DOI: http://dx.doi.org/10.33846/hn60405
http://heanoti.com/index.php/hn

RESEARCH ARTICLE
URL of this article: http://heanoti.com/index.php/hn/article/view/hn60405

Behavior of Hospital Health Workers and the Use of Personal Protective Equipment to Prevent Nosocomial Infections

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ABSTRACT

One of the unexpected occurrences of activities in the hospital is nosocomial infection. Therefore, it takes attention from all hospital health workers regarding the behavior of the use of qualified Personal Protective Equipment (PPE) to protect themselves from the infection. The purpose of the study was to find out the relationship between the behavior of hospital health workers and the use of PPE to prevent nosocomial infections in Thalia Irham Hospital Kab. Gowa. This research was an analytic observational study with a cross sectional research design. A sample of 70 hospital health workers was determined based on the Lemesow formula, where sampling was carried out using a simple random sampling method. Data analysis was processed by Chi-square statistical test. The results of the analysis of the three variables studied had a significant relationship between knowledge (p-value = 0.000), attitude (p-value = 0.033), action (p-value = 0.027) and the use of PPE in preventing nosocomial infections. As conclusion, there is a relationship between the behavior of hospital health workers and the use of PPE in preventing nosocomial infections.

Keywords: behavior; hospital health workers; nosocomial infection; personal protective equipment

INTRODUCTION

Infectious diseases are diseases in which pathogenic microbes as a very dynamic cause. Microbes as living things certainly can survive by multiplying in a suitable reservoir and being able to find new reservoirs by moving or spreading [(1)]. One of the infectious diseases is nosocomial infection. Nosocomial consists of two words: *nosos*which means disease and *comeo*which means treatment, of which the two words are derived from the Greek. Nosokomion is defined as a place for treatment/hospital. So, a nosocomial infection can be interpreted as an infection that is obtained or occurs in the hospital [(2, 3)]. Nosocomial infections are a major public health problem in general and will continue to increase despite efforts to control infection in health care centers and contribute significantly to morbidity and mortality. Naturally, every microorganism has the potential to cause infection in a patient, but only a few include Staphylococci, Escherichia coli, Pseudomonas aeruginosa, Enterococci, fungi, and to a lesser extent, viruses and parasites play a major role in nosocomial infections [(3)].

In Africa, the incidence of nosocomial infections ranges from 2 to 4.9%, whereas patients in the intensive care unit range from 21.2 to 35.6% with an incidence density of 26.7 infections per 100 patient days in pediatric surgery patients. In addition, 3.4 – 10.9% of hospital-associated infections often result in death in most developed countries, although it is thought to be higher in developing countries such as Africa.German hospital infection surveillance data reported that in 1994, there were 400,000 to 600,000 nosocomial infections each year, of which 10,000 to 15,000 were fatal. Nosocomial infections also cause the length of stay in the intensive care unit to increase by an average of 5.3 days, accompanied by an increase in treatment costs. studies of the incidence of nosocomial infections in various countries in Europe, ranging from 3.5% to 11.6%, where urinary tract infections are the most common occurrence, followed by pneumonia, surgical site infections and primary infections of sepsis. [(3,4)]

Many research results have been carried out to overcome the problems caused by nosocomial infections, but until now these problems have not been maximally addressed by all countries in the world. Several research results related to nosocomial infections are the analysis of nosocomial prevalence and patterns of antibiotic resistance in teaching hospitals [5]. Inappropriate overuse of broad-spectrum antibiotics, especially in healthcare settings, increases nosocomial infections, which do notonly become a big health problem but also cause huge economic and production losses in society. Nosocomial infections can be controlled by measuring and comparing infection rates in health care settings and adhering to best health care practices [6]. Nosocomial infections can increase the morbidity of hospitalized patients. This is the result of a study that aims to determine the incidence of nosocomial infections that occur in the intensive care unit, risk factors, causative pathogens and the final outcome in hospital due to infection [7]. The results showed that nosocomial infections were a cause of loss for hospital patients, but infections could be prevented by good infection control. The results of the study concluded that nosocomial infections were a significant cause of mobility, mortality and length of stay in the intensive care unit. [3,9]

Some of the results of the research above indicate that the study only assessed how to prevent and prevent nosocomial infections in patients in hospitals, but did not analyze the role of health workers, especially the behavior of health workers in hospitals in dealing with nosocomial infections in patients. Therefore, this study aims to see how the behavior of hospital health workers relates to the use of personal protective equipment to prevent nosocomial infections.

Because health workers are central to patient health services in hospitals, it is likely to cause nosocomial infections, so according to the researcher, this research needs to be carried out in addition to the lack of research that assesses the behavior of health workers at work and discipline in using personal protective equipment.

METHODS

This type of research was an analytic observational study with a cross sectional approach. The research was conducted at Thalia Irham Hospital, Gowa Regency, South Sulawesi Province, Indonesia. The population in this study were health workers who met the inclusion criteria, namely functional health workers, caring for patients directly, working at least 4 hours every day, so that a sample of 70 subjects was obtained where the sample was taken using simple random sampling method.

