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THE CORRELATION AMONG KNOWLEDGE OF OCCUPATIONAL SAFETY AND HEALTH (OSH), SAFETY AWARENESS AND UNSAFE ACTION ON NURSES IN HOSPITAL

HUBUNGAN PENGETAHUAN KESELAMATAN DAN KESEHATAN KERJA (K3) DAN SAFETY AWARENESS DENGAN UNSAFE ACTION PADA PERAWAT DI RUMAH SAKIT

Research Report
Penelitian

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ABSTRACT

Background: Unsafe work behavior, such as not wearing PPE, not following work procedures and work safety regulations, and not working carefully is an action that caused 88% of work accidents. The rate of occurrence of minor work accidents in hospitals is 20% higher than workers in other industries. **Purpose:** To prove that there was a correlation between knowledge of OSH as well as safety awareness and unsafe action on nurses in Hospital X. **Method:** This study used an observational analytic method with a cross-sectional approach. The research sample was 88 respondents, and it was taken by using the total sampling technique. The research instrument used was a valid and reliable questionnaire. Data analysis used Somer's d test for bivariate data processing and the Ordinal Logistics Regression test. **Result:** The results of the Somer's d test for correlation between the knowledge of OSH and unsafe action resulted in p-value 0.00, while the results of the Somer's d test for correlation between safety awareness and unsafe action resulted in p-value 0.000. Furthermore, the Ordinal Logistics Regression test that was carried out with the independent variable in the study that had a greater effect on unsafe action was safety awareness with a wald value of 15.001. The results of the Nagelkerke R-square were 0.482 (48.2%), hence the independent variables could explain the dependent variable by 48.2%. **Conclusion:** The result of this study showed that there was a significant correlation between the knowledge of occupational health and safety awareness with unsafe action.

ABSTRAK

Latar belakang: Perilaku kerja yang tidak aman, seperti tidak memakai APD, tidak mengikuti prosedur kerja, tidak mengikuti peraturan keselamatan kerja, dan tidak bekerja dengan hati-hati merupakan tindakan yang menyebabkan 88% kecelakaan kerja. Angka kejadian kecelakaan kerja ringan di rumah sakit 20% lebih tinggi dibandingkan pekerja di industri lain. **Tujuan:** Menganalisis hubungan antara pengetahuan K3 dan kesadaran keselamatan dengan tindakan tidak aman pada perawat di RS X. **Metode:** Penelitian ini menggunakan metode observasional analitik dengan pendekatan *cross-sectional*. Penelitian ini menggunakan teknik penelitian total sampling dengan sampel penelitian berjumlah 88 responden. Diambil dengan menggunakan teknik total sampling. Instrumen penelitian yang digunakan adalah kuesioner yang valid dan reliabel. Analisis data menggunakan uji Somer's d untuk pengolahan data bivariat dan uji Regresi Logistik Ordinal. **Hasil:** Hasil uji Somer's d untuk korelasi antara pengetahuan K3 dengan *unsafe action* diperoleh *p-value* 0,00; sedangkan hasil uji Somer's d untuk korelasi antara *safety awareness* dengan *unsafe action* diperoleh *p-value* 0,000. Selanjutnya dilakukan uji Regresi Logistik Ordinal dengan variabel bebas dalam penelitian yang berpengaruh lebih besar terhadap *unsafe action* adalah antara *safety awareness* dengan nilai wald 15,001. Hasil dari *Nagelkerke R-square* adalah 0,482 (48,2%) sehingga variabel bebas) dapat menjelaskan variabel terikat sebesar 48,2%. **Kesimpulan:** Hasil penelitian ini menunjukkan bahwa ada hubungan yang signifikan antara pengetahuan K3 dan *safety awareness* dengan *unsafe action*.

