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The Relationship of Radiographer's Level of Knowledge and Concerns to Patients on Radiation Protection at The Radiological Installation of Dr. R.M Djoelham Binjai Hospital

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ABSTRACT

Radiation used in radiology installations needs to consider the risks that occur when it comes to radiographers, patients and the surrounding environment. Therefore, they need to receive protection from radiation. Radiographer at RSUD Dr. R.M. Djoelham Binjai still makes many mistakes in radiation protection. The radiographer's actions prove that his awareness of radiation protection is still low. The aim of this research is to find out whether there is a relationship between radiographers' knowledge and concern for patients regarding radiation protection in the Radiology Installation at Dr. RSUD. R.M. Djoelham Binjai. The research population was all radiographers in the Radiology Installation at Dr. R.M. Djoelham Binjai and the sample were 7 active radiographers who were on duty at the installation. Active radiographers who were on duty at the Radiology Installation at Djoelham Binjai Regional Hospital. The research used is quantitative with an observational survey approach. Based on the results of calculating the correlation between knowledge and the radiographer's concern for protection, a significance value was obtained, namely 0.392 > 0.05, which means there is no significant correlation. From these results it can be concluded that there is no relationship between the level of knowledge and the radiographer's concern for patients regarding radiation protection.

Keywords: *Radiation Protection, Level of Knowledge, Practice, Radiographer*

1. INTRODUCTION

Radiology services in general and diagnostic radiology in particular have been carried out in various health care facilities, ranging from simple health care facilities, such as health centers and private clinics, to large-scale health care facilities such as class A hospitals. With the development of science and technology that occurs today, it allows various diseases to be detected using diagnostic radiology facilities, namely services that use ionizing and non-ionizing radiation [1,2,3,4]. Radiation accident is an abnormal condition that arises due to uncontrolled radiation sources that can directly or indirectly endanger life, health and property. Radiation accidents are characterized by high radiation fields or the release of radioactive substances that cannot be controlled in large enough quantities so that they can cause serious effects or death [5,6,7]. Radiation Protection is an important component that must be known by a radiographer [11,12,13]. This is because the radiation protection carried out can affect a person will experience stochastic effects or non-stochastic effects. Each Radiology installation in the hospital must have a different application of radiation protection, this is because the level of knowledge and concern of radiographers towards radiation hazards varies from one to another. The effect of radiation depends on the equivalent dose received, the dose rate, the tissue exposed, the amount or extent of the exposed area. Even the smallest amount of radiation received will have an effect because it will accumulate. Naturally our cells also have the ability to repair if there is damage, of

course depending on how severe the damage suffered. In accordance with this fact, small doses of radiation given periodically will cause different effects if the radiation is given at once in large doses [8,9,10].

2. METHOD

The type of research used in this study is quantitative research with an observational survey approach [17,18]. The population used in this study were all radiographers at the Radiology Installation of Dr. R.M. Djoelham Binjai Hospital. And the sample was 7 active radiographers who were on duty at the Radiology Installation of Dr. R.M. Djoelham Binjai Hospital [14,15,16].

Research Variables

1. Independent Variable.Independent variables are those that cause or affect the dependent variable. In this study, the independent variable is radiographers' knowledge of radiation protection.

2. Dependent Variable. The dependent variable is the variable that affects or becomes the result of the independent variable. In this study, the dependent variable is the radiographer's concern for the patient towards radiation protection.

Data collection methods using questionnaires / surveys.

Data Processing and Analysis Methods:

1. Data processing. After editing then given code (coding) to facilitate data analysis. Furthermore, the data is entered (entering) into the SPSS V.20 for Windows computer program and presented in a table (tabulating).

2. Data analysis. Conducted by relying on IBM SPSS Statistic Version 22 software. Where the test used in analyzing the data presented uses correlation.

Research Instruments

Used in collecting data for this study is a questionnaire containing a list of questions.

3. RESULTS AND DISCUSSION

Table 1. Distribution of Respondents by Gender

No.	Gender	Total (People)	Percentage
1	Man	1	14,3%
2	Woman	6	85,7%
	Total	7	100%

Table 1. shows that there were 1 male respondent (14.3%), while there were 6 female respondents (85.7%).

