The Level of Knowledge of Dental Students and Compliance With Using Personal Protective Equipment

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Informasi artikel	ABSTRACT
	Background: Nosocomial infections or Healthcare-Associated Infections (HAIs) are infections that occur in hospitals and attack patients undergoing treatment. Dental professional student as health workers who are very vulnerable to the spread of cross-infection, so they need to understand the importance of using personal protective equipment as a first step in prevention. **Objectives**: This study aims to determine the correlation between the level of knowledge of Dental Professional Students on compliance with using personal protective equipment (PPE) at Dental and Oral Hospital Bhakti Wiyata Institute of Health Science Kediri. **Methods**: This study is a type of analytical observational research with a cross sectional design. The data obtained, processed, analyzed, and interpreted to test the hypothesis using the chi square test are presented in table form with variable data scales are ordinal and nominal. **Results**: The significance value of chi square in the data is 0.001 Asymp. Sig. (2-tailed). A p value of < 0.05 means that there is a significant relationship. **Conclusion**: There is a correlation between the level of knowledge of dental professional students on compliance with using PPE at Dental and Oral Hospital Bhakti Wiyata Institute of Health Science Kediri This is an open access article under the CC–BY-SAlicense.

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Introduction

Nosocomial infections or Healthcare-Associated Infections (HAIs) are infections that occur in hospitals and attack patients who are in the process of being treated, which are not discovered and are not in the incubation period when the patient is admitted to the hospital. The incidence of nosocomial infections in the world is generally quite high, namely 7.1% per year or out of 190 million patients treated per year. Data on nosocomial infections in Indonesia itself can be seen from surveillance data conducted by the Ministry of Health of the Republic of Indonesia in 2015. The number of nosocomial infections is quite high, namely 6-16% with an average of 9.8% of inpatients receiving new infections during treatment.[1] Health workers Teeth during dental procedures are in very close contact with the patient's mouth, making the face vulnerable to exposure to aerosols, blood splashes or saliva from the patient's oral cavity which can spread infectious diseases through the mucous or conjunctival membranes. Therefore, personal protective equipment before carrying out dental treatment procedures needs to be implemented. Dental care procedures that pose a risk of cross-infection are tooth extraction, tooth burial and tartar cleaning. [2] The spread of infection can occur from a decline in the behavior of health workers regarding their obligation to always fulfill the standard criteria for health services, one of which is PPE. It is very important to use PPE when working in a hospital.[3]

The use of PPE must be in accordance with the Standard Operating Procedure (SPO) to prevent work accidents or dangerous risks that may arise while carrying out work in the hospital. Health workers who come into direct contact with patients are at risk of contracting disease, therefore officers must have knowledge of using PPE in accordance with standards, so that officers can plan the use of PPE according to their needs or where they are used to prevent disease transmission.[4]

In its implementation, the level of compliance of health workers in carrying out standard precautions, especially PPE, is still lacking, and of course this can endanger health workers from contracting infections in hospitals. According to the monitoring report of the Infection Prevention and Control Team at Jenderal Soedirman University Dental and Oral Hospital, the average compliance with the use of PPE in 2018 for dental students was 88.4%. This figure still does not meet the quality indicator standards in hospitals, where the quality indicator is expected to be 100%.[5]

Professional Program students are one of the Health Workers who are very vulnerable to the spread of cross-infection and HAIs. All students must have knowledge regarding the importance of using PPE in efforts to prevent cross infection. This research was conducted with the aim of finding out the relationship between the level of knowledge of Dentist Profession Students and compliance with the use of personal protective equipment at the Dental and Oral Hospital of the Bhakti Wiyata Health Sciences Institute, Kediri.

Methods

This research is a type of analytical observational research with a cross sectional design. The research sample was 100 dental students from the Bhakti Wiyata Institute of Health Science Kediri Department of Oral Surgery and Periodontics, who were determined using a simple random sampling technique. The research was carried out by searching and analyzing primary data obtained directly from research respondents and secondary data obtained from recorded documents at Dental and Oral Hospital Bhakti Wiyata Institute of Health Science Kediri to determine the population and sample. The instruments used in this research were a questionnaire or list of questions to be filled in by respondents and observation sheetsand stationery.

