

## RADIOGRAPHER CHARACTERISTICS RELATIONSHIP WITH APPLICATION PATIENT SAFETY RADIATION IN SLEMAN DISTRICT

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### ABSTRACT

Radiology installation is one part of the service in the hospital that must consider and pay attention to patient safety. Radiographers are executors of services in radiology. Research on the relationship between radiographic characteristics and the application of patient safety radiation aims to analyze the effect of characteristic factors, age, sex, years of service, and PPR training. Based on research conducted by the author, the mass of work greatly influences experience in any action taken. The mass of work of more than 5 years has an impact on improving the quality of patient safety applications because it learns from a mistake to avoid the same mistake. Of the 4 gender characteristics, it did not show any relationship with the application of patient safety radiation with  $p = 0.05$ , up the value of 0.072 was obtained. Characteristics of age more than 30 years to apply patient safety radiation is better than the age of 20-30 years. Attributes of a working period of more than 5 years will make the implementation of patient safety radiation better. While the former characteristic is that PPR training has a relationship with the practice of implementing patient safety radiation. This research is supposed to be able to contribute to science, especially in the field of implementing patient safety at the Radiology Installation so that radiographers can provide the best service by prioritizing patient safety.

Keywords: Characteristic factors, Patient safety, Radiation

### BACKGROUND

Safety patient is the most important global issue moment this were now many reported demands patient for medical errors that occur in patients. Safety patient house sick is something system where house sick make care patient safer which includes assessment risk, identification and management related things with risk patients, reporting and analysis incident, ability study from incidents and actions carry on as well as implementation solution for minimizing emergence risk and prevent happening injury caused by mistake consequence doing something active or no take proper action taken. System the cover introduction of risk, identification, and management related things with risk patients, reporting and analysis incident, ability study from the incident, act further and implementation solution for minimizing risk (Permenkes Nomor 11 Tahun 2017 Tentang Keselamatan Pasien, 2017)

There is many dangerous incidents patients occur consequence of negligence in the process of service health, starting from errors, omissions, and accidents that cause impact harmful to patients found in various research in the world. The Institute of Medicine reports as many as 44,000-98,000 Americans died because of error. Error medical (medical error) becomes the reason mainly followed by omissions and complications. More many Americans died because of errors medical from cancer breast, Acquired Immuno Deficiency Syndrome (AIDS), or accidents (Daud & Adnani, 2011). Installation radiology is one part service house sick. Service radiology not only focuses on the goal of utilizing radiation but also still considers and pays attention to the goals of system safety patient. All this time installation radiology is very focused on safety radiation in doing service health that utilizes radiation ionizing and non-ionizing because is known use radiation ionizer contain risk when used without following applicable laws and regulations (Daud & Adnani, 2011). On Installation radiology no surprising incident no desired possibility could happen, the KTD could occur start from pure radiation, during radiation, as well as after radiation, because that power related health with service

radiology especially radiographers should play a role active start from aware will quality, proficient and skilled To do how method reduce or even eliminate no surprising incident if maybe not add error patient. T rises injury start from light until fatal to the patient, Unwelcome Incident that could occur start from pure radiation, during radiation, or after radiation. Publication latest in US year 2011 show 1 from 3 patients which treated in house sick experience no surprising incident . The most frequent type is error treatment, error operation, and procedure, as well as infection nosocomial. Not yet again from studies, 10 houses sick in North Carolina found results similar. One in 4 patients who take care of stay experienced adverse events, 63% of them actually could be prevented and found effort drop no surprising incident in country Up walk slow. Temporary that in Indonesia, a study on patients taking care stay in 15 houses sick with 4,500 record medical shows no surprising incident rate varies greatly, namely 8.0% to 98.2% for diagnostic errors and 4.1% to 91.6% for medication errors. Since then, evidence about safety patients in Indonesia has, even more, a lot. Because safety patients have been an issue main lately both in Indonesia and abroad. Concern taker policy, management, and practitioner are clinical to safety patient (Pasaribu, 2020). In 2013 out of 42,450 workers' radiation that does analysis still, there is worker radiation that gets dose exceeded the Dose Limit Value by 17 workers. This thing could prove with existence score dose highest of 21.85 mSv for workers radiation. Incident the caused because there are violations and omissions to procedure safety work that is worker no using TLD (Thermoluminiscence Dosemeter) when working in the field radiation and put TLD near with source radiation (Peraturan Kepala BAPETEN No 4 Tahun 2013 Tentang Proteksi Dan Keselamatan Radiasi Dalam Pemanfaatan Tenaga Nuklir, 2013)

