ORIGINAL ARTICLE

Analysis of Factors Related to Near Miss among Nurses

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ABSTRACT

Introduction: Nurses are an important human resource in hospital health services with a high-risk workplace that can cause accidents or occupational diseases. This study aims to analyze the relationship between near-miss knowledge, occupational health and safety skill, and work equipment with the occurrence of near-miss among nurses. **Method:** This research used a cross-sectional design. The population of this study was nurses in Ploso Regional Public Hospital. The samples were chosen using the purposive sampling method with a number of 53 nurses out of 56 population of nurses with consideration of safety during the Covid-19 pandemic. The independent variables were near-miss knowledge, occupational health and safety skill, and work equipment. The dependent variable was the occurrence of the near-miss. The data was collected using questionnaires. The data analysis technique used was the Pearson correlation test. **Result:** The result of the questionnaire showed most of the samples had high near-miss knowledge, high occupational health and safety skill, and good work equipment. The occurrence of near-miss among the nurses was mostly medium. The Pearson correlation test result showed that the correlation of near-miss knowledge was weak, occupational health and safety skill were fairly strong, and work equipment was weak. **Conclusion:** The relationship between near-miss knowledge with the occurrence of near-miss has a weak correlation with positive direction, the relationship between occupational health and safety skills and the occurrence of near-miss has a fairly strong correlation with negative direction, and the relationship between work equipment and the occurrence of near-miss has a weak correlation with negative direction.

Keywords: near miss, nurse, hospital

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INTRODUCTION

According to Regulation Number 44, year 2009 concerning Hospital, Hospital is a health service institution providing health services for individuals that consist of inpatient care, outpatient care, and emergency unit (Government of Indonesia, 2009). As a health service facility, a hospital takes a big role in maintaining the health status of Indonesia.

Hospital is a workplace with high-risk hazards such as biological hazards from bacteria and chemical virus hazards from medicine, the ergonomic hazard from high mobilization work, and many more. The hospital management is responsible for protecting the workers from the hazard so that a healthy, safe, and comfortable workplace is formed for the workers, patients, or visitors (Ministry of Health, 2016). Hospital management has a duty of implementing hospital occupational health and safety in all units.

Human resources are one of the most crucial aspects of a company or organization in any industry. Nurses are one of the most important human resources in hospitals. They take a role as a communicator, educator, and even manager to the patient. They are also the biggest group of workers in the health sector, with an average of 59% of all health professions globally (World Health Organization, 2020). The number of nurses in Indonesia is as many as 345,508 people, and the number of nurses in East Java is as many as 48,164 people (Ministry of Health, 2020b). This means nurses' health and safety should be our concern as they take a huge role in hospital service.

Types of work accidents in hospitals include needle sticks, manual handling, slips, falls, contact with patient body fluids and hazardous materials, work equipment, transportation, physical or excessive workload, and fire (Wåhlin *et al*., 2020). Nurses often do types of actions in the Emergency Room such as installing an intravenous (IV), sewing wounds, lifting and moving patients, and other actions (Ramdan and Rahman, 2018). In those actions, the risks are exposure of patient's blood, needle sticks, low back pain because of awkward posture, infection, and many more. This shows that nurse is a high-risk job.

In 2015, 20% of accidents had been reported to the hospital centre, while underreported accidents and near-miss incidents were 18% and 25.9% reported by self-report in over three months (Silpasuwan *et al*, 2017). The occurrence of a near miss is even more than the reported accident. A Near Miss is an unplanned event that does not result in any injury, illness, or damage but has the potential to cause an injury, illness, or damage (National Safety Council, 2013).

The causes of a near-miss event, according to the Loss Causation Model Theory by International Loss Control Institute, consists of lack of control, basic causes, and immediate causes (Frank E. Bird, 1992). The lack of control is due to inadequate standards or programs and inadequate fulfillment of standards by workers. Primary causes are divided into two types, namely personal factors (physical abilities, psychological abilities, stress, knowledge, skills, and motivation) and job factors (supervision, procurement, maintenance, inadequate work equipment, standard use, damaged or wear, and abuse). Immediate causes consist of two types, namely substandard acts, and substandard conditions. In this research, the personal factors to be measured are near-miss knowledge and occupational health and safety skill, and the job factor to be measured is work equipment.

