, efforts to improve compliance in the use of PPE are not enough to ensure availability, but also need a comprehensive approach to aspects of nurses' behavior and work environment.

DISCUSSION

Respondent Characteristics

The respondents in this study amounted to 40 nurses who worked in the inpatient room of the adult ward and the children's ward at PKU Muhammadiyah Sukoharjo Hospital. The majority of respondents are female as much as 75%, in line with the characteristics of the nursing profession which is generally more run by women due to empathic and thorough factors. In terms of education, most of the respondents (60%) were Nurse Profession graduates, which showed a linear educational background and contributed to the competence of nurses. Based on age, the majority of respondents are in the range of 26-30 years (60%), which is classified as a productive age and is in the peak phase of career development. Meanwhile, in terms of length of work, as many as 67.5% of nurses have worked for 1-3 years, indicating that they are still in the early stages of their careers but have a great opportunity to continue to improve their competencies through training and experience.

Univariate Analysis

In the PPE availability variable (X), the results showed that 80% of respondents stated that PPE was available, and 20% stated that it was sufficiently available. This availability is assessed from four indicators: suitability with work, fulfillment of quality requirements, completeness of type, and cleanliness of PPE. However, there are obstacles in the aspect of fulfilling quality requirements for some respondents. Meanwhile, in the compliance variable of the use of PPE (Y), as many as 67.5% of respondents showed sufficient level of compliance, and 32.5% were declared compliant. This level of compliance is measured based on compliance indicators (external pressure), identification (organizational culture), and internalization (personal awareness). The lack of social identification indicators indicates the need to strengthen organizational culture on the importance of using PPE.

Bivariate Analysis

The Spearman Rank test showed a significant relationship between PPE availability and compliance with its use ($p = 0.037$), although the relationship rate was relatively weak ($r = 0.331$). This shows that the availability of PPE contributes to improving compliance, but not dominantly. Other factors such as knowledge, motivation, education, supervision, and organizational culture are also suspected to influence the level of nurse compliance. Previous research has also shown that training, monitoring systems, logistics distribution, and the influence of the work environment can strengthen compliance behavior in the use of PPE.

Research Limitations

This study has several limitations, including the coverage of respondents who only come from the inpatient room, does not reach other work units in the hospital. In addition, the distribution of questionnaires was not carried out directly by the researcher due to time and location constraints, so it was uncertain whether the questionnaire filling out was carried out optimally by the respondents. The researcher was also unable to directly explain the content of the questionnaire questions which may be confusing for respondents. Therefore, it is recommended that further research be conducted with a broader approach and direct control of the data collection process.

Implications for Hospital Administration

This research provides a number of implications for hospital administration, including the importance of ensuring the availability of PPE that meets standards in terms of type, quality, and distribution evenly across all work units. This is important to ensure optimal protection for healthcare workers and improve compliance. In addition, staff education also needs to be improved both through formal education and non-formal training such as seminars and technical training on the use of PPE. Finally, hospitals also need to develop a structured monitoring and evaluation system (monev) for the use of PPE, in order to identify obstacles, assess compliance, and provide appropriate follow-up. This Monev will support a sustainable workplace safety culture and improve the quality of nursing services.

CONCLUSIONS

According to the study on the connection between PPE availability and PPE use compliance among nurses working in the PKU Muhammadiyah Sukoharjo Hospital inpatient unit, the following findings can be made:

1. At the available category, 77.5% of the personal protective equipment (PPE) for nurses at the PKU Muhammadiyah Sukoharjo Hospital inpatient unit is available, and 22.5% is.
2. The percentage of nurses in the PKU Muhammadiyah Sukoharjo Hospital inpatient unit who comply with the usage of personal protective equipment (PPE) is between 67.5% and 32.5%.
3. A significance value (p-value) of 0.037, which is less than 0.05, indicates that there is a relationship between the availability of personal protective equipment (PPE) and compliance with its use, according to the analysis's findings. Despite the existence of a relationship, the spearman correlation coefficient of 0.331 suggests that the degree of association between the variables falls into the weak group.