INTRODUCTION

In addition to infectious diseases, hospitals have several other potential hazards that may affect the situation and condition of the hospital, namely accidents (explosion, fire, accidents related to electrical installations, and other sources of injury), radiation, hazardous chemicals, anesthetic gases, psychosocial and ergonomic disorders (Pratiwi *et al.*, 2016). Hospitals also have other hazard risks that affect conditions or situations, such as accidents (including explosions, accidents due to problems in electrical installations, fires, and other factors that can cause injury), exposure to toxic and dangerous chemicals, radiation, gases - anesthetic gases, exposure to toxic and hazardous chemicals, disorders related to psychic and ergonomics. The potential hazards mentioned above can interfere with and reduce the sense of security and comfort for workers in hospitals, patients and visitors in the hospital environment (Yuantari and Nadia, 2018).

The International Labor Organization (ILO) states that there are 2.78 million workers who die each year due to work-related accidents and occupational diseases. As many as 86.3% of these deaths were caused by work-related accidents or occupational diseases with more than 13.7% of deaths occurring due to fatal work accidents (ILO, 2018). The National Safety Council (NSC) notes that the rate of minor occupational accidents in hospitals is 20% higher than workers in other industries. Minor work accidents that occur in hospital workers include needle sticks, sprains, back pain, scratches or cuts, burns, and other infectious diseases (National Safety Council, 2015). The American Nurses Association stated that 64% of nurses stated that they had suffered a needle stick injury or wound. Even though the needle stick injury has minimal bleeding or trauma, it is still one of the most common hazards in the health profession sector (Istih *et al.*, 2017). The Central for Disease Control (CDC) in a study carried out in 2019 predicted that there were about 385,000 needlestick injuries that occured every year where these events occured in nurses after the equipment was applied (Alifariki and Kusnan, 2019).

According to World Health Organization (WHO), hospitals as an integral part of a social and health organization are able to provide comprehensive services, cure and prevent diseases to the community (Pangerapan *et al.*, 2018). The loss caution theory from Bird and Germain explains that the basic causes of work accidents are divided into two factors, namely individual factors and occupational factors, one of which is included in the individual factor, namely knowledge. According to Pratama (2015), knowledge possessed by a person is one of the factors that plays a role in interpreting the stimulus obtained, so that a person can identify a hazard if he has good knowledge. Therefore, he understands the actions that should be taken and work accidents that can be prevented. According to Oktavianti, a person's actions will be in accordance with his knowledge, if the person receives a signal that is strong enough to motivate himself to act according to his knowledge (Kristianti and Tualeka, 2018).

Heinrich in Tarwaka (2015) states that work accidents are caused by behavior or work actions carried out unsafely (unsafe action) with a percentage of 88%. Unsafe actions include not using personal protective equipment, not following work procedures or SOPs, not complying with work safety regulations and working less vigilantly. The ILCI theory states that work accidents can occur due to not only unsafe actions and conditions but also management errors, causing unsafe actions and conditions. One solution to prevent unsafe action is through demonstration of safe behavior by management by applying safety concepts and practices (Amalina *et al.*, 2021). Safety awareness is a perception that can grow from the K3 culture or safety culture that exists in an organization or company which refers to the extent to which the potential concern of workers for safety is expressed through actual actions and practices. Safety awareness is mostly acquired and becomes a habit, formed by education and training on safety (Song *et al.*, 2019). According to Kiani and Khodabakhsh (2014), safety awareness refers to the awareness that individuals have about safety issues. This awareness refers to both cognitive and behavioral levels. Cognitively, safety awareness means being aware of safety at work mentally and recognizing behaviors that promote operational safety. Meanwhile, behaviorally, safety awareness encourages behavior that obeys operational safety.