Ploso Regional Public Hospital involves 179 health workers, with the most number being 80 nurses. Based on the reported accident between 2017-2020 in Ploso Regional Public Hospital, nurses had four needle stick accidents. 7 out of 10 nurses have been hit by an object but did not cause an injury. And 2 out of 10 nurses were almost hit by an oxygen cylinder when pushing into the patient room due to inadequate trolleys, perforated or slippery floors, and limited space for movement.

Ploso Regional Public Hospital, Jombang has an Infection Prevention and Control team that accommodates reporting of potential nosocomial infection. But, near miss and work accident reporting among nurses has not been carried out optimally. This causes a lack of data for near-miss and work accidents among nurses. The non-optimal reporting system also caused a lack of awareness and knowledge of near misses and occupational health and safety skills. This is also due to internal occupational safety and health training, and socialization activities that have not run optimally.

Ploso Regional Public Hospital already has Standard Operating Procedures (SOP) related to the implementation of medical actions as well as Occupational Safety and Health that need to be obeyed by workers to prevent work accidents. The Standard Operating Procedures have not been delivered optimally and periodically by the management so that nurses do not know for sure regarding the Standard Operating Procedures. The Standard Operating Procedures include Personal Protective Equipment and instructions for use.

Based on the identified problems above, it is necessary to conduct research related to the near-miss problem in Ploso Regional Public Hospital nurses, Jombang, to analyze the relationship between near-miss knowledge, occupational health, and safety skill, and work equipment the occurrence of near-miss among nurses using ILCI approach.

METHODS

This research used a cross-sectional design. The sample was chosen using the purposive sampling method with consideration of safety and security during the COVID-19 pandemic. The number of subjects in this research was 53 nurses out of 56 nurses in all units except the isolation room nurse. Data collection was carried out in February 2021. This research has gotten ethical approval from the Health Research Ethical Clearance Commission in the Faculty of Dental Medicine Universitas Airlangga with 032/HRECC.FODM/I/2021.

The independent variables used in this research were knowledge about the near miss, occupational health and safety skills of the nurses in Ploso Regional Public Hospital in the unit of inpatient care, outpatient care, and emergency. The dependent variable used was the occurrence of the near-miss.

The data in this research was collected using questionnaires. The questionnaire was developed

by the Author based on the Loss Causation Model Theory by the International Loss Control Institute that consists of lack of control, basic causes, and immediate causes. Basic causes are divided into two types, namely personal factors and job factors. The personal factor that is measured in this research is near-miss knowledge which will show the nurses' understanding of near misses and occupational health and safety skill which will show their ability regarding occupational health and safety in hospitals and the job factor that was measured in this research is work equipment which will show their perceptions regarding the suitability of work equipment management procedures for nurses.

The questionnaire for near-miss knowledge consisted of 7 questions with Guttman scale. The correct answer is worth 1, and the wrong answer is worth 0. The highest score is 7, and the lowest score is 0. The near-miss knowledge category can be low (<60%), moderate (60%-75%), and high (>75%) (Arikunto, 2006). The occupational health and safety skills questionnaire and work equipment questionnaires consisted of 7 questions, each with a Likert scale. The highest score is 28 and the lowest score is 7. The category intervals were determined using the interval formula (Notoadmodjo, 2010). The category of occupational health and safety skills can be low (7-13), moderate (14-20), and high (21-28) (Hartiti, 2016). The near-miss occurrence questionnaires consist of 12 questions with Likert scale and 3 frequency intervals of occurrence. The category intervals were also determined using the interval formula (Notoadmodjo, 2010). The category of Near-miss occurrence can be low (12-19), moderate (20-27), and high (28-36). The entire questionnaire has been tested for validity and reliability. The validity test used in the study consisted of construct validity in testing the validity of 20 nurses. All question items are considered valid because the test results exceed the value of r = 0.3. Reliability test was done using a statistical test with Cronbach's Alpha coefficient. All question items are considered reliable because the test value exceeds Ca = 0.6. The results of the study are supported by the results of interviews with hospital management to dig up information regarding occupational health and safety implementation in Ploso Regional Public Hospital.

