

# Relationship Between Compliance with the use of Personal Protective Equipment and Work Safety

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## Relationship Between Compliance with the use of Personal Protective Equipment and Work Safety

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**Abstract** Compliance with the use of Personal Protective Equipment greatly affects work safety, especially health workers who perform actions on patients repeatedly and continuously so that safety during work is determined by compliance in the use of Personal Protective Equipment during service. The purpose of this study was to determine the relationship between compliance with the use of Personal Protective Equipment on the work safety of Health Workers at Bhakti Husada Cikarang Hospital. This study used a cross sectional approach. The population was all health workers who served in the inpatient room at Bhakti Husada Hospital Cikarang in 2024. The research sample used non- random sampling techniques, namely using the total population of 60 people. The results showed a p-value 0.001 ( $p = 0.05$ ) and an OR value 8.636, it can be concluded that there is a relationship between compliance with the use of Personal Protective Equipment on occupational safety at Bhakti Husada Cikarang Hospital in 2024. As input to organize special training on the use of Personal Protective Equipment according to its level so that it can be followed by all health workers.

**Keywords** : Compliance; Personal Protective Equipment, Work Safety

### 1. INTRODUCTION

Occupational Health and Safety in Hospitals needs serious attention in an effort to protect the possible negative impacts caused by the health service process, as well as the existence of facilities, infrastructure, medicines and other logistics in the hospital environment so as not to cause work accidents, occupational diseases and emergencies including fires and disasters that affect hospital workers, patients, visitors and the surrounding community (Ministry of Health, 2010).

Data from the Ministry of Health processed by the Central Statistics Agency (BPS) shows that health workers in Indonesia reached 14 million in 2022 and this number, mostly consisting of nurses, namely 363,000 people, followed by midwives with 136,000 people. (Erlina F Santika, 2033).

Based on data from the Ministry of Health, there are 1.36 million health workers in Indonesia as of January 4, 2023, with nurses being the most numerous health worker, with 524,508 people. (Data Indonesia, 2023). Based on the data above, it shows that every year, nurses and midwives are always in the top position in numbers, indicating that the position of the two professions is an important profession and is needed in health services. The safety and welfare of these health workers must be a concern, especially the protection of their

health. to occupational safety both physically and psychologically.

In working, health workers are strongly encouraged and even required to carry out work safety, especially the use of personal protective equipment. In completing the work, nurses use Personal Protective Equipment consisting of gloves, masks/Particulate Respirators, eye protection (goggles), shields/face shields, hoods, protective gowns/aprons, sandals/closed shoes (Boots). (Permenkes RI, 2017).

Personal Protective Equipment used in the field varies greatly and is often worn for long periods of time. Personal Protective Equipment is used to protect the safety of especially health workers (Albyn, 2030). Meanwhile, work safety is a state of avoiding danger when doing work. (Susilo, 2021).

The risk of occupational safety disorders in health workers is of various types as produced by Rafi'ah's research in 2012 where it was found that the safety risks for nurses were psychosocial hazards, namely work fatigue and drowsiness (76.9%), other hazards were crushed or pinched hands and back pin (69.3%) and the risk of being exposed to splashes or patient blood fluids and needling (38.4%). (Rafi'ah et al., 2022). Hazards due to the use of Personal Protective Equipment are important for the safety of health workers, although based on Rafi ah's research the danger of infusion due to the use of Personal Protective Equipment is smaller but this presentation is quite high at around 38%, almost one third of the types of health problems in health workers occur because they are related to the use of Personal Protective Equipment. In order to achieve work safety, many things must be done by health workers and the use of Personal Protective Equipment is an important thing to consider in compliance and correct use

There have been many levels of awareness of health workers in understanding the use of Personal Protective Equipment, its benefits and impacts, but it turns out that there are still health workers who are still low in the use of Personal Protective Equipment such as research conducted by Delima in 2022 which shows that compliance with the use of Personal Protective Equipment in health workers is less good (43.8%) and good (56.3%) (Delima et al., 2022). This is very concerning, especially for these health workers, how can health workers provide assistance to patients but do not pay attention to their own safety. Of course all health workers know the impact of compliance in the use of Personal Protective Equipment, but there are still many health workers who still feel safe not to use Personal Protective Equipment. The impact of using Personal Protective Equipment as stated by Kiki in 2021 that there is a relationship between compliance with the use of Personal Protective Equipment and the incidence of COVID-19 exposure in nurses. (Deniati et al., 2021).