Remember potency danger great radiation in utilization power nuclear, and study from incident accident nuclear in various part of the world, it turns out error not only on the operator but also involves all level management, then in every step activities, factors safety must take precedence. because of that culture safety is something important thing so that must become desired target realized in the utilization power nuclear. To ensure safety in the use of radiation ionizers that, need applied system supervision health/safety worker strict radiation cover supervision dose radiation and examination health worker radiation yearly. Both of them character each other complement. Supervision of dose radiation useful for evaluating dose radiation received by workers radiation, while inspection health worker radiation required for knowing direction development health workers and if allow looking for connection causal Among radiation ionizer with a disorder that is pathological. Inspection this aim for knowing the condition of health worker radiation good before, during, or after a working period of at least up to 30 years of health data saved. Based on observation beginning which writer do in Installation radiology several hospitals in Sleman Regency that every day give service for 24 hours to enough patients a lot on inspection conventional plain radiographs, examination radiography contrast in organ systems, and CT-Scan examination. Officer radiographer Sleman district numbered 236 people. With a lot patients who do inspection radiography, of course need speed and professionalism a radiographer moment To do inspection radiography. Sometimes patient no protected use an apron when inspection radiography, with reason to hurry moment inspection. Besides found existence large field collimation not enough in accordance with object which checked, and opened wide size Imaging Plates. So that proper object no exposed radiation will caught impact radiation. Still found reject films, though no a lot , which result in repeat inspection radiography, so that received dose patient becomes increase. Behaviors like this is what you need studied more in order to keep safety patient in installation Hospital Radiology in Sleman Regency Yogyakarta. Behavior that includes knowledge, understanding, or attitude and action power very influential work in adjustment with environment work, procedure work, rules work. With enhancement knowledge could answer how and why, and develop ability think from a powerful work, so shape attitude and action somebody in work. The theory developed by L. Green and colleagues consists of Precede and Proceed. PRECEDE is an acronym, abbreviation from Predisposing, Reinforcing, Enabling Constructs In Educational/environmental Diagnosis. While PROCEED is an acronym, abbreviation from Policy, Regulatory and Organizational Constructs in Educational and Environmental Development (Abraham & Sheeran, 2014). Draft this see

that behavior health influenced by the individual and the environment. Likewise, the behavior of radiographers in applying patient safety radiation is influenced by factors individual or characteristics radiographer and factor environment.

## METHOD

Study this using design study analytic with approach study quantitative that uses design Cross-Sectional Study, for analyzing the relationship and influence variable independent behavior radiographer to application patient safety radiation (dependent variable) in the district Sleman, Yogyakarta. The population study is the whole radiographer in District Sleman Yogyakarta which is 236 people. Where as sample study is part of selected population for becomes subject study with characteristics resembling population (Sugiyono, 2019). Amount The sample is 146 person radiographer. Data used is data Primary in the form of results questionnaire, and secondary data from reference data and administrative data in several hospitals in Sleman Regency, Yogyakarta. The next data analysis used in research this conducted by gradually cover analysis univariate and bivariate. Analysis univariate this conducted to get a description proportion of each variable studied in the form of a percentage of respondents included in the category of each variable research. Analyze all data variables with distribution table frequency based on size tendency central, the calculation means, proportion, percentage as well as discussion about description observed variables. Bivariate analysis for test hypothesis study to 2 variables that is variable free and bound.

## RESULTS AND DISCUSSION

### 1. Analysis Univariate

**Table 1.** Frequency Distribution Respondent Based on Age

Age	Frequency	Percentage (%)
20-30 years old	69	47.3
>30 years	77	52.7
Amount	146	100.00

From table 1 it is known that percentage biggest is respondents aged 20-30 years that is by 47.3%. Whereas respondent added more from 30 years as much 52.7%.

**Table 2.** Distribution Frequency Respondent By Gender

Gender	Frequency	Percentage (%)
Men	60	41.1
Woman	86	58.9
Amount	146	100.00

From table 2 it is known that percentage biggest is type of respondent sex woman with 58.9%. While 41.1% of respondents manifold sex men.

**Table 3.** Frequency Distribution Respondent Based on Working Period

Working Period	Frequency	Percentage (%)
5 years	59	40.4
> 5 years	87	59.6
Amount	146	100.00

From table 3 it is known that percentage biggest is respondent to working period > 5 years as much as 59.6%. While 40.4% of respondents have a working period of 5 years.