RECOMMENDATIONS

1. Hospitals are expected to routinely monitor and evaluate the availability and compliance with the use of personal protective equipment (PPE). This step is important to ensure that all health workers and support staff are optimally protected in carrying out their duties. In addition, the results of the monitoring and evaluation can be used as a basis for

decision-making for the improvement of the distribution system, training on the proper use of PPE, and the formulation of internal policies that encourage increased compliance and ensure the availability of PPE in a sustainable manner.

2. Hospitals are expected to continue to increase the availability of complete personal protective equipment (PPE) in accordance with standards and improve the quality of personal protective equipment (PPE) as a step to support nurses' performance.
3. Hospitals need to build and strengthen an organizational culture that places occupational safety as a top priority, one of which is through a collective understanding of the importance of using personal protective equipment (PPE).
4. Every nurse is expected to have a strong understanding that the use of Personal Protective Equipment (PPE) is not only a work obligation, but also a form of professional responsibility to protect themselves, patients, co-workers, and families at home.

FURTHER STUDY

1. It is hoped that the researcher would go on to discuss additional elements, like attitudes and understanding regarding adherence to personal protective equipment (PPE) use.
2. Further research can expand the scope of the research to other units or it can be the entire nurse in the hospital.

REFERENCES

- Abunawas, N. F. A. S. G. K. (2023). Buku Ajar Statistika Dasar. *Buku Ajar Statistika Dasar*, 14(1), 15–31. <https://doi.org/10.21070/2017/978-979-3401-73-7>
- Ade Suryani, Retno Setiowati, Joko Tri Suharsono, H. (2022). Penggunaan Alat Pelindung Diri (APD) terhadap Keselamatan Kerja Perawat pada Era Pandemi COVID-19 di Ruang Isolasi RS Kanker Dharmais. *The Journal of Hospital Accreditation*, Vol 4 No 01 (2022).
- Adiputra, I. M. S., Trisnadewi, N. W., Oktaviani, N. P. W., & Munthe, S. A. (2021). *Metodologi Penelitian Kesehatan*.
- Agustian, I., Saputra, H. E., & Imanda, A. (2019). Pengaruh Sistem Informasi Manajemen Terhadap Peningkatan Kualitas Pelayanan Di Pt. Jasaraharja Putra Cabang Bengkulu. *Profesional: Jurnal Komunikasi Dan Administrasi Publik*, 6(1), 42–60. <https://doi.org/10.37676/professional.v6i1.837>
- Apriani, R., & Ambia, A. (2022). Pengaruh ketersediaan APD dan pengetahuan terhadap kepuasan perawat dalam pencegahan Covid-19. *Holistik Jurnal Kesehatan*, 16(2), 100–108. <https://doi.org/10.33024/hjk.v16i2.5207>