Table 2: Distribution of Respondents by Age

No.	Age	Total (People)	Percentage
1	30-40 Years	3	42,85%
2	41-50 Years	3	42,85%
3	51-60 Years	1	14,30%
	Total	**7**	**100%**

Based on table 2, the age group shows that respondents aged 30-40 years were 3 respondents (42.85%), respondents aged 41-50 years were also 3 respondents (42.85%), while those aged 51-60 years were only 1 respondent (14.30%).

Table 3. Distribution of respondents according to employment status

No.	Education	Total (People)	Percentage
1	Diploma	5	71,43%
2	Bachelor	2	28,57%
	Total	**7**	**100%**

Based on table 3 above, it shows that respondents with D3 / equivalent education amounted to 5 people (71.42%), while those with S1 / equivalent education amounted to 2 people (28.57%).

Table 4. Distribution of Respondents According to Radiogarfer's Knowledge of Radiation Protection at Dr. R.M. Djoelham Hospital Binjai

No.	Knowledge	Total (People)	Percentage
1	Bad	0	0%
2	Enough	1	14,30%
3	Good	6	85,70%
	Total	7	100%

Table 4 shows that there are no respondents who have poor knowledge (0%), while only 1 respondent (14.3%) has moderate knowledge and the rest are respondents who have good knowledge, namely 6 respondents (85.7%).

Table 5. Distribution of Respondents According to Radiographers' Concern for Patients on Radiation Protection

No.	Concern	Total (People)	Percentage
1	Bad	0	0%
2	Enough	0	0%
3	Good	7	100%
Total		7	100%

Based on table 5, there are no respondents who have poor care (0%) and no respondents who have moderate care (0%). From the results that the author obtained, all respondents, totaling 7 people, had good care (100%).

Table 6. Tabulation of Research Data Results

No	Age	Gender	Education	Knowledge	Concern
1	30	W	Diploma	18	28
2	37	W	Diploma	18	26
3	38	W	Diploma	18	30
4	43	W	Diploma	19	24
5	44	W	Diploma	19	29
6	46	W	Diploma	19	30
7	53	M	Diploma	15	25

Based on table 6 above shows the results of the data presented where the data is obtained from the results of a questionnaire that has been distributed to respondents, namely radiographers at Dr. R.M. Djoelham Binjai Hospital. From the data that has been presented, the correlation (relationship between knowledge and concern) will then be sought.

Based on the results of the output above, it can be concluded by referring to the basis for making a correlation test decision, there is no relationship between knowledge and care, because the significance result between knowledge and care shows 0.392> 0.05, which means there is no significant correlation between the two variables [19,20,21].

3.1. Discussion

Based on the significance value of the output results, it is known that between age and gender the significance value is 0.090> 0.05, which means there is no significant correlation. Between age and knowledge, the significance value is 0.353> 0.05, which means there is no significant correlation. Between age and care, the significance value is 0.592> 0.05, which means there is no significant correlation. Between gender and education, the significance value is 0.117> 0.05, which means there is no significant correlation. Between gender and knowledge, the significance value is 0.002 <0.05, which means there is a significant correlation. Between gender and worry, the significance value is 0.324>0.05, which means there is no significant correlation. Between education and knowledge, the significance value is 0.272> 0.05, which means there is no significant correlation. Between education and care, the significance value is 0.966>0.05, which means there is no significant correlation. Between knowledge and care, the significance value is 0.392> 0.05, which means there is no significant correlation.

Based on the SPSS asterisk from the output results, it can be seen that the Pearson correlation values associated with each variable do not all have an asterisk, so not all of them between each variable have a significant correlation between the associated variables. Variables that have a Pearson correlation value are gender with knowledge and knowledge with gender.

In this research, the author examines the relationship between knowledge and concern, so based on the output results, it can be concluded that knowledge and concern do not have a significant correlation (relationship) based on quantitative data. Because in the significance value, the correlation between knowledge and concern is 0.392> 0.05. [22,23,24,25].

4. CONCLUSION

The respondents demonstrated a lack of knowledge regarding radiation protection, with 0% indicating a poor understanding, 14.3% indicating a moderate level of comprehension, and 85.7% indicating a good level of understanding. The respondents demonstrated a lack of concern for patient radiation protection, with no respondents indicating a positive attitude (0%), a moderate level of concern (0%), or a high level of concern (100%). The results of the correlation analysis between knowledge and radiographers' concern for radiation protection yielded a significance value of 0.392, which is greater than 0.05. This indicates that there is no significant correlation between the two variables. Consequently, it can be concluded that there is no relationship between the level of knowledge and concern of radiographers for patient radiation protection.

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