Hospital X has implemented an occupational safety and health management system with the SNARS standard or the National Hospital Accreditation Standard and the implementation of Occupational Safety and Health (OSH) based on the Regulation of the Minister of Health No. 66 of 2016 concerning Occupational Safety and Health in Hospitals. OSH management system activities are carried out at the hospital including OSH training, fire fight training, identification of hazards and risks, and a work accident reporting system that is conducted to increase zero accidents at the hospital. However, based on interviews conducted by the researcher with several nurses at the hospital, it was found that in the implementation of work there were still some nurses who were negligent in using personal protective equipment such as aprons, gloves, and some other PPE due to feelings of discomfort, which could lead to a work accident. The results of interviews conducted with 15 nurses discovered that 5 of the 15 nurses had experienced work accidents such as needle sticks or other sharp objects in the hospital area, but there was no record of work accidents in the 2020-2021 period because the OSH program was not implemented at that time. This caused most hospital personnel to have never attended OSH counseling, training or seminars. Thus, they did not know how to deal with hazards and

accidents at work. The researchers, then, conducted interviews with OSH employees at the hospital and the results showed that there were nurses who disposed of medical waste in non-medical waste bins; hence, there was still a tendency to take unsafe actions on nurses at the hospital.

The distribution of the initial survey questionnaire was conducted by the researchers to 15 nurses from various divisions at Hospital X, namely ICU, emergency unit, Inpatient, Outpatient, VK, OK, IHC and Perinatology. The distribution of the questionnaires showed that 3 nurses had a high level of unsafe action, 4 of them had a moderate level of unsafe action and 8 of them had a low level of unsafe action. The results of the initial survey for OSH knowledge and safety awareness showed that 9 nurses had moderate OSH knowledge and 6 Nurses had high OSH knowledge. Then, for safety awareness, based on the results obtained, it was revealed that there were 7 nurses with moderate safety awareness and 8 nurses with high safety awareness. From the initial research conducted, the results indicated that there were still nurses that tended to take unsafe actions while working, and some nurses that had a moderate level of OSH knowledge and some other nurses that had a high level of safety awareness. Based on the background of these problems, the researchers were interested in examining the correlation between knowledge of OSH as well as safety awareness and unsafe action on nurses in hospital X.

MATERIAL AND METHOD

The present study employed analytic observational research design with a cross-sectional approach. The location of this study was carried out in one of the hospitals located in Jababeka from February to June 2022. The population in this study was nurses with a total of 88 nurses. The sampling technique used in this study was total sampling because the existing population was no more than 100 respondents. The instrument used in this research was a questionnaire from a previous study by Nugrahanto *et al.* for knowledge of OSH and unsafe action. The safety awareness was measured by using Safety Awareness Scale (SAS) by Lin *et al.* that was adapted into Turkish by Dursun and Aytac (2018), and the scale consisted of five questions. The SAS as a 5-point Likert-type scale has a score of "Strongly disagree" as 1 and "Strongly agree" is assigned a score of 5 points. A high score indicates a high level of safety awareness (Uzuntarla *et al.*, 2020).

Score from the questionnaire used in this study divided the category for each variable. The first variable, knowledge of OSH, revolved around the topic such as safe behavior, procedures regarding OSH and equipment, PPE, and unsafe action. The results were categorized into three categories consisting of 'Good' (if the total scored >75%), 'Sufficient' (if the total scored

50-75%), and 'Lack' (if the total scored <50%). The second variable, safety awareness, was divided into three categories including 'Good' (if the total scored >75%), 'Enough' (if the total scored 50-75%), and 'Low' (if the total scored <50%) based on the respondents answers around topics such as responsibility regarding OSH, knowledge and compliance of OSH regulation, OHS importance, PPE awareness, unsafe action awareness, hazard identification, and emergency or hazard report. Lastly, the third variable, unsafe action, is classified into three categories including 'Always' (if the total scored >66.7%), 'Often' (if the total scored 33.3–66.7 %), and 'Sometimes' (if the total scored <33.3%).

The analytical techniques in this study included univariate analysis techniques, bivariate analysis, and multivariate analysis. This univariate analysis technique included analysis of variables related to the study, namely: respondent characteristics (age, gender, education level, tenure, and division), independent variables (OSH knowledge and safety awareness), and dependent variable (unsafe action). The bivariate analysis employed Somers'd correlation test. Whereas, the multivariate analysis in this study was an ordinal logistic regression analysis test.