- Arifki Zainaro Program Studi Ilmu Keperawatan, M., Kedokteran Universitas Malahayati Bandar Lampung, F., kunci, K., Prasarana, S., dan Masa Kerja, P., Kerja, K., & Perawat, K. (2017). Pengaruh Sarana Prasarana, Pendidikan Dan Masa Kerja Perawat Terhadap Kepuasan Kerja Dan Kinerja Perawat Di Ruang Rawat Inap Rumah Sakit Umum Daerah Dr. A. Dadi Tjokrodipo Bandar Lampung. 11(1), 1-4.
- Butar-Butar, A., & Siregar, C. T. (2023). Karakteristik pasien dan kualitas hidup pasien gagal ginjal kronik yang menjalani terapi hemodialisa. *RS. Permata Medika*, 6 (2009), 1-3. <http://www.permatamedika.com/fasilitas-pelayanan/terapi-hemodialisa/>
- Dewi, A. S. (2021). Pengaruh Penggunaan Website Brisik.Id Terhadap Peningkatan Aktivitas Jurnalistik Kontributor. *Komunika*, 17(2), 1-14. <https://doi.org/10.32734/komunika.v17i2.7560>
- Dewi, I. F. S., & Widowati, E. (2022). Pengetahuan, Sikap, dan Ketersediaan APD dengan Perilaku Kepatuhan Penggunaan APD Tenaga Kesehatan. *Higeia Journal of Public Health Research and Development*, 6(3), 318-325.
- Dian, S., Ichسانی, P., Setyadi, A., & Keperawatan, J. (2023). Perilaku Kepatuhan Tenaga Kesehatan Hubungannya Dengan Penggunaan Alat Pelindung Diri Compliance Behavior of Health Personnel in Relation To the Use of Personal Protective Equipment. 15, 381-394.
- El-Matiry, H. J., Manalu, E. D., & Batubara, S. (2021). Pelatihan Penggunaan Alat Pelindung Diri Pada Perawat Di Ruang Radiologi Rumah Sakit Umum Sembiring. *Jurnal Pengabdian Masyarakat Putri Hijau*, 1(2), 85-89. <https://doi.org/10.36656/jpmph.v1i2.696>
- Fauzia, L., Saraswati, A. I., Nurbaya, S., & Restika BN, I. (2023). Correlation between Availability of Personal Protective Equipment (PPE) and Nurse Compliance in using PPE in South Sulawesi Hospital. *An Idea Nursing Journal*, 2(1), 54-60.
- Fuady, M., & Rosana, E. (2014). Kepatuhan Hukum. Dalam *Jurnal TAPIS*, Vol 10 No, 34.
- Gultom, R. (2018). Analisis Penggunaan Alat Pelindung Diri (APD) dalam Keselamatan dan Kesehatan Kerja (K3) Proyek Kontruksi di PT. Eka Paksi Sejati. Studi Kasus: Proyek Kontruksi untuk Pemboran Sumur Eksploirasi Titanum (TTN-001) Daerah Aceh Tamiang. *Southeast Asian Affairs* 1991, 3(1), 107-121. <https://doi.org/10.1355/9789812306814-009>
- Herdiani, F. D. (2021). Penerapan Oracle Enterprise Architecture Development (OADP) Dalam Perancangan Arsitektur Sistem Informasi Manajemen Aset Properti: Studi Kasus PT. Pos Properti Indonesia. *Jurnal Ilmiah Ilmu*

Terapan Universitas Jambi, 5(1), 31–38.
<https://doi.org/10.22437/jiituj.v5i1.12886>

