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Infection control and practice of standard precautions among hospital staff nurses in Indonesia

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Abstract

Background: Universal precaution as a strategy recommended by the Centers for Disease Control and Prevention in efforts to prevent infection and disease transmission among health workers, through the hospital Infection prevention and control (IPC) committee seeks to protect health workers and patients of the risk of transmitting the infection.

Purpose: To determine the factors associated with the application of universal precautions in the prevention of infectious disease transmission in nurses at Lamaddukelleng Hospital, Wajo district.

Method: A descriptive quantitative using cross-sectional design. The population is nurses at Lamaddukelleng Hospital, especially nurses in the emergency ward, with a total sampling of 28 respondents.

Results: The Chi-Square test finding factor of nurses had a trained with p -value = 0.001 which shows that the nurses had a trained has a significant relationship to the application of universal precautions by nurses, while the availability of Infection prevention and control equipment facilities is p -value = 0.557 and the monitoring factor is p -value = 0.274, showing no relationship to the application of universal precautions by nurses.

Conclusion: Shows that 75% of respondents have applied universal precautions. Suggestions to hospital management to be paying attention to provide Infection prevention and control equipment facilities and provide regular training, especially related to Infection Prevention and Control.

Keywords: Infection control; Practice of standard precautions; Staff nurses; Emergency ward

INTRODUCTION

Universal precaution is an effort to prevent disease transmission in health care facilities that must apply to patients, health workers, and visitors. The basis of the belief to limit and prevent the danger / risk of transmission of pathogens through blood and body fluids from known and unknown sources. The components of this universal precautions include washing hands to prevent cross infection, wearing personal protective equipment including gloves to prevent contact with blood and other infectious fluids, managing medical devices, managing needles and sharp tools to

prevent injury, and waste management (Fadila & Widi, 2019; Cleveland, Gray, Harte, Robison, Moorman, & Gooch, 2016; MacIntyre, & Chughtai, 2015).

Research on Health Care Workers in a Secondary Facility in Southern Nigeria, found that 37% of health workers exposed to the hepatitis B virus (HBV), 39% exposed to the hepatitis C virus (HCV), and 4.4% exposed to the HIV virus in the workplace. Developing countries, which have the highest HIV prevalence in the world, also have the highest incidence of needle stick injuries. Meanwhile, the HBV vaccine is only about 20% of

the total number of health workers in the world who have received the 3 doses of immunization needed for immunity (Johnson et al, 2019).

The risk of transmitting HBV after needle-stick injury is 6% - 30%, HCV (risk of transmission is about 1.8%), HIV (risk of transmission is 0.3%) and for over 20 other pathogens (viruses, bacteria, fungus) with severe consequences for the patient and the medical team (chronic disease, disability and death). 80% of accidental exposure to blood occurs by needle stick injuries with the most frequent and severe risk of transmission of pathogens such as Hepatitis B (HBV), Hepatitis C (HCV) and HIV (Barlean et al, 2019; Nouetchognou, Ateudjieu, Jemea, & Mbanya, 2016; Rapisarda, Loreto, Vitale, Matera, Ragusa, Coco, & Ledda, 2019; Goel, Kumar, Lingaiah, & Singh, 2017).

WHO reported that around 2 billion people worldwide are infected with hepatitis, 240 million people are infected with hepatitis B and 170 million people infected with hepatitis C (Yapali, 2017; Basnayake, & Easterbrook, 2016). Based on Indonesia Basic Health Research (RISKESDAS), in 2018 there was of 21.8% of Indonesia's population first infected by Hepatitis B and 2.5% infected by Hepatitis C. (Indonesian Ministry of Health, 2018; Ahmad, & Kusnanto, 2017; Multazam, Cholissodin, & Adinugroho, 2020).

Meanwhile, HIV in Indonesia-based on the HIV / AIDS Development Report for the second quarter of 2019 Directorate General of Disease Prevention and Control (P2P) Indonesian Ministry of Health, the cumulative number of HIV cases reported up to June 2019 was 349,802 (60.7%) of the estimated PLHIV. in 2016 as 640,443 cases. Reported In South Sulawesi Province up to June 2019, 9,442 HIV cases. As of June 2019, the number of AIDS sufferers was reported as 116,997 sufferers, with 250 of them coming from medical professionals.