RESULT

The results of the study included the findings obtained using a questionnaire given to the nurses. The results included univariate analysis, bivariate analysis, and multivariate analysis.

Univariate analysis
The results of univariate analysis included the distribution of frequency for the characteristics of respondents, independent variables such as knowledge of OSH and safety awareness, and the dependent variables in this study that was unsafe action.

Characteristics of respondents
The results represented in Table I showed that the majority of the respondents had an age range over 30 years (51.1%), with the majority of the respondents were women (78.4%). Further, the respondents of this study had the same academic background that was college. The majority of the respondents had working tenure no more than 5 years (63.6%). Also, Table 1 above presented data on the frequency distribution of the hospital nurse division which was divided into several divisions with the majority being in the inpatient division for 27 people (30.7%), outpatient division for 18 people (20.5), and ER division for 12 people (13.6%). The Perinatology and ICU divisions had the same number of nurses, namely 8 (9.1%) and followed by the IHC (In House Clinic) and OK (Operation Room) divisions with the same number of 4 people (4.5%).

Table 1. Characteristics of respondents

Characteristics of respondents	Unsafe action			Frequency	Percentage (%)
	Always n (%)	Often n (%)	Sometimes n (%)		
Age					
< 30 years old	5 (5.6)	13 (14.7)	25 (28.4)	43	48.9
≥30 Years old	10 (11.6)	11 (12.5)	24 (27.2)	45	51.1
Gender					
Man	1 (1.1)	4 (4.5)	14 (15.9)	19	21.6
Woman	14 (15.9)	20 (22.7)	35 (39.7)	69	78.4
Academic background					
College	15 (17)	24 (27.3)	49 (55.7)	88	100
Tenure					
≤ 5	8 (9.1)	16 (18.8)	32 (36.6)	56	63.6
6-10	5 (5.6)	4 (4.5)	6 (6.8)	15	17
> 10	2 (2.2)	4 (4.5)	6 (6.8)	17	19.3
Division					
Emergency unit	0	1 (1.1)	11 (12.5)	12	13.6
Inpatient	4 (4.5)	11 (12.5)	12 (13.6)	27	30.7
Outpatient	6 (6.8)	3 (3.4)	9 (10.2)	18	20.5
Perinatology	2 (2.2)	2 (2.2)	4 (4.5)	8	9.1
IHC	0	2 (2.2)	2 (2.2)	4	4.5
ICU	1 (1,1)	3 (3.4)	4 (4.5)	8	9.1
VK	2 (2.2)	1 (1.1)	4 (4.5)	7	8
OK	0	1 (1.1)	3 (3.4)	4	4.5

Independent variable and dependent variable

Table 2 showed that 23 people (26.1%) had a good knowledge level of OSH (>75%), while 54 people (61.4%) had a sufficient knowledge level (50-75%) and those who had a lack of knowledge of OSH (<50%) were 11 people (12.5%). The data on safety awareness in Table 2 were obtained by filling out a questionnaire based on the safety awareness Scale (Uzuntarla *et al*, 2020). It was discovered from Table 2 that 47 people (53.4%) had a good level of safety awareness (>75%), while 32 people (36.4%) had a moderate level of safety awareness (50-75%), and those who had a low level of safety awareness (<50%) that were 9 people (10.2%). Table 2 also presented the results of questionnaire on unsafe action. The results indicated that workers who were included in the category of always doing unsafe action were 15 people (17%), while 24 people (27.3%) were included in the category of often doing unsafe action, and those who were included in the category of sometimes doing unsafe action were 49 people (55.7%).

Table 2. Data distribution of the independent and dependent variables

Variable	Frequency	Percentage (%)
Knowledge of OSH		
Good	23	26.1
Sufficient	54	61.4
Lack	11	12.5
Safety awareness		
Good	47	53.4
Enough	32	36.4
Low	9	10.2
Unsafe action		
Always	15	17
Often	24	27.3
Sometimes	49	55.7

Bivariate analysis

The bivariate analysis done in this study was calculated with Somers'd test using SPSS 21. The test was undertaken to analyze the correlation between each independent variable (knowledge of OSH and safety awareness) and the dependent variable (unsafe action).