- Hidayah, H. S., Yusuf, Y., Fatah, Z., & Wahjono, S. I. (2024). Latihan Dan Pengembangan Sumber Daya Manusia. *National Conference on Applied Business, Education, & Technology (NCABET)*, 3(1), 300–317.
<https://doi.org/10.46306/ncabet.v3i1.128>
- Ida Faridah, R. V. A. (2023). Faktor-Faktor Yang Berhubungan Dengan Kepatuhan Perawat Dalam Penggunaan Alat Pelindung Diri (Apd) Setelah Masa Pandemi Covid-19 Di Rsud Kota Serang. 5, 4200–4224.
- Indah Mawarti, Fatma Sri Wahyuni, W. W. (2020). Hubungan Pendidikan dan Pelatihan dengan Pelaksanaan Sistem Pemberian Pelayanan Keperawatan Profesional oleh Perawat Pelaksana di Ruang Rawat Inap RSUD Raden Mattaher Jambi. 2507(February), 1–9.
<https://doi.org/10.33087/jiubj.v20i1>
- Indiawati, O. C., Syaâdiyah, H., Rachmawati, D. S., & Suhardiningsih, A. V. S. (2022). Analisis Faktor Yang Mempengaruhi Kejadian Burnout Syndrome Perawat Di Rs Darmo Surabaya. *Jurnal Keperawatan Dan Kesehatan Masyarakat Cendekia Utama*, 11(1), 25.
<https://doi.org/10.31596/jcu.v11i1.1037>
- Istigfari, S. N., & Dwiantoro, L. (2022). Kepatuhan Penggunaan Alat Pelindung Diri pada Petugas Kesehatan di Rumah Sakit melalui Pengembangan Metode Human Factor Design: Kajian Literatur. *Holistic Nursing and Health Science*, 5(1), 111–124.
<https://doi.org/10.14710/hnhs.5.1.2022.111-124>
- Izza, S., Handiyani, H., & Nurdiana. (2021). Uji Coba Pelaksanaan Pemantauan dan Evaluasi Kepatuhan Pemakaian Alat Pelindung Diri Perawat di Unit Covid-19 Rumah Sakit X di Jakarta. *Jurnal Keperawatan*, 13(1), 213–226.
- Janna, N. M., & Herianto. (2021). *Jurnal Darul Dakwah Wal-Irsyad (DDI)*, 18210047, 1–12.
- Kemenkes. (2020). Pedoman Teknis Pencegahan dan Pengendalian Infeksi di Fasilitas Kesehatan Tingkat Pertama. In Book (pp. 1–207).
- Kemenkes. (2024). Pencegahan Dan Pengendalian Infeksi Dasar Bagi Tenaga Kesehatan Di Fasilitas Pelayanan Kesehatan Kelas B. Rs Jiwa Dr. H. Marzoeki Mahdi Bogor, 9–14.
- Kemenkes RI. (2020). Permenkes No 3 Tahun 2020 Tentang Klasifikasi dan Perizinan Rumah Sakit. Tentang Klasifikasi Dan Perizinan Rumah Sakit, 3, 1–80.

- Kesehatan, D. J. P. (2020). Penggunaan Alat Perlindungan Diri dalam Menghadapi Wabah Covid-19. *Direktorat Jenderal Pelayanan Kesehatan*, 15(April), 1–27. https://persi.or.id/images/2020/data/penggunaan_apd_covid19.pdf
- Kesehatan, M. (2020). Peraturan Menteri Kesehatan Republik Indonesia Nomor 52 Tahun 2018 Tentang Keselamatan Dan Kesehatan Kerja Di Fasilitas Pelayanan Kesehatan. Menteri Kesehatan Republik Indonesia Peraturan Menteri Kesehatan Republik Indonesia, Nomor 65(879), 2004–2006. <https://doi.org/10.1093/bioinformatics/btk045>
- Kristina Ana, & Roro Tutik Sri Hariyati. (2022). Implementasi Survaillans Healthcare Assosiated Infection (Hais) Berbasis Elektronik Di Rumah Sakit. *Jurnal Cakrawala Ilmiah*, 1(5), 1065–1080.
- Mahayanti. (2019). Hubungan Ketersediaan Sarana Alat Pelindung Diri (Apd) Dan Kenyamanan Penggunaan Apd Dengan Perilaku Kepatuhan Penggunaan Apd Pada Perawat Di Rsud Kabupaten Badung Mangusada. *Angewandte Chemie International Edition*, 6(11), 951–952.
- Makbul, M. (2021). Metode Pengumpulan Data Dan Instrumen Penelitian. *Pharmacognosy Magazine*, 75(17), 399–405.
- Martínez-Morato, S., Feijoo-Cid, M., Galbany-Estragués, P., Fernández-Cano, M. I., & Arceciado Marañón, A. (2021). Emotion management and stereotypes about emotions among male nurses: a qualitative study. *BMC Nursing*, 20(1), 1–14. <https://doi.org/10.1186/s12912-021-00641-z>
- Menteri Tenaga Kerja dan Transmigrasi. (2010). Peraturan Menteri Tenaga Kerja dan Transmigrasi Republik Indonesia. *Peraturan Menteri Tenaga Kerja Dan Transmigrasi*, VII(8), 1–69.
- Nahrisah, P., & Ardilla, A. A. A. (2021). Faktor-Faktor Yang Mempengaruhi Kepatuhan Penggunaan Alat Pelindung Diri (Apd) Perawatpada Masa Pandemi Covid-19 Di Instalasi Gawat Darurat Rumah Sakit Umum Daerah Dr. Zubir Mahmud. *Prepotif : Jurnal Kesehatan Masyarakat*, 5(2), 1243–1253. <https://doi.org/10.31004/prepotif.v5i2.2434>
- Nanda, S. (2024). Kuesioner Penelitian: Cara Membuat, Jenis, dan Contohnya. *Brain Academy*, 2. <https://www.brainacademy.id/blog/kuesioner-penelitian>
- Ni Made Nopita Wati, I. G. J. (2020). Manajemen Apd (Alat Pelindung Diri). *STIKes Wira Medika Bali*, 1.
- Nopriyanti, R. (2023). Peran Perawat dalam Pelayanan Kesehatan. *Media Dinkes Babel*, 7, 9–12.
- Notoatmodjo. (2018). *Metodologi Penelitian Kesehatan*. 89, 1–539.