**Table 4.** Frequency Distribution Respondent Based on Training

Training	Amount Frequency	Percentage (%)
Have PPR	64	43.8

Don't Have PPR Amount 82 146 56.2 100.00

From table 5 it is known that percentage biggest is respondents who do not have a PPR of 56.2%. While 43.8% of respondents have PPR.

2. Analysis Bivariate

Table 5. Relationship Age with Application Practices Patient Safety Radiation

Age	Implementation practice patient safety radiation				Total	
	Not good		Well		Amount	%
	Amount	%	Amount	%		
20-30 years old	34	49.3	35	50.7	69	100.0
> 30 years	25	32.5	52	67.5	77	100.0
Amount	59	40.4	87	59.6	146	100.0

*P value* = 0.039

Age individual influences condition physical, mental, able work, responsible answer, and tends attendance. On the contrary employees whose age more old condition his physique not enough but work with tenacious and have not quite enough answer which more big. Based on Analysis bivariate proven that age on 30 years have application patient safety radiation which more good compared 20-30 years old (Hasibuan, 2003). Age takes effect to powerful catch and pattern think someone. The more increase page will give development on pattern think, so that knowledge which obtained will the more good, (Suparno, 2002). Age more than 30 years has a higher enthusiasm for radiation protection efforts. Physiologically, radiographers in this age range have growth cells that are more susceptible to radiation. In addition, radiographers with this age category are in their childbearing age and they strive to better maintain the health of their reproductive organs from the effects of radiation that can cause infertility or other abnormalities. (Edward, 2017)

Table 7. Working Period Relationship with Application Practices Patient Safety Radiation

Working time	Implementation practice patient safety radiation				Total	
	Not good		Well		Amount	%
	Amount	%	Amount	%		
5 years	30	50.8	29	49.2	59	100.0
> 5 years	29	33.3	58	66.7	58	100.0
Amount	59	40.4	87	59.6	146	100.0

*p value* = 0.034

Based on results working life research over 5 years more good 66.7% and years of service not enough from 5 years to 49.2%. Working time gives influence enhancement quality application sure safety cause enhancement quality always possible done. Study of an error for avoiding a mistake the same. So that error used as learning (Swastikarini, 2018). The longer a person's working period in the radiology installation shows the experience of the worker in terms of applying patient safety radiation. So that will influence current and future employee behavior. Workers with long tenure feel there are concerns about the effects of radiation they will receive, because they do not think the effects of radiation exposure directly on their health. The limit of the radiation dose that is still tolerable is if the radiation dose does not exceed the NAV (20 m rem/year). Built on radiation safety management, every installation entrepreneur must conduct periodic health checks for radiation workers. Thus each radiation worker can evaluate his health condition on an ongoing basis, so that the longer the working period of a radiographer, the more aware of his

health condition. For this reason, a radiographer is increasingly careful in working in a radiation field in accordance with Standard Operating Procedures, including in terms of application patient safety radiation. This research is in line with Astuti's (2012) research which states that tenure is related to the practice of implementing patient safety radiation. A person's tenure affects behavior because the information and experience he gets is becoming more and more. The working period factor is only one of the enabling factors that determine someone to practice the application patient safety radiation (Astuti, 2012)

**Table 8.** Relationship Training with Application Practices *Patient Safety Radiation*

Training	Implementation practice <i>patient safety radiation</i>				Total	
	Not good		Well		Amount	%
	Amount	%	Amount	%		
Have PPR	32	50	32	50	64	100.0
Don't have PPR	27	32.9	55	67.1	82	100.0
Amount	59	40.4	87	59.6	146	100.0

*p value* = 0.037

This indicates that although radiation workers as PPR have received training on radiation protection, a PPR may not necessarily be able to perform their duties properly. Based on interviews with respondents, information was obtained that the skills given during PPR training were mostly in the form of measuring radiation exposure and how to operate a survey meter in the workplace. Radiographer when to do training and update knowledge secure relevant expected have awareness will police handling patient, recognize risk related handling patients, and take preventive measures for reducing risk injury against patient. (Jenicek, 2010).

## CONCLUSION AND SUGGESTION

In the field radiology related directly with exposure radiation that received patient. From Factor characteristics of study this is age, type gender, years of service, and training. Of the 4 characteristics typical sex no showing existence connection with application patient safety radiation with = 0.05 got score p-value 0.072. Characteristics are more than 30 years. To do apply more patient safety radiation good compared 20-30 years old. Characteristics time work is more from a 5 years will to do apply more patient safety radiation good. Whereas last characteristic is training PPR have connection with practice application patient safety radiation. Should party training at the hospital held training by periodically specifically to radiographer or installation officer radiology about safe patient .

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