Correlation between knowledge of OSH and unsafe action

The results of bivariate correlation between knowledge of OSH and unsafe action based on 88 respondents in the hospital can be seen in the Table 3 and Table 5.

Table 3. Correlation between knowledge of OSH with unsafe action

Independent variable	Dependent variable	Sig. (p)	r-value
Knowledge of OSH	Unsafe action	0.000	-0.497

Table 3 showed Somers'd correlation test results that indicated there was a significant correlation between knowledge of OSH and unsafe action in hospital nurses, which was *p-value* 0.000 (*p-value*<0.05). The strength of the correlation obtained was *r-value* = -0.497 that was included in the moderate correlation with the direction of the correlation -(negative). Cross tabulation data between the distribution of knowledge of OSH and unsafe action in hospital nurses presented in Table 4 revealed that respondents with good knowledge of OSH were 0 respondents (0%) in the category of always doing unsafe action, 3 respondents (3.4%) in the category of frequently taking unsafe action, and 20 respondents (22.7%) in the category of sometimes performing.

unsafe actions. On the data about respondents with sufficient OSH knowledge, there were 8 respondents (9.1%) in the category of always taking unsafe action, 17 respondents (19.3%) in the category of frequently taking unsafe action, 29 respondents (32.9%) in the category of sometimes performing unsafe actions. In terms of respondents with poor knowledge of OSH, there were 7 respondents (7.9%) in the category of always taking unsafe action, 4 respondents (4.5%) in the category of frequently taking unsafe action, 0 respondents (0%) in the category of sometimes performing unsafe actions. Table 4 showed that most respondents were categorized into having sufficient knowledge of OSH, with most of them were categorized into sometimes doing unsafe actions.

Correlation between safety awareness with unsafe action

The results of bivariate correlation between safety awareness and unsafe action based on 88 respondents in the hospital can be seen in the Table 4 and Table 6.

Table 4. Correlation of safety awareness and unsafe action

Independent variable	Dependent variable	Sig. (p)	r-value
Safety awareness	Unsafe action	0.000	-0,531

Table 5 presents the results of Somers'd correlation test which showed that there was a significant correlation between safety awareness and unsafe action in hospital nurses, with *p-value* 0.000 (*p-value* <0.05), then it could be continued by doing multivariate analysis. The strength of the correlation obtained was *r-value* = -0.531 that was included in the moderate correlation with the direction of the correlation -(negative).

Table 5. Cross tabulation knowledge of OSH with unsafe action

Variable		Unsafe action							
		Always		Often		Sometime		Frequency	
		n	%	n	%	n	%	n	%
Knowledge of OSH	Good	0	0	3	3.4	20	22.7	23	26.1
	Sufficient	8	9.1	17	19.3	29	32.9	54	61.4
	Lack	7	7.9	4	4.5	0	0	11	12.5

Table 6. Cross tabulation of safety awareness with unsafe action

Variable		Unsafe action							
		Always		Often		Sometime		Frequency	
		n	%	n	%	n	%	n	%
Safety awereness	Good	2	2.2	8	9.1	37	42	47	53.4
	Sufficient	7	8	13	14.7	12	13.6	32	36.4
	Lack	6	6.8	3	3.4	0	0	9	10.2

Multivariate analysis

Research results of multivariate correlation between knowledge of OSH and safety awareness with unsafe action based on 88 respondents in the hospital can be seen in the Table 7 until Table 10

Table 7. Model fitting information

Model	-2 Log Likelihood	*Chi-square*	Sig
Intercept only	79.485		
Final	32.443	47.042	0.000

Table 8. Goodness-of-fit

	Chi-square	df	Sig.
Pearson	10.479	1	0.574
Deviance	10.586	1	0.565

Table 9. Pseudo R-square

Cox and Snell	0.414
Nagelkerke	0.482
McFadden	0.272

Table 10. Parameter estimates

Independent variable	Sig	Wald
Knowledge of OSH	0.001	11.001
Safety awareness	0.000	15.001

The multivariates analysis was done by using the Ordinal Logistics Regression test. The results indicated that safety awareness had a wald value of 15.001 and knowledge of OSH had a wald value of 11.001. Therefore, the safety awareness variable had a greater influence on unsafe action, with the result from the *Nagelkerke R-square* of 0.482 (48.2%), so that the independent variable was able to explain the dependent variable by up to 48.2%.