- Nugraheni, E., Susanti, I. H., & Triana, N. Y. (2024). Hubungan Burnout dengan Motivasi Kerja Perawat. *Jurnal Penelitian Perawat Profesional*, 6(2), 537-548.
- Pangerapan, D. T., Palandeng, O. E. L. I., & M.Rattu, J. (2018). Hubungan Antara Mutu Pelayanan Dengan Kepuasan Pasien Di Poliklinik Penyakit Dalam Rumah Sakit Umum Gmim Pancaran Kasih Manado. *Jurnal Kedokteran Klinik (Jkk)*, 2(1), 9-18.
- Peraturan Pemerintah. (2021). Peraturan Pemerintah Nomor 47 Tahun 2021 tentang Penyelenggaraan Bidang Perumahsakitan. 086146.
- Permata Sari, K. C. D., Syafhan, N. F., & Sianipar, I. (2022). Optimalisasi Manajemen Alat Pelindung Diri dan Pelayanan Farmasi Klinis selama Pandemi COVID-19: Narrative Review. *Jurnal Manajemen Dan Pelayanan Farmasi (Journal of Management and Pharmacy Practice)*, 12(2), 78. <https://doi.org/10.22146/jmpf.71090>
- Permenkes. (2019). Peraturan Menteri Kesehatan Republik Indonesia Nomor 26 Tahun 2019 Tentang Peraturan Pelaksanaan Undang-Undang Nomor 38 Tahun 2014 Tentang Keperawatan. 1969(1), 1-24.
- Permenkes RI. (2016). Peraturan Menteri Kesehatan Republik Indonesia Nomor 66 Tahun 2016 Tentang Keselamatan Dan Kesehatan Kerja Rumah Sakit. 4(June), 2016.
- Permenkes RI. (2017). Peraturan Menteri Kesehatan Republik Indonesia Nomor 27 Tahun 2017 Tentang Pedoman Pencegahan Dan Pengendalian Infeksi Di Fasilitas Pelayanan Kesehatan. *Jurnal Akuntansi*, 11.
- PPI, K. (2023). Panduan Penggunaan Alat Pelindung Diri. 55.
- Pranowo, R. S. (2017). Pengertian Lama Kerja Faktor yang Mempengaruhi Lama Kerja Klasifikasi Kerja. 28-31. <https://text-id.123dok.com/document/6zk02l1py-pengertian-lama-kerja-faktor-yang-mempengaruhi-lama-kerja-klasifikasi-lama-kerja.html>
- Prarona, M. K., Sutinbuk, D., & Edi, M. (2024). Faktor-Faktor yang Berhubungan dengan Kepatuhan Penggunaan Alat Pelindung Diri (APD) Pada Perawat di Instalasi Rawat Inap. *Jurnal Penelitian Perawat Profesional*, 6(3), 1251-1262.
- Prasetyo, E. (2019). Pengaruh Pengetahuan, Sikap, dan Ketersediaan Alat Pelindung Diri (APD) Terhadap Kepatuhan dalam Menggunakan APD di Unit Coating PT. Pura Barutama Kudus. *Jurnal Keperawatan Dan Kesehatan Masyarakat Cendekia Utama*, 2(3), 526-535.
- Putri, S. A., Widjanarko, B., & Shaluhiyah, Z. (2018). Faktor-Faktor yang Berhubungan dengan Tingkat Kepatuhan Perawat Terhadap