The data is presented in a cross-tabulation, frequency distribution, and correlation analysis by defining the spearman correlation coefficient.

Spearman correlation test consists of two types of tests. The first one is the strength test of the relationship and the direction of the relationship between the two variables. Spearman correlation test produces a correlation coefficient value that indicates the relationship's strength. In addition, the resulting correlation coefficient is between -1 to +1, which means the direction of the relationship between variables—data analysis using data processing software.

RESULT

The result was obtained using an instrument in the form of a questionnaire related to near-miss knowledge, occupational health and safety skill, work equipment, and near-miss occurrence among nurses in Ploso Regional Public Hospital, Jombang, in 2021. Table 1 presents the distribution of each variable, along with the explanation.

Near Miss Knowledge

Table 1 shows the distribution of near-miss knowledge among nurses in Ploso Regional Public Hospital, jombang, in 2021. The majority of the nurses had high near-miss knowledge (52.8%), followed by low near-miss knowledge (30.2%) and moderate near-miss knowledge (17%).

The nurses' level of knowledge was determined by the nurse's accuracy in distinguishing and classifying types of Near-Misses and work accidents. In addition, the nurses already had good knowledge regarding prevention efforts against Near-Miss. However, they still considered that Near-Miss is a normal occurrence because it does not cause injury so it does not need to be reported.

Occupational Health and Safety Skills

Table 1 shows the distribution of Occupational Health and Safety Skills among nurses in Ploso Regional Public Hospital, Jombang, in 2021. Most of the respondents had high occupational health and safety skills (94.3%), while others had moderate occupational health and safety skills (5.7%).

Nurse skills in using work equipment with safe procedures were in accordance with the established procedure. However, some nurses did not have the ability to identify some of the hazards in the workplace. In addition, some nurses could not communicate the risks to their colleagues as a motivation or reminder.

Work Equipment

Table 1 shows the distribution of work equipment among nurses in Ploso Regional Public Hospital, Jombang, in 2021. Most of the respondents had very good work equipment (94.3%), and the others had good work equipment (5.7%).

The work equipment includes medical, non-medical plates, Personal Protective Equipment such as hand gloves, face masks and face shields, coverall and nurse cap, and other supporting equipment. Work equipment has been provided by considering the needs of nurses. There is a needs assessment stage that involves nurses before the procurement of goods. Work equipment is also equipped with information or a label containing how to use it, the dangers, and how to prevent it.

Table 1. Distribution of Near Miss Knowledge, Occupational Health and Safety Skills, Work Equipment, and Near-Miss Occurrence among nurses in Ploso Regional Public Hospital, Jombang in 2021

Variables	Category	Frequency (n)	Percentage (%)
Near Miss Knowledge	Low	16	30.2
	Moderate	9	17.0
	High	28	52.8
Occupational Health and Safety Skills	Low	0	0.0
	Moderate	3	5.7
	High	50	94.3
Work Equipment	Average	0	0.0
	Good	3	5.7
	Very Good	50	94.3
Near Miss Occurrence	Low	24	45.3
	Moderate	26	49.0
	High	3	5.7

Near Miss Occurrence

Table 1 shows the distribution of near-miss occurrence among nurses in Ploso Regional Public Hospital, Jombang, in 2021. The majority of the respondent had moderate near-miss occurrence (49.1%), and the other had low near-miss occurrence (45.3%) and high near-miss occurrence.

Near-miss events that are often experienced by nurses are almost hit or hit by objects in the workplace such as tables, beds, wheelchairs, and trolleys. In addition, the nurses often experienced near-miss events in the form of almost being scratched or injured by medical objects. Some nurses had direct contact with hazardous chemicals (without the use of Personal Protective Equipment) either by inhalation, splashing, or spilling onto body parts. However, only a few nurses had direct contact with patient body fluids without Personal Protective Equipment. Some nurses also complained of overexertion or working too hard where they felt exhausted but still had to work.