DISCUSSION

Respondent characteristics

Data on the distribution of age cross tabulation with unsafe action on respondents are in accordance with a previous study Saputri *et al.*, that revealed that there had been a decline in physical skills and performance for older workers that with increasing age had also experienced a decline in intellectual ability, short-term memory, and speed of decision making. Due to that increasing age, Saputri elaborated that they would do monotonous work that had the potential to do unsafe action that could lead to work accidents. In other words, as people get older, they tend to do unsafe actions that can potentially cause work accidents. On the other hand, the results of this study are not in line with the study of Triwibowo and Pusphandani (2014), that young workers tended to act hastily and carelessly, so that they may take unsafe action. This

could be influenced by the frequency of age >30 years more than age <30 years. In this study, it could be seen that the majority of respondents were female by 69 respondents (78.4%) compared to men. The majority of 35 out of 69 respondents (39.7%) that were female sometimes took unsafe action. The world of nursing is identified as a woman's job because the tasks carried out require thoroughness and patience, an attitude where women are considered to have more value than men (Prayoga and Utami, 2009).

The way a person thinks in dealing with his work is influenced by the education he has, including how to prevent and avoid accidents while doing work (Permana *et al.*, 2014). Workers with higher education levels have a better understanding of safety, then also comply with safety regulations and experience fewer accidents. The results of this study are not in line with the theory where there are still respondents who always take unsafe action with the final level of education, namely college. Data on the distribution of cross-tabulation of tenure with unsafe action on respondents results are in line with the theory by Notoatmojo (2014) that tenure is a factor that may affect workers' behavior. In this case, the longer the working period, the more familiar the worker will be with his workplace or his work environment, and vice versa. If the working period is still new for the workers, they will not be familiar with their work environment. Hence, have the risks of taking unsafe actions.

The correlation between knowledge of OSH and unsafe action

According to a study conducted by Pratama (2015), knowledge possessed by a person is one of the factors that plays a role in interpreting the stimulus obtained, so that a person can identify a hazard if he has good knowledge, so that he understands the actions that should be taken and work accidents can be prevented. According to Oktavianti, a person's actions will be in accordance with his knowledge, if the person receives enough cues that are strong enough to motivate themselves to act according to their knowledge (Kristianti and Tualeka, 2018).

The results of this study are in line with other previous studies conducted by a student at Sebelas Maret University, who undertook a study at the UNS Vocational School. The researcher stated that OSH knowledge had a significant relationship with unsafe action with the results of the Somers'd correlation test between OSH knowledge and unsafe action indicated the *p-value* = 0.000 with a correlation strength value of -0.434 (Suwarto, 2009).

Data distribution from cross-tabulation of OSH with unsafe action on hospital nurses indicated that the number of respondents with good OSH knowledge were 3 respondents (3.4%) in the category of frequently doing unsafe action. These results showed that data on respondents with sufficient OSH knowledge were 8 respondents (9.1%) in the category of always doing unsafe action and 17 respondents (19.3%) in the

category of often doing unsafe action. The results of this study also discovered that there were still respondents with good OSH knowledge with the level of doing unsafe action often as many as 3 respondents (3.4%). These results are not in line with the theory that a person's knowledge about an object has an outcome in positive and negative aspects that will impact on a person's behavior, in this case, the more positive the aspects, the more positive the behavior towards certain objects, and vice versa (Sirai *et al.*, 2020). Based on the results of interviews with respondents, it was found that the OSH knowledge obtained by respondents came from external side of the hospital because the OSH knowledge training and dissemination had not been conducted by the OSH party. Further, the OSH program such as inspections and reporting had not been implemented, making respondents to have a tendency to take unsafe action.