- Penggunaan Alat Pelindung Diri (APD) di RSUP Dr. Kariadi Semarang. *Jurnal Kesehatan Masyarakat(e-Journal)*,6(1), 800–808. <http://ejournal3.undip.ac.id/index.php/jkm>
- Rahman, A., Munandar, S. A., Fitriani, A., Karlina, Y., & Yumriani. (2022). Pengertian Pendidikan, Ilmu Pendidikan dan Unsur-Unsur Pendidikan. *Al Urwatul Wutsqa: Kajian Pendidikan Islam*, 2(1), 1–8.
- Resti, H. Y., & Cahyati, W. H. (2022). Kejadian Diabetes Melitus Pada Usia Produktif Di Puskesmas Kecamatan Pasar Rebo. *Higeia Journal Of Public Health Research And Development*, 6(3), 350–361. <http://journal.unnes.ac.id/sju/index.php/higeia>
- Rully Nur Dewanti, N. K. (2023). Produktifitas =. 6, 26–32.
- Rusnarida, S. (2020). PERSONAL Protector Equipment (Alat Pelindung Diri).
- Sari, A., Wahyuni, & Ekawati. (2019). Faktor - Faktor Yang Berhubungan Dengan Kepatuhan Penggunaan Apd Pada Pekerja Penanganan Prasarana Dan Sarana Umum (PPSU). *Jurnal Kesehatan Masyarakat (e-Journal)*, 7(4), 441–446.
- Sari, N. (2022). Hasil Belajar Siswa Menggunakan Metode Resource Based Learning Dan Make a Match. *Jurnal Pendidikan Ips*, 3(1), 17–23. <https://doi.org/10.32696/jpips.v3i1.1062>
- SG, H., Fauziah, M., Srisantyorini, T., Pudyastuti, E., & Kusumawati, F. (2023). Analisis Pelatihan Dan Budaya Kerja Dengan Perilaku Penggunaan Alat Pelindung Diri Perawat Rumah Sakit X. *Environmental Occupational Health and Safety Journal*, 4(1), 66. <https://doi.org/10.24853/eohjs.4.1.66-74>
- SG, H., Wulandari, W., & Zen, A. (2023). Hubungan Jenis Kelamin Dan Ketersediaan Alat Pelindung Diri Dengan Penggunaan Alat Pelindung Diri Perawat Rawat Inap RSUD Tangerang Selatan. *Environmental Occupational Health and Safety Journal*, 4(1), 59. <https://doi.org/10.24853/eohjs.4.1.59-65>
- Sihaloho, A. A. (2022). Faktor yang Mempengaruhi Perilaku terhadap Kepatuhan Penggunaan APD untuk Pencegahan Penyakit Akibat Kerja Perawat. In *Jurnal Media Medika* (Vol. 2, Issue 1, pp. 1–10).
- Sinambela. (2021). *Metodologi Penelitian*. 16(1), 1–23.
- Siron, Y., Nurrahma, I. F., & Salsabila, A. (2021). . Volume 19 Nomer 01 Tahun 2021x, July xxxx, pp. 1~5. 19, 65–78.
- Strekalova, Y. A., Kong, S., Kleinheksel, A. J., & Gerstenfeld, A. (2019). Gender differences in the expression and cognition of empathy among nursing