Data collection in this study was divided into two, namely primary data and secondary data. Primary data was a measure of knowledge and behavior of health workers in using personal protective equipment. Measurements were carried out using a questionnaire. While secondary data obtained through literature and regulations that apply in the hospital. Data were analyzed by Chi-square statistical test with a confidence level of = 0.05. This research had been approved by the Health Research Ethics Commission of the Poltekkes Kemenkes Makassar Number 0210/KEPK-PTKMKS/IV/2021/.

RESULTS

Based on measurements made on 70 samples at Thalia Irham Hospital, the results obtained are as shown in table 1.

Table 1. Characteristics analysis of respondents in hospital health workers at RSU Thalia Irham

Variable	Frequency	Percentage
Age (years)		
20-29 years old	37	52.86
30-39 years old	23	32.86
≥40 years old	10	14.29
Sex		
Male	16	22.86
Female	54	77.14

The results of the analysis of respondents based on age obtained the results at the age of 20-29 years amounted to 37 respondents or 52.86%, for the age of 30-39 years there were 23 respondents or 32.86% and for the age of 40 years and over obtained the number of 10 respondents or 14.29%. Thus, it can be concluded that the hospital health workers involved in this study were mostly between the ages of 20-29 years.While on the sex variable, the results of the hospital health workers were 16 respondents or 22.86% male and female as many as 54 respondents or 77.14%. Thus, it can be said that the hospital health workers involved in this study were mostly female respondents aged 20-29.

Table 2. Relationship of knowledge, attitude and action hospital health workers at RSU Thalia Irhamwith the Use of PPE

Variabel	Qualified		Nonqualified		p
	Frequency	Percentage	Frequency	Percentage	
Knowledge					
Good	63	90.00	3	4.30	0.000
Less	1	1.40	3	4.30	x^2 =15.744
Attitude					
Good	62	88.57	4	5.71	0.033
Less	2	2.86	2	2.86	x^2 = 4.530
Action					
Good	59	84.27	3	4.30	0.027
Less	6	8.57	2	2.86	x^2 = 4.861

The results of the Chi-square test on the relationship between knowledge of hospital health workers on the use of PPE to prevent nosocomial infections showed a p-value of 0.000 (<0.05), thus, it could be concluded that there was a relationship between the level of knowledge of hospital health workers and the use of PPE to prevent nosocomial infections.

Chi-square analysis on the attitude towards the use of PPE to prevent nosocomial infections showed a p-value of 0.033 (<0.05), thus, it could be concluded that there was a relationship between the attitude of hospital health workers and the use of PPE to prevent nosocomial infections.

Chi-square analysis on the action variable on the use of PPE to prevent nosocomial infections showed a p-value of 0.027 (<0.05), thus, it could be concluded that there was a relationship between the actions of hospital health workers on the use of PPE to prevent nosocomial infections

DISCUSSION

The hospital is one of the workplaces that has a risk of exposure to disease, both in the community who seek treatment and health workers. These events can occur due to direct or indirect contact with microorganisms that cause disease. Therefore, the use of personal protective equipment needs to be well understood in order to prevent contact with disease-causing microorganisms as one of the causes of nosocomial infections.

The results of the analysis of the characteristics of the respondents at the Thalia Irham Hospital concluded that the hospital health workers involved in this study were mostly female respondents aged 20-29 years. This shows that with this age is an important age because this age period the structure of life becomes more fixed and stable, one's abilities and strengths will be more mature in thinking and working. As a person becomes more mature, a person will have a tendency to mature his soul [(9)]. In terms of gender, there is no relationship with the use of personal protective equipment. Regardless of gender, both men and women have the same opportunity to use or not to use personal protective equipment. This is in line with the results of research by Bady (2007) which states that nurses are dominated by the female gender, considering that the nursing profession is closer to the problem of maternal instinct[(9,10)].

The results of the analysis concluded that the knowledge, attitudes and actions of hospital health workers were significantly related to the use of personal protective equipment that met the requirements to prevent nosocomial infections. This happens because with sufficient knowledge accompanied by a good attitude to take action in the use of personal protective equipment properly and correctly will prevent contamination of microorganisms that cause nosocomial infections. Good knowledge of hospital health workers will provide an understanding of how important personal protective equipment is in preventing infection, even further by taking action in the form of socializing how to prevent infection through posters. This is in line with statement by WHO which states that infection control in hospitals is very high in overcoming nosocomial infections[(11,12)].

The attitude or compliance of hospital health workers to use personal protective equipment that meets the requirements, due to risk factors for transmitting nosocomial infections is a concern for health workers and hospital safety if they do not comply with the requirements for using personal protective equipment.[(13)].This happens because health workers are aware of the importance of preventing the transmission of nosocomial infections, so compliance with the use of personal protective equipment is required[(12,14)].

CONCLUSION

Based of the results, factors of knowledge, attitudes and actions of hospital employees have a significant relationship with the use of personal protective equipment in preventing nosocomial infections in Thalia Irham Hospital, Gowa, Indonesia.

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