The research procedure begins with arranging permits and research ethics letters fromthe dental faculty and Dental and Oral Hospital Bhakti Wiyata Institute of Health Science. Next, give informed consent to potential respondents, then distribute and explain the procedures for answering the questionnaire to respondents, then collect back the questionnaires that have been filled in by respondents. Then, measure knowledge from the results of the questionnaire that has been completed by the respondent. After that, a data analysis test was carried out from the results obtained to find out whether there was a relationship between the level of knowledge of dental professional students and compliance with using PPE. The research data obtained, processed, analyzed and interpreted using the chi square test and presented in tabular form.

Results

The research was conducted on students of the dental profession at Personal Protective Equipment (PPE)

Table 1. The Characteristics of Respondents

Variable	Frequency	Presentase
Gender		
Male	41	41%
Female	59	59%
Age (Years Old)		
20-25	80	80%
26-30	19	19%
>30	1	1%
Amount	100	100%

Based on Table 1, gender in this study were dominated by women compared to men. The majority of dental students at Dental and Oral Hospital Bhakti Wiyata Institute of Health Science Kediri are dominated by women because thedental profession is a profession that requires precision and aesthetics which are synonymouswith women. The characteristics of respondents based on age are dominated by the 20-25 yearage range from the total population, this is because the majority of dental profession studentsare students from the class of 2020-2022 whose average age is 20-25 years.
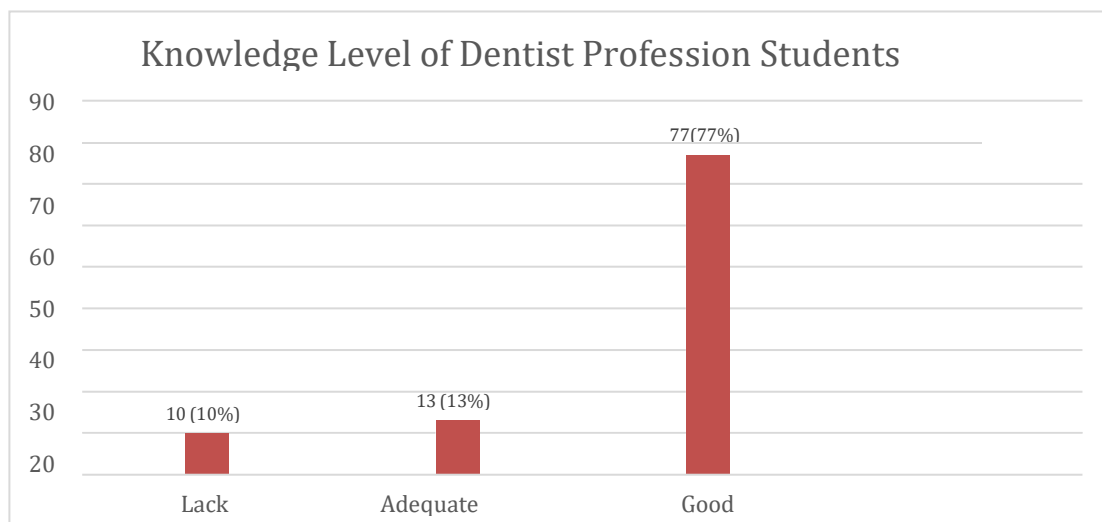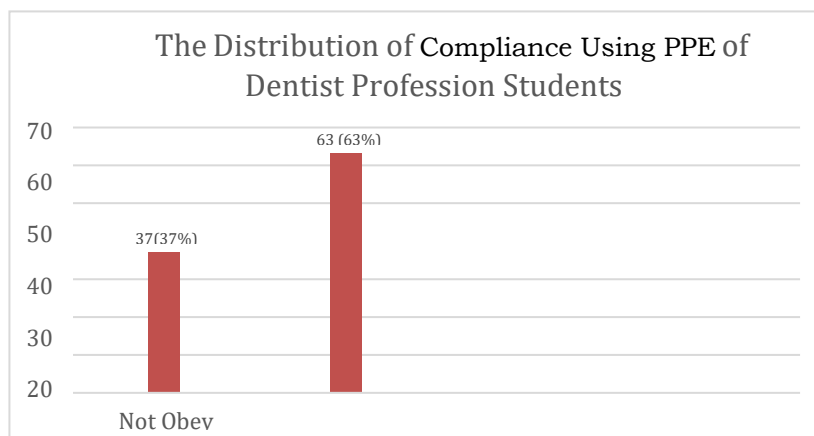
Figure 1. Knowledge Level of Dentist Profession Students

From Figure 1. showed that the level of knowledge aboutPPE, it is known that respondents were dominated by a good level (77%).