- students: An educational assessment study. *Nurse Education Today*, 81(October), 1-6. <https://doi.org/10.1016/j.nedt.2019.04.004>
- Suarmayasa, I. N. (2023). Pola Kuman Pada Manset Sphygmomanometer : Studi Deskriptif Di Rsd Mangusada. *Jurnal Riset Kesehatan Nasional*, 7(2), 163-168. <https://doi.org/10.37294/jrkn.v7i2.481>
- Sudarmo, S., Helmi, Z. N., & Marlinae, L. (2017). Faktor Yang Mempengaruhi Perilaku Terhadap Kepatuhan Penggunaan Alat Pelindung Diri (Apd) Untuk Pencegahan Penyakit Akibat Kerja. *Jurnal Berkala Kesehatan*, 1(2), 88. <https://doi.org/10.20527/jbk.v1i2.3155>
- Sugiyono. (2020). Pengaruh Komunikasi, Disiplin Kerja dan Latar Belakang Pendidikan Terhadap Kinerja Karyawan PT Pegadaian (Persero) Cabang Bogor. Sugiyono, 43.
- Suparno, L. A. (2019). Layanan Akademik Dan Kinerja Dosen Program Studi Teknologi Pembelajaran Pascasarjana (Monitoring and Evaluation for Improving Academic Services And Lecturer Performance of Postgraduate Learning Technology Study Programs). 2, 88-97.
- Syahroni, M. I. (2022). Prosedur Penelitian Kuantitatif. *Jurnal Al-Musthaf* , Vol 2 No 3, 1-29.
- Ufairah Ariqah Heru, Juwita Sahputri, M. I. (2022). Gambaran Pengetahuan, Sikap, Ketersediaan APD dan Kebijakan Dengan Penggunaan APD Pada Paramedis di Rumah Sakit Kabupaten Aceh Utara.
- UU RI No 44. (2009). Undang-Undang RI No. 44 tahun 2009. Tentang Rumah Sakit, 10, 2-4.
- Wahyuni, W. (2020). Rsd Sultan Imanuddin Pangkalan Bun Sekolah Tinggi Ilmu Kesehatan. 106.
- Wasty, I., Doda, V., & Nelwan, J. E. (2021). Hubungan Pengetahuan Dengan Kepatuhan Penggunaan Apd Pada Pekerja Di Rumah Sakit. *Kesehatan Masyarakat*, 10(2), 117-122.
- WHO. (2022). Hospitals O. 1-4.
- WHO. (2024). Surveillance of health care-associated infections at national and facility levels.
- Wulandari, D. E., & Rizky, W. (2024). Pengaruh Pendidikan dan Pelatihan Terhadap Kinerja Perawat Rawat Inap di RSUD Ibu Fatmawati Soekarno Kota Surakarta The Effect of Education and Training on Performance of Inpatient Nurses at. 7(2), 62-67.
- Wulandari, W., Arumsari, N., & Karamina, A. (2023). Analisis Hubungan Ketersediaan APD dan Dorongan Rekan Kerja Terhadap Penggunaan

APD Pekerja Konstruksi. Conference on Safety Engineering and Its Application, 2581.

Yuniati, F., & Haryanti, R. S. (2022). Subjective Well-Being Penduduk Usia Produktif Indonesia Tahun 2007-2014: Analisis Data Longitudinal Indonesian Family Life Survey Prodi Pengawasan Epidemiologi Poltekkes Kemenkes Palembang Jurusan Keperawatan Poltekkes Kemenkes Palembang. *Urnal Keperawatan Merdeka (JKM)*, 2, 60-65.

Zaki, M., & Saiman, S. (2021). Kajian tentang Perumusan Hipotesis Statistik Dalam Pengujian Hipotesis Penelitian. *JiIP - Jurnal Ilmiah Ilmu Pendidikan*, 4(2), 115-118. <https://doi.org/10.54371/jiip.v4i2.216>