Exposure to infected blood and body fluids minimized by the application of universal precautions to prevent transmission of infectious diseases during patient care. Use gloves when in contact with blood or body fluids from patients, use personal protective equipment such as masks,

gowns, protective goggles. Universal precautions require when handling instruments and surfaces contaminated with blood or body fluids, washing hands before contact and after patient contact and changing gloves after handling a patient, recapping used needles to avoid the possibility of puncturing. In addition, giving HBV vaccines to health workers is very important as a prevention of transmission. A case study in China in 2010 showed that nurses who had good adherence to the application of universal precautions were less likely to be exposed to contaminated sharp objects (Ibrahim et al., 2019).

The most vulnerable and at risk of infection with infectious diseases are health workers in the emergency ward, because the main entrance for patients with various types of diseases and medical diagnosis still unfixed when patient admission that high vigilance and discipline in implementing required. universal precaution by nurses for personal protection from exposure to blood and other body fluids from patients (Filler, Akhter, & Nimlos, 2019; Carter, Wyer, Giglio, Jia, Nelson, Kauari, & Larson, 2016). In contrast to the inpatient ward where the patient's diagnosis has determined so that they can identify and perform the precautions and self-protection.

RESEARCH METHODS

A descriptive quantitative using cross-sectional design with the population and sample taken by a total sampling of 28 nurses as respondents in the Lamadukelleng Regional Hospital in the emergency ward. The data consist of primary data and secondary data. Primary data collected by observation and using a questionnaire. The questionnaire has used by previous researchers but slightly had modified according to the characteristics of the study site.

Data analysis by using the descriptive statistical test to show the frequency distribution of the independent variable and the dependent variable. The statistical test used Chi-square where the independent variable and the dependent variable were categorical. The statistical test to find the relationship between the dependent variable and

the independent variable by comparing the p-value with α (0.05).

This research has ethical clearance from the health research ethics commission of the

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RESULTS

Table 1. Demographic Characteristics of Respondent (N = 28)

Variable		n	%	M±SD
Age (Years) (Range: 23-41)				29.32±3.66
Gender	Female	19	67.9	
	Male	9	32.1	
Education	Diploma in Nursing	16	57.1	
	Bachelor in Nursing	12	42.9	
Duration of Employment (Years) (Range: 2-23)				7.42±2.64
Applied Universal Precaution	Always	21	75.0	
	Occasionally	7	25.0	
Availability of Infection Prevention and Control Equipment Facilities	Existent	27	96.4	
	Nonexistent	1	3.6	
Had training of Infection Prevention and Control	Have	17	60.7	
	Have not	11	39.3	
Under Supervision in Using Infection Prevention and Control	Good	15	53.6	
	Poor	13	46.4	

Based on table 1. Knowing that the most of the respondents by range of 23-41 years old, a mean age of 29.32 years old and standard deviation of 3.66 years old, female (67.9%), Diploma in Nursing degree (57.1%); Duration of Employment by range of 2-23 years, a mean of 7.42 years and standard deviation of 2.64 years, majority of respondents (75.0%) have applied *universal precaution* in their work.

The variable availability of facilities, it shows that the majority of respondents (96.4%) consider that the facilities in the form of PPE, hand washing facilities and gloves are sufficient and can be used at any time and that more than half of the respondents (60.7%) admitted that they had received enough training related to

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universal precautions, both formally and through other information media offline and online, more than half of the respondents (53.6%) think that supervision of the implementation of universal precautions is good.

Table 2. Relationship of Infection Control and Practice of Standard Precautions

Variable	Applied Universal Precaution		p-value
	Always (n)	Occasionally (n)	
Availability of Infection Prevention and Control Equipment Facilities			
Existent	6	0	0.557
Nonexistent	1	21	
Had training of Infection Prevention and Control			
Have	17	0	0.001
Have not	4	7	
Under Supervision in Using Infection Prevention and Control			
Good	13	2	0.274
Poor	8	5	

Based on table 2. Knowing that respondents who do not apply universal precaution because of insufficient facilities are 1 respondent, compared to sufficient facilities of 6 respondents who do not apply universal precaution. The results of statistical tests with a value of $p = 0.557 (> 0.05)$, it can concluded that there is no relationship between the availability of facilities.