Cross Tabulation between Near Miss Knowledge and Near Miss Occurrence

Table 2 shows a cross-tabulation table between near-miss knowledge and near-miss occurrence among nurses in Ploso Regional Public Hospital, Jombang, in 2021. The majority of the respondent had high near-miss knowledge and moderate near-miss occurrence (67.9%). Respondents with low near-miss knowledge had low near-miss occurrence as well (56.3%).

The result of the correlation test between near-miss knowledge and near-miss occurrence is 0.236. It can be concluded that there is a weak relationship with positive direction between near-miss knowledge and near-miss occurrence.

Table 2. Cross Tabulation between Near Miss Knowledge and Near Miss Occurrence among nurses in Ploso Regional Public Hospital, Jombang in 2021

Near Miss Knowledge	Near Miss Occurrence						Total		Correlation Coefficient
	Low		Moderate		High				
	n	%	n	%	n	%	N	%	
Low	9	56.3	5	31.3	2	12.5	16	100.0	
Moderate	7	77.8	2	22.2	0	0.0	9	100.0	0.236
High	8	28.6	19	67.9	1	3.6	28	100.0	

Cross Tabulation between Occupational Health and Safety Skills and Near Miss Occurrence

Table 3 shows a cross-tabulation table between occupational health and safety skill and near-miss occurrence among nurses in Ploso Regional Public Hospital, Jombang, in 2021. The majority of the respondents had moderate occupational health and safety skills with moderate near-miss occurrence (66.7%). The other respondent had high occupational health and safety skills with low near-miss occurrence (48%) and high occupational health and safety skills with moderate near-miss occurrence (48%).

The result of the correlation test between occupational health and safety skill and near-miss occurrence is -0.276. It can be concluded that there is a fairly strong correlation with negative direction between near-miss knowledge and near-miss occurrence.

Cross Tabulation between Work Equipment and Near Miss Occurrence

Table 4 shows a cross-tabulation table between work equipment and near-miss occurrence in Ploso Regional Public Hospital, Jombang in 2021. The majority of the respondents with good work equipment had a high near-miss occurrence (66.7%). The majority of the respondents with very good work equipment had a moderate near-miss occurrence (52%). The result of the correlation test between work equipment and near-miss occurrence

is -0.213. It can be concluded that there is a weak correlation with negative direction between near-miss knowledge and near-miss occurrence.

DISCUSSION

Near Miss Knowledge

Based on frequency distribution in Table 1, most of the nurses had high near-miss knowledge, followed by low near-miss knowledge and moderate near-miss knowledge. Knowledge is related to the behavior that a person will cause. Behavior relates to the amount of information a person has as a result of the sensing process of a particular object (Ramadhani, 2018).

Near Miss Knowledge is reflected in the accuracy of nurses to distinguish and classify types of near-miss and work accidents. In addition, the nurses already had good knowledge regarding prevention efforts against near miss. However, they still considered that near miss is a natural occurrence because it does not cause any injury so it does not need to be reported. Near miss and work accident reporting system among nurses has not been carried out optimally. This causes a lack of data for near-miss and work accidents among nurses.

Near-miss events have the potential for accidents occurrence at workplace (Safitri and Widajati, 2019). Near misses should be taken seriously by hospital management because they can cause bigger accidents and bigger losses. Hospital

Table 3. Cross Tabulation between Occupational Health and Safety Skills and Near Miss Occurrence among nurses in Ploso Regional Public Hospital, Jombang in 2021

Occupational Health and Safety Skills	Near Miss Occurrence						Total		Correlation Coefficient
	Low		Moderate		High				
	n	%	n	%	n	%	N	%	
Moderate	0	0.0	2	66.7	1	33.3	3	100.0	-0.276
High	24	48.0	24	48.0	2	4.0	50	100.0	

Table 4. Cross Tabulation between Work Equipment and Near Miss Occurrence among nurses in Ploso Regional Public Hospital, Jombang in 2021

Work Equipment	Near Miss Occurrence						Total		Correlation Coefficient
	Low		Moderate		High				
	n	%	n	%	n	%	N	%	
Good	1	33.3	0	0.0	2	66.7	3	100.0	-0.213
Very Good	23	46.0	26	52.0	1	2.0	50	100.0	

management has a major role in developing the knowledge, attitudes, and actions of nurses in the workplace related to occupational health and safety. One of the programs that hospital management can do is to conduct training on near misses. Based on the research conducted by Susanto, Karisma and Budi (2020), there is a relationship between occupational health and safety knowledge including near misses with training participation.

