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The Relationship Between Knowledge and Perception of Patient Delivery Nurses About The Hazards of X-Ray Radiation In The Radiology Installation of The University Of North Sumatera Hospital

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ABSTRACT

The International Commission on Radiation Protection (ICRP) divides the effects of ionizing radiation on the human body into two, namely stochastic effects and deterministic effects. After knowing that X-ray radiation is dangerous for the human body, this can create a different perception for everyone, especially nurses. Nurses who do not have special knowledge about the dangers of X-ray radiation will have a different perception regarding the dangers of X-ray radiation. This study aims to determine the relationship between knowledge and nurses' perceptions about the dangers of X-ray radiation.The type of research used is analytical quantitative research with a survey method using a cross sectional approach. Data was collected using a questionnaire involving 100 respondents. Next, the data was analyzed using the Spearman Rank correlation test. The results of calculating the correlation between the knowledge and perception of nurses delivering patients showed an r value of 0.424 with a significance level of 0.006, so Ho was rejected, meaning there is a relationship between knowledge and perception. The results of this research show a positive and significant relationship between knowledge and perception. This means that there is an influence between the knowledge and perception of patient delivery nurses at the Radiology Installation of North Sumatra University Hospital. Meanwhile, the strength of the relationship is moderate. This means that knowledge is a factor that influences perception as well as level of education and age.

Keywords: *Dangers of X-Ray Radiation, Knowledge, Nurses' Perception,*

INTRODUCTION

Ionizing radiation is a type of radiation that can cause the process of tonization (formation of positive and negative ions) when interacting with matter. Meanwhile, non-ionizing radiation is a type of radiation that will not cause ionization effects when interacting with matter. (Rasad, 2009). Exposure to X-ray radiation can cause health problems to people exposed to X-ray radiation, of course, attracting the attention of the general public and health workers. X-ray radiation is very useful for diagnosing abnormalities but with excessive use it can cause the destruction of cells in the genetic structure, cancer and red skin. X-ray radiation causes ionization of atoms, affects molecules, affects cells, damages body tissues, and affects body organs. The most sensitive cells are lymphocytes (white blood cells) and the most

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sensitive organs are the organs that produce blood followed by the reproductive organs and skin. The definition of knowledge according to (Notoatmojo, 2013) is the result of knowing that occurs after someone senses a particular object. (Notoatmojo, 2013) also explained that knowledge about an object usually includes knowledge about the benefits (goodness) or disadvantages that can be caused by an object. At the time of sensing to produce knowledge, it is greatly influenced by the perception of the object. Because of the various health impacts caused by radiation on individuals who are exposed directly or indirectly. will cause various perceptions for the community or health workers or health workers, namely nurses. In perception, individuals organize and interpret the stimuli they receive, so that the stimulus has meaning for the individual concerned. Thus, stimulus is one of the factors that plays a role in perception (Walgito, 2001). The influence of perception about the dangers of X-ray radiation is very large on the behavior of individuals when they are in a radiology environment. X-ray radiation affects health, therefore many people are afraid and have different perceptions about the dangers of X-ray radiation. This is due to the existence of a wrong understanding and lack of understanding related to X-ray radiation. Health workers are one of the elements that have an important role in achieving optimal health levels. In radiology services, nurses are tasked with assisting patients during radiology examinations, helping to prepare the equipment needed for radiology examinations and being responsible for complaints and the completeness of radiology equipment (Decree of the Minister of the Republic of Indonesia No. 1014/Menkes/SK/X1/2008 concerning diagnostic radiology service standards). In a large hospital environment, there are many elements involved in it. And in the radiology installation itself, we often encounter health workers such as doctors, radiographers and nurses who accompany patients to radiology. In addition to radiographers and doctors, nurses also play a role in the smooth running of an examination in radiology itself so that they inevitably have to interact with X-ray radiation. Knowledge of the dangers of X-ray radiation is an important element for health workers working in radiology. Because radiation not only provides benefits but also carries risks. So that knowledge itself is related to the perception that influences their attitudes and actions when entering the examination room in radiology. Based on initial observations at the Radiology Installation of the University of North Sumatra Hospital, the behavior shown by the nurses varies. Some only escort patients to the front door because they are afraid of the effects of radiation such as cell damage or infertility, some immediately leave the examination room after escorting the patient, and some just stay beside the patient and then react after being instructed to leave the room. This shows a lack of knowledge about the dangers of x-ray radiation. The lack of knowledge about the dangers of x-ray radiation is what causes different perceptions from each individual nurse. Based on the various behaviors shown by nurses, the author is interested in studying more deeply the perceptions of nurses delivering patients towards x-ray radiation which will be presented in a scientific paper entitled "The Relationship Between Knowledge and Perception of Nurses Delivering Patients About the Dangers of X-Ray Radiation in the Radiology Installation of the University of North Sumatra Hospital."