Figure 2. The Distribution of Compliance Using PPE of Dentist Profession Students

Based on figure 2, the dentist profession students who have the compliance using PPE were 63 (63%).

Table.2 Cross Tabulation of Levels of Knowledge and Compliance Using PPE

| Knowledge level | Obedience | | | | Total | |
| | Not Obey | | Obey | | | |
	n	%	n	%	n	%
Lack	7	7%	3	3%	10	10%
Adequate	9	9%	4	4%	13	13%
Good	21	21%	56	56%	77	77%
Total	37	37%	63	63%	100	100%

Based on the research data obtained in table 2, it provides information that the majority of professional students with a good level of knowledge have compliant in using PPE 56 (56%) .

Table.3 Chi Square Test Results

Chi-Square Tests			
	Value	df	Asymptotic Significance (*p-value*)
Pearson Chi-Square	13.59 1ᵃ	2	.001

Based on the results of the relationship analysis test using SPSS Chi-Square, it shows a p value = 0.001, this value is smaller than the specified α significance level, namely 0.05 with a confidence level of 95%, which means there is a significant relationship between the level of knowledge and compliance with the use of PPE.

Discussion

From the results of research conducted by researchers regarding the level of knowledge aboutPPE, it is known that respondents were dominated by a good level of knowledge compared torespondents with sufficient and poor levels of knowledge. This is because the respondents come from intellectual circles with adequate learning environment conditions which influencethe respondents' knowledge of PPE. It is easy for respondents to get information about PPE from books, research journals and other lecture materials which can increase respondents' knowledge.

Apart from that, dental students at Dental and Oral Hospital Bhakti Wiyata Institute of Health Science Kediri have received infection prevention and control training which includes the use of personal protective equipment before undergoing the study period and periodic training carried out by the Hospital InfectionPrevention and Control Team. Educational institutions play a major role in teaching the principles of infection prevention which includes the use of PPE which can have a major impact on students' knowledge in the dental profession regarding the use of PPE.[6]

Based on the results of observations made by researchers, of all the professional students whodid not comply were dental professional students who did not use protective glasses/face shields when carrying out dental procedures, this was because it interfered with their vision while they were working and they also felt safe enough because they had use a mask. This is in line with the results of research said that there were 21 respondents who had never worn protective glasses. Direct exposure from several respondents revealed that they try to create acomfortable atmosphere when working, in this case they think that using protective glasses can hinder them when working.[7,8]

The use of PPE is mandatory in health services. The PPE used by health workers has two functions, namely for the benefit of the patient and at the same time for the benefit of the staff themselves. Health workers who come into direct contact with patients are at risk of contracting disease, therefore officers must have knowledge of using PPE in

accordance with standards, so that officers can plan the use of PPE according to their needs or where they are used to prevent disease transmission. The use of PPE by health workers when serving patientsis an effort to avoid exposure to workplace hazards. Even though this effort is at the last levelof prevention, the application of PPE is highly recommended. [4,8,9]

Obedience comes from the word obedient, which means liking to obey orders, obeying orders, while obedience is behavior according to rules and discipline. Compliance within the scope of health workers means that healthworkers have the awareness to be able to understand and use applicable health regulations, maintain order in health services and uphold standard precautions. The compliance of medicaland paramedical personnel in carrying out their duties according to standard operating procedures influences the occurrence of nosocomial infections in hospitals or other health service facilities. [10,11,12] Knowledge influences the decision-making process and its implementation. In a situation, perhaps someone already has knowledge, but has not yet reached the level of understanding and application so that it does not appear in that person's behavior. [13,14,15,16]

In this study, there was a significant relationship between the level of knowledge and compliance with using PPE. It can be concluded that knowledge influences the predisposing factors that shape human behavior. The higher a person's level of knowledge regarding the use of PPE, the more compliant they will be in using PPE. Knowledge can be obtained from formal education or informal education such as training, counseling, experience or other information. Low levels of knowledge are influenced by several factors such as lack of training, lack of experience or information.

Conclusion

There is a significant correlation between knowledge and compliance in using PPE at Dental and Oral Hospital Bhakti Wiyata Institute of Health Science Kediri. The level of knowledge of dental professional students at Dental and Oral Hospital Bhakti Wiyata Institute of Health Science Kediri regarding the use of PPE is in the good category.

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