Occupational Health and Safety Skills

Based on the frequency distribution in Table 1, most of the respondents had high occupational health and safety skills, while others had moderate occupational health and safety skills. Nurses need to equip themselves with optimal knowledge and skills so that a more systematic implementation is conducted (Kartikasari, Yani and Azidin, 2020). A person's skill level is obtained after getting exposure to knowledge about it. Skills must also be supported by a person's experience in carrying out these activities according to the problems they face.

Ploso Regional Public Hospital nurses have the ability to self-regulate in order to comply with applicable occupational health and safety regulations or policies. High occupational health and safety skills are one of the positive impacts of competence fufillment according to the local regulation and policy. Based on the research conducted by Purwanto and Fanji (2020), there is a relationship between competencies and nurses' work performance.

The nurses' skills in using work equipment with safe procedures were in accordance with the established Standard Operating Procedures in Ploso Regional Public Hospital. However, some nurses did not yet have the ability to identify some of the hazards that existed in the workplace. In addition, some Ploso Regional Public Hospital nurses did not yet have the ability to communicate the risks that exist to their colleagues as a form of motivation or reminder. Skills must be developed and trained continuously so that they can increase one's abilities so that one becomes an expert or professional in one particular field (Nurbiantoro, Septimar and Winarni, 2020).

Work Equipment

Based on frequency distribution in Table 1, most of the respondents had very good work equipment, and the others had good work equipment. Work facilities, including work equipment, play a very

important role so that organizational operations can be carried out better, more precisely, and faster (Prawira, 2020).

Work equipment in Ploso Regional Public Hospital has been provided by considering the needs of nurses. This is because, before the procurement of goods, there is a needs assessment stage that involves nurses. In addition, the procurement of work tools has taken into account ergonomic aspects. The availability and quality of work equipment were assessed as appropriate by the nurse.

Work equipment is also equipped with information or a label, including a safety sign containing how to use it, the dangers, and how to prevent it. Safety sign is equipment in the form of signs, symbols or signs that function to provide instructions, directions, and prohibitions to reduce risk from sources of danger in the work environment (Nugroho *et al.*, 2019). Good work equipment can make the nurse's job easier. In the development of health services, it is necessary to have good work facilities to have an impact on good employee performance (Budi, 2020).

Near Miss Occurrence

Based on frequency distribution in Table 1, the majority of the respondent had moderate near-miss occurrence, followed by low near-miss occurrence and high near-miss occurrence. Near-miss events often experienced by nurses were almost hit or hit by objects in the workplace such as tables, beds, wheelchairs, and trolleys, almost being scratched or injured by medical objects, and some nurses had direct contact with hazardous chemicals (without the use of Personal Protective Equipment) either by inhalation, splashing, or spilling onto body parts. However, only a few nurses had direct contact with patient body fluids without Personal Protective Equipment.

The Nurses also complain of overexertion or working too hard where they felt tired but still had to work. If the worker experiences some signs or symptoms of fatigue but continues to force himself to work, it can lead to a work accident that not only harms the workplace institution but also the worker himself (Christy, Widajati and Arna, 2020). Nurses sometimes make schedule changes of the supposed shift schedule because of fatigue so they have more time to rest. Work fatigue experienced by workers can result in a reduced ability of workers to make decisions, reduced concentration, reaction time, and memory which will ultimately have an impact

on decreasing worker performance or productivity (Dewi, 2018). In addition, it can also increase the number of near misses and even work accidents, absenteeism, negligence, and mistakes in making decisions (Alberta Government, 2017).