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METHODS

The type of research used in writing this scientific paper is quantitative research with an observational survey approach.

Research Variables

Independent Variable

The independent variable is the cause or influence of the dependent variable. In this study, the independent variable is the knowledge of the patient's delivery nurse about the dangers of X-ray radiation.

Dependent Variable

The dependent variable is the variable that influences or is the result of the independent variable. In this study, the dependent variable is the perception of the patient's delivery nurse about the dangers of X-ray radiation.

Data Collection Method using Questionnaires.

Research Instruments

The instrument used in collecting data for this study is a questionnaire containing a list of questions.

Data Processing and Analysis

Data processing

After the data is obtained, the next stage is editing to complete incomplete answers. Then given a code (coding) to facilitate data analysis. Furthermore, the data is entered into a computer with the SPSS v20 for Windows program and presented in a table (tabulating).

Data analysis

Data analysis was performed with the help of a computer using SPSS v.20 for Windows (Statistic Program for Social Science) which includes:

Univariate analysis

This analysis was performed to describe the variables of knowledge and perception of nurses delivering patients to the dangers of X-ray radiation using a frequency distribution table by categorizing the data of these variables.

Bivariate analysis

Conducted to determine whether or not there is a relationship between 2 variables and how strong the relationship is using Pearson's Product Moment correlation if the data is normally distributed. If the data is not normally distributed, the Spearman Rank correlation test is carried out.

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RESULTS AND DISCUSSION

Results

Table 1. Distribution of Respondents by Gender

No	Gender	Number (people)	Percentage
1.	Male	12	30%
2.	Female	28	70%
Total		40	100%

Source: Research Results, 2021

Table 1 shows that there are 12 male respondents (30%), while there are 28 female respondents (70%).

Table 2 Distribution of Respondents by Age

No	Gender	Number (people)	Percentage
1	< 20 year	5	12,5%
2	21-30 year	22	55%
3	31-40 year	13	32,5%
Total		40	100%

Source: Research Results, 2021

Based on table 2, the largest age group of respondents is 21-30 years old as many as respondents (55%), the youngest group of respondents is 20 years old as many as 5 respondents (12.5%), while the oldest group is 31-40 years old as many as 13 respondents (32.5%).

Table 3 Distribution of Respondents According to Education Status

No	Graduate	Number (people)	Percentage
1	Nursing Student	5	12,5%
2	Nurse (D-III/SI)	35	87,5%
Total		40	100%

Source: Research Results, 2021

Based on table 3, respondents who are still students are 5 respondents (12.5%). While respondents with DIII/SI education or who have worked at the University of North Sumatra Hospital are 32 respondents (87.5%).

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Table 4 Distribution of Respondents According to Knowledge of Patient Introduction Nurses Regarding the Dangers of X-ray Radiation

No	Knowledge	Number (people)	Percentage
1	Bad	0	0%
2	Medium	3	7,5%
3	Good	37	92,5%
Total		**40**	**100%**

Source: Research Results, 2021

Table 4 there are no respondents who have poor knowledge, the most respondents are in the good category as many as 37 respondents (92.5%) and those with moderate knowledge as many as 3 respondents (7.5).

Table .5 Distribution of Respondents According to the Perception of Nurses Delivering Patients About the Dangers of X-Ray Radiation

No	Perception	Number (people)	Percentage
1	Bad	0	0%
2	Medium	4	10%
3	Good	36	90%
Total		**40**	**100%**

Source: Research Results, 2021

Based on table 5, there are no respondents who have a bad perception, respondents who have a moderate perception are 4 respondents (10%), while there are 36 respondents (90%) with a good perception.

Table 6 Correlation test results

Independent variable	Dependent variable	p-value	Correlation Coefficient	Description
Knowledge of the dangers of X-ray radiation	Perception of the dangers of X-ray radiation	0,424	0,006	There is a relationship

Source: Research Results, 2021

CONCLUSION

Respondents' knowledge about the dangers of X-ray radiation is poor (0%), moderate (7.5%), and good (92.5%). Respondents' perceptions about the dangers of X-ray radiation are poor (0%), moderate (10%) and good (90%). Based on the results of the correlation calculation between knowledge and the perception of patient delivery nurses, a correlation coefficient (r) of 0.424 was obtained with a significance level of 0.006, so Ho was rejected. There is a significant

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correlation between knowledge and the perception of patient delivery nurses about the dangers of X-ray radiation. This means that there is an influence between knowledge and the perception of patient delivery nurses in the Radiology Installation of the University of North Sumatra Hospital.

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