The correlation between safety awareness and unsafe action

Safety awareness refers to the awareness that individuals have about safety. This awareness refers to both cognitive and behavioral levels. Cognitively, safety awareness means being aware of safety at work mentally and recognizing behaviors that promote operational safety. Meanwhile, safety awareness encourages behavior that adheres to operational safety. Therefore, safety behavior is a direct response that workers have to be aware of (Wang *et al.*, 2018).

The results of the study by Fu *et al.* (2017) indicated there was a relationship between safety awareness and unsafe action regarding the analysis of accidents, and safety awareness which was the direct cause of work accidents had a strong relationship with a person's behavioral actions, namely unsafe actions. Birds in Verawati *et al.* (2012) states that mismanagement is the main cause of accidents, while unsafe actions and unsafe conditions are the direct causes of an accident. Unsafe actions are one of the main reasons that cause work accidents (Yu *et al.*, 2007).

Cross tabulation data on safety awareness and unsafe action on hospital X nurses presented that respondents with good safety awareness had 2 respondents (2.2%) in the category of always taking unsafe action. The data also presented results on respondents with moderate safety awareness; there were 7 respondents (8%) in the category of always taking unsafe action. These results unveiled that there were still respondents with a good level of unsafe awareness in the category of always carrying out unsafe actions. These results are in accordance with the results obtained from a study conducted by Dursun and Aytac (2018) that employee involvement, safety awareness, reporting culture, and management behavior were closely related to safety behavior, where the hospital already had respondents with a good level of safety awareness, but the culture reporting and supervision by management had not been implemented.

The correlation among knowledge of OSH, safety awareness, and unsafe action

The results of this study are in line with research conducted by Fu *et al.* (2017)regarding accident analysis indicating that the indirect cause of a work accident was the habitual behavior of organizational members, including inadequate OSH knowledge, weak safety awareness, poor safety habits, and psychological status, and poor physical status. The study further stated that the lack of OSH knowledge that referred to theoretical knowledge, practical experience, and operational skills regarding OSH could trigger unsafe actions. The study also discovered that low safety awareness which referred to the ability to identify hazards and eliminate or deal with hazards immediately could lead to unsafe actions or activate unsafe conditions.

The results of this study are also in line with a previous study that points out that what really affects an individual's behavior is not goal-specific conditions or events, but the way information is being interpreted and processed by the individual. Specifically, it can be concluded that a person's attitude in receiving the information will affect his behavior, in this case, the knowledge received by a person can affect a person's safety behavior depending on the process of receiving the information, which in this case is safety awareness (Wang *et al.*, 2018).

The condition of the hospital in this study could be seen from the results of interviews with HSE of the hospital that from 2020-2021 there have not been socialization and OSH training in hospitals. Also, the accident reporting program has not been implemented. The lack of counseling or socialization of OSH affected the nurses' knowledge levels about OSH that may affect safety awareness. According to the actions of nurses, there were still nurses who often took unsafe actions. In terms of the hospital action in handling hazard risks, there has been no follow-up action taken. This could be seen in the findings of nurses who did unsafe action and had been given a warning, but there was no firm sanction for committing an unsafe action.

CONCLUSION

The results of this study showed that there was a significant correlation between knowledge of OSH and safety awareness in correlation with unsafe actions on nurses in a hospital. The multivariate test in this study analyzed the correlation of independent variables with the dependent variable, which resulted in safety awareness variable having a greater influence on unsafe action over knowledge of OSH and both independent variables were able to explain the dependent variable by up to 48.2%. The results could be used as a guide for hospitals to avoid unsafe actions by developing OSH awareness programs, executing OSH training, conducting regular inspections, and implementing report programs for unsafe actions, unsafe conditions, and work accidents.

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