Cross Tabulation between Near Miss Knowledge and Near Miss Occurrence

According to Oxford Advanced Learner's Dictionary (2022), knowledge is facts, information, and skills acquired by a person through experience or education or in other definitions is, the theoretical or practical understanding of a subject. In near-miss occurrence, knowledge is a crucial factor that affects an individual's behaviour or act. The workers' knowledge about occupational health and safety affects their work behaviour (Suartana, Mandagi and Wilar, 2021).

Based on Table 2 the most respondent had high near-miss knowledge and moderate near-miss occurrence (67.9%). Respondents with low near-miss knowledge had low near-miss occurrence as well (56.3%). The result of the correlation test between near-miss knowledge and near-miss occurrence is 0,236. There is a weak relationship with positive direction between near-miss knowledge and near-miss occurrence. It means that the higher nurses' knowledge regarding near-miss events, the higher near-miss events experienced by nurses. The nurse that has high knowledge about near misses has the ability to identify near miss occurrence. This result is in line with another research by Mapanawang, Pandelaki and Panelewen (2018) that shows there is a relationship between the workers' knowledge and accident which is needle stick injury among nurses.

The knowledge about near-miss among nurses helps them avoid hazards or unsafe acts. Supported by the research conducted by Putri and Wahyudiono (2021), the study results showed that nurses with good knowledge tend to have good safety behavior, specifically in Personal Protective Equipment usage. The research conducted by Rahmawati (2019) also shows that the correlation between knowledge and Standard Operating Procedures compliance indicates that the lower the level of knowledge, the more the workers commit unsafe behavior. Utami (2021) has also proven in her research that one of the factors that significantly influence unsafe behavior is knowledge. This result is in line with the concept of behavior in Lawrence Green Theory which explains that knowledge is one of the predisposing factors

that can lead someone in taking action or behavior (Notoadmodjo, 2012).

The weak correlation between near-miss knowledge and the occurrence of a near miss is due to the low level of nurses' applicative knowledge related to near miss. The nurses were not familiar with near-miss events because there was no education or training. The nurses' perspective about near-miss among workers is the same as near-miss in patient safety. It can be seen that the nurses' knowledge regarding near miss is still on basic level. The low knowledge about near miss can be increased by conducting some training. This statement has been proven by the research conducted by Ramadhani (2019) that there was a correlation between the training and the emerging occupational accidents. Training is one important aspect in the management of occupational health and Safety that can be taken as an action to strive in preventing occupational accidents and occupational diseases (Tarwaka, 2017).

The interviews show that the occupational health and safety program has not been appropriately implemented because of the low coordination between the hospital management. These conditions impact impeded implementation and reporting mechanisms, failures in program evaluation, obstacles not being appropriately resolved so that there is no development and repair of failures.

Cross Tabulation between Occupational Health and Safety Skills and Near Miss Occurrence

Skills based on Oxford Advanced Learner's Dictionary (2022) is the ability that comes from one's knowledge, practice, aptitude to do something well. Workers who have better skills will have even better-resulting performance. Table 3 shows that the majority of the respondents had moderate occupational health and safety skills with moderate near-miss occurrence (66.7%). The other respondent had high occupational health and safety skills with low near-miss occurrence (48%) and high occupational health and safety skills with moderate near-miss occurrence (48%). It shows that there is a fairly strong correlation with negative direction between near-miss knowledge and near-miss occurrence. It means that the higher the skills related to occupational safety and health possessed by nurses, the lower the near-miss they experienced. It is in line with the research conducted by Puspitasari, Ginanjar and Suproyanto (2019) that shows a significant factor related to work accidents

is the skill factor. Besides, nurses that have high skill also have a good performance as well. Supported by the research conducted by Tolo and Sepang (2016) that mentioned having expertise or good skills in work will improve employee's performance.