The respondents who do not apply universal precaution because of lack of training related to universal precaution of 7 respondents, and respondents who have received training with quite of 17 respondents have applied universal precautions at work. The statistical test value $p = 0.001 (< 0.05)$, so it concluded that there is a relationship between the training on universal precautions with implementation universal precaution.

The respondents who do not apply universal precautions because of inadequate supervision of

5 respondents, while of 2 respondents who do not apply universal precautions even though they are under good supervision. The statistical test results got p value = 0.274 (> 0.05), it concluded that there is no relationship between the supervisory factor.

DISCUSSION

The availability of facilities

Based on the results of statistical tests using the test Chi-square, it shows that there is no significant relationship between the availability of facilities and the application of universal precautions ($p = 0.557, \alpha = 0.05$). The results of this study was similar with previous study entitled "Factors Associated with Nurse Behavior in implementing Universal Precautions in the Surgical Care Ward at Labuang Baji Makassar Hospital" where there is no relationship between the means and the behavior of implementing universal precautions by health workers (Fitriani, 2013). By

the observations of researchers, there are still some nurses who neglect to apply universal precautions at work, especially not washing their hands before using a handsocon and still covering used syringes that can pose a risk of being punctured even though adequate facilities are available. It can be concluded that the implementation of universal precaution is closely related to behavior a person'swhere the availability of sufficient resources not necessarily be able to change the behavior of nurses to implement universal precautions in working

The training

Based on the statistical test Chi-square indicate a significant relationship between training and the application of universal precautions by nurses (p value = 0.001, α = 0.05). Nurses who do not apply universal precaution because they lack formal and informal training.

The results this study was similar with entitled "Factors Related to implementing Universal Precautions In the Emergency ward at Kerinci Padang hospital" there was also a significant relationship between training and implementation, universal precaution, training and education are an important part of staff or organizational development (Simandalahi, Prawata, & Toruan, 2019). The states that the purpose of training is to improve employee performance, so that the employee skills update process occurs in line with technological advances. In this case, training on the application of universal precautions when providing nursing care to patients is aimed at increasing the competence of nurses which includes determinants of abilities and skills in order to prevent infection transmission to both themselves and others (Sulistiyani & Rosyida, 2009; Krisnata, 2016).

The supervision

Based on the results of statistical tests shows that there is no significant relationship between supervision and the application of universal precaution by nurses (p value = 0.247, α = 0.05). This was similar the research conducted entitled "factors related to the level of nurses' compliance

with the use of personal protective equipment (PPE) at DR. Karyadi hospital Semarang "where there is also no relationship between supervision and compliance with the use of PPE as a part of the application of universal precautions (Putri, Widjanarko, & Shaluhayah, 2019). Supervision is a form of management commitment to health and safety protection for health workers. The existence of supervision can create a good work safety climate so that it is the background for the perception of workers to always behave and work safely.

The results of previous studies showed that there was a significant relationship between nurses' knowledge (p = 0,000), availability of facilities (p = 0,000), motivation (p = 0.003) and supervision (p = 0.001) with the application of universal precaution (Waney, Kandou, & Panelewen, 2016) besides that the climate of work safety, leadership support, commitment management, and providing information together have an influence on the compliance with the implementation of universal precautions by nurses with an OR value: 0.436 (Purnoma, 2015).

CONCLUSION

The results show that as 21 respondents (75%) have implemented universal precautions to prevent transmission of infectious diseases. The training factor has a significant relationship with the application of universal precautions to prevent infectious disease transmission. Where the most dominant was a training factor is to application of universal precaution. The availability of facilities and supervision factors do not have a significant relationship with the application of universal precautions to prevent infection of infectious diseases.

SUGGESTION

The hospital management, especially the Infection Control and Prevention Committee, routinely socialize infection control policies and a standard operating procedure (SOP) to all nurses who work at Lamaddukelleng Hospital, especially nurses in areas vulnerable to infectious and

Infection control and practice of standard precautions among hospital staff nurses in Indonesia

infectious diseases. Provide training on universal precautions and PPE regularly, and ensure that all workers understand the information got from the training by conducting a pre-test and post-test. Providing a hand book a standard operating procedure for Infection Control and Prevention.

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Infection control and practice of standard precautions among hospital staff nurses in Indonesia

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