Regarding safety issues that occurred at Bhakti Husada Hospital, it was found during 2023 that nurses who experienced respiratory illnesses were approximately 30 people in adult inpatient rooms, infected with COVID-19 as many as 3 people, needlesticks as many as 5 people, exposed to 4 patients' body fluids. (RSBH, 2014). This data shows that the work safety of nurses in the hospital still has to be improved, especially in the use of Personal Protective Equipment, in order to avoid unnecessary things that happen during work.

Compliance with the use of Personal Protective Equipment is generally due to symptoms and discomfort felt by health workers as conveyed by Haward in 2023 obtained information that health workers who use Personal Protective Equipment for four to seven days report more symptoms than those who use it for one to three days, symptoms experienced after doffing were fatigue (69.17%), dry mouth (67.29%), dizziness (43.60%), headache (55.63%), chest tightness (36.46%), dry skin (57.14%), decreased ability to concentrate (48.12%), dark urine (55.63%), decreased alertness (42.48%), and burning in the stomach (28.94%). (Haward, 2023). Compliance can occur in any form, as long as individuals show attitudes and behaviors that are obedient to something towards someone, such as compliance with regulations. (Faiz, 2023).

The correlation between compliance with the use of Personal Protective Equipment and the safety of health workers is something that must be explored regularly and continuously considering that the safety of health workers is also very important besides patient safety. The purpose of this study is to determine the relationship between compliance with the use of personal protective equipment and occupational safety of health workers at Bhakti Husada Cikarang Hospital in 2024.

## 2. RESEARCH METHODS

This study was conducted using a qualitative research design with a cross sectional approach. This research was conducted at Bhakti Husada Hospital Cikarang Indonesia. The population in this study were all health workers who served in the inpatient room of Bhakti Husada Hospital Cikarang, namely to people. The research sample used a non-random sample technique, namely using the total population with inclusion criteria, namely all nurses and midwives who served in the inpatient room at Bhakti Husada Cikarang Hospital and were willing to be respondents, with a total of 60 people.

The data used is primary data taken from respondents. How to collect data using questionnaires Presentation of data in the form of frequency tables. Data analysis uses univariate and bivariate analysis to see the relationship between the independent and

dependent variables using the chi square test.

### 3. RESULT AND DISCUSSION

#### Responden Characteristics

**Table 1**  
**Frequency Distribution of Health Workers in the Inpatient Room of Bhakti Husada Cikarang**

No	Variables	Frequency (f)	Percentage (%)
1	<b>Gender</b>		
	Female	52	86,7 %
	Male	8	13,3 %
	Total	<b>60</b>	<b>100 %</b>
2	<b>Education</b>		
	D3	50	83,4 %
	S1	10	16,7 %
	Total	<b>60</b>	<b>100%</b>
3	<b>Length of Service</b>		
	≤3 Years	47	78,3 %
	3 Years	13	21,7 %
	Total	<b>60</b>	<b>100 %</b>
4	<b>Married Status</b>		
	Marry	22	36,7 %
	Unmarried	38	63,3 %
	Total	<b>60</b>	<b>100%</b>
5	<b>Occupational Safety</b>		
	At Risk	<b>30</b>	<b>50 %</b>
	Not at Risk	<b>30</b>	<b>50 %</b>
	Total	<b>60</b>	<b>100%</b>
6	<b>Compliance with the use of Personal Protective Equipment</b>		
	Compliant	<b>24</b>	<b>40 %</b>
	Non-compliant	<b>36</b>	<b>60 %</b>
	Total	<b>60</b>	<b>100 %</b>

Based on the data in table 1 above, based on the respondent data, the majority of health workers 86.7% are female, 83.4%, this is in accordance with research conducted by Safir in 2021, it was found that health workers were dominated by women by 77% (Safir et al., 2011). In addition, the respondents had a D3 education, 78%, this is supported by research by Safir in 2021 which shows that nurses in health services are still at an average D3 level, namely 85.79%. Respondents have a working period of 3 years. The majority of health workers who are not compliant in using Personal Protective Equipment are 36 respondents (60%) and 50% are still at risk in work safety. Related to the working period of respondents according to Jannah et al (2022) that health workers who work are workers who should be ready to do work both in service and in health protection and security so that length of work can generally affect behavior towards health security such as research by Jannah et al (2022) shows that there is a relationship between working period and compliance with using Personal Protective Equipment with a presentation of working period 5 years around 27%. (Jannah et al., 2022). Respondents are also dominant 63.31% unmarried, generally this is because health workers in these health services have a long working period and then resign. Health workers, especially nurses, are indeed more young nurses and many even come from graduating from STIKes Bhakti Husada. The marital status of health workers is uneven in each health service such as research by Latif in 2023 dominated by married status of 92.5% and unmarried 7.5% only. (Latif et al., 2023)