The correlation between the occupational health and safety skill variable and the near-miss occurrence is fairly strong because nurses as workers are required to meet the competency standards set in the Standard Operating Procedures (SOP). Competency is the workability of each individual, which includes aspects of knowledge, skills, and work attitudes in accordance with established standards. To achieve these competency standards, nurses are required to have several skills. One of these competency standards is implementing safe therapeutics for patients or nurses where occupational health and safety skills are needed. These skills are supported by several activities in the form of gathering information related to existing hazards, planning actions, problem-solving, teamwork, and communication. The higher the competency of the nurses, the better the performance. This statement is supported by the research conducted by Purwanto and Soliha (2017) that mentioned competence has a positive effect and is significant to employee's performance. Suprapto, Herman, and Asmi (2020) also mentioned that the most dominant factor with the implementation of public health care is competence and training.

The nurses already had high occupational health and safety skills because they must meet the Nursing Professional Standard. According to the Ministry of Health (2020a), nurses have to meet the standard of professional nursing, including Occupational Health and Safety Skills. The competencies in Occupational Health and Safety include skills in workplace safety procedures, occupational health and safety communication, and prevention of work accidents.

Cross Tabulation between Work Equipment and Near Miss Occurrence

Work equipment is a variety of objects used to do something to achieve a goal. In the health sector, work equipment is important because every health service, including nursing, examination, diagnosis, treatment, and medical action, requires equipment or tools. According to Ministry of Health Regulation Number 30 Year 2019 concerning hospital license, equipment includes medical or non-medical equipment that is useful for meeting service

standards, safety, security, quality improvement and is suitable for use (Ministry of Health, 2019). Work equipment is used by nurses are needles, syringes, stethoscopes, tensimeters, thermometers, tweezers, beds, wheelchairs, oxygen, trolleys, Personal Protective Equipment and others.

Based on table 4, the majority of the respondents with good work equipment had a high near-miss occurrence (66.7%). The majority of the respondents with very good work equipment had a moderate near-miss occurrence (52%). The result of the correlation test between work equipment and near-miss occurrence is -0,213. There is a weak correlation with negative direction between work equipment and near-miss occurrence. It means the better the nurse's perception of work equipment, the lower the near-miss experienced. The research conducted by Harlan (2017) has also proven the better perception about work equipment, specifically Personal Protective Equipment, the greater the proportion to have a good behavior of using Personal Protective Equipment. Work facilities related to occupational health and safety are also needed to increase the awareness of health and safety, such as safety signs, Personal Protective Equipment, equipment labeing, and many more. This statement is in line with the research conducted by Alfidyani, Lestantyo and Wahyuni (2020) that mentioned there is a relationship between installation of safety signs with the risk of work accidents.

The provision of good, safe, non-defective, and quality work equipment will impact the workforce's performance, one of which is reducing the risk of near-miss events. This statement is supported by the research conducted by Jufrizen and Hadi (2021) that explains work facilities affect employee's performance as one of the factors supporting employee work. Adequate work facilities will also increase the employee's performance.

The correlation between work equipment and near-miss occurrence is weak because the perception about the work equipment is already good. The nurses perceived the work equipment is in accordance with the process of providing work equipment at the Standard Operating Procedures which has been carried out by the Ploso Regional Public Hospital. The nurses were doing their work based on the instruction and Standard Operating Procedures established by the hospital management. Standard Operating Procedures compliance are important in preventing work incident and work accident. This statement is supported by the research

conducted by Azizah, Setiawan and Silaban (2019) that explains there is a significant relationship between work procedures and work accidents for nurses in the inpatient room at Permata Bunda Hospital. The hospital management is responsible for providing suitable work equipment to prevent near misses and work accidents. Ploso Regional Public Hospital has implemented work equipment management. The first thing to do is procurement which involves all nurses in each room. The procurement meeting process is held once a year which is attended by the head of the patient room, pharmacy, PPI team, and the procurement team. The work equipment provided by Ploso Regional Public Hospital has met the needs in terms of quantity, type, size, and raw materials.

CONCLUSION

The relationship between near-miss knowledge and the occurrence of near-miss has a weak correlation with positive direction. The relationship between occupational health and safety skill and the occurrence of near-miss has a fairly strong correlation with negative direction. The relationship between work equipment and the occurrence of near-miss has a weak correlation with negative direction.

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