**Tabel 2 The Relationship between Compliance with the use of Personal Protective Equipment and Occupational Safety in Inpatient Room Health Workers at RS Bhakti Husada Cikarang**

<i>Personal Protection Equipment Compliance</i>	Not at Risk		At Risk		Total		P Value	OR (95% CI)
	n	%	n	%	n	%		
	Compliant	19	79,2	5	24	9		
Non Compliant	11	30,6	25	36	43	59,7%		
<b>Total</b>	<b>30</b>	<b>50</b>	<b>30</b>	<b>50</b>	<b>60</b>	<b>100%</b>		

Based on Table 2, the results of statistical tests (chi square) obtained a value of  $p=0.001$  ( $p < 0.05$ ), it can be concluded that there is a significant relationship between compliance with the use of Personal Protective Equipment with occupational safety in health workers. The results obtained by the research OR value 8.636 (CI 95%: 2.566-29.073) means that health workers who are not compliant will experience a risk in occupational safety of 8.636 times compared to health workers who obediently use Personal Protective Equipment.

## **Discussion**

Officer compliance in the use of Personal Protective Equipment is one of the things that is done to prevent the occurrence of occupational hazards that have a great risk of occurring if they do not wear Personal Protective Equipment and there are still inpatient room officers who have not used Personal Protective Equipment in accordance with the SOP while working.

Compliance with using masks, aprons, gloves, eye protection (goggles), head coverings is 100% because respondents understand that masks have a function to protect the respiratory tract from sneezing and coughing splashes of others. This is in accordance with (WHO, 2020) explains the usefulness of medical masks is one of the preventive measures that can limit the spread of certain respiratory diseases caused by viruses.

This is in accordance, according to Ramadhani's research in 2023, that where compliance with the use of Personal Protective Equipment is clearly correlated with occupational safety and health. The clear relationship between Personal Protective Equipment and occupational safety and health is basically understood and known very clearly by health workers, but it turns out that many factors determine compliance with the use of Personal Protective Equipment in working in health services. (Ramadhani, 2023)

As researched by Fauzia in 2023, it turns out that the availability of Personal Protective Equipment is the cause of non-compliance with the use of Personal Protective Equipment, namely there is a relationship between the availability of Personal Protective Equipment and nurse compliance in the use of Personal Protective Equipment. (Fauzia et al, 2033)

There are still many reasons why compliance in the use of Personal Protective Equipment among health workers is still far from expectations, even though the use of Personal Protective Equipment is for health workers in safety at work. As we all understand that working in a hospital environment is an area that is close to disease both from contaminated air and invasive actions that are very dangerous to health workers.

2 This is in accordance with the theory that the use of Personal Protective Equipment aims to avoid health workers from the risk of infection transmitted from patients to officers. The risk of infection can be caused by exposure to all types of body fluids (secretions, mucus, blood) and skin from patients to health workers and vice versa. 3 The use of Personal Protective Equipment can be a means of controlling and preventing infection in patients and health workers. Therefore, Personal Protective Equipment is carefully selected so that it can meet some of the necessary conditions. (Permenkes RI,2017).

Like Ramadhani's research that compliance in using Personal Protective Equipment greatly affects the level of occupational safety and health risks. Research by Suryani in 2021 also confirms the same thing, namely the use of Personal Protective Equipment on work safety nurses have a positive attitude for personal safety as health workers. (Suryani et al., 2022).

Considering that nurses and midwives are health workers who dominate in health services based on the ratio of health worker needs for nurses 2.4 and midwives 2 per 1000 population while other health workers are around 0.015-0.02 per 1000 population. It is hoped that with the use of Personal Protective Equipment, the occupational safety and health of health workers will be guaranteed. (Ministry of Health, 2022).

#### **4. CONCLUSIONS**

The conclusion of this study is that there is a significant relationship between the use of Personal Protective Equipment and Occupational Safety of Health Workers at Bhakti Husada Cikarang Hospital. The findings of this study can provide information related to education in the health sector to students regarding the importance of using Personal Protective Equipment, especially about the benefits and impacts caused if they do not wear it and can organize special training on the use of Personal Protective Equipment according to their level so that students and all health workers can participate.

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