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Analysis of The Effect of Potential Work Accidents on Nurses At Labuang Baji Hospital In South Sulawesi Province, Indonesia

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ABSTRACT

According to the International Labor Organization, every year around 2.78 million workers die due to work accidents and occupational diseases. Nurses are the health workers who are the most numerous and have the longest contact with patients, so their work is very risky. BPJS Employment also stated that 34.43% of work accidents were caused by unsafe actions. This is a cross-sectional study. The population and sample used were nurses who worked in the inpatient unit and emergency room at RSU Labuang Baji based on inclusion and exclusion criteria. Data analysis uses multiple linear regression analysis which aims to determine the extent to which certain independent variables influence the dependent variable. Based on the results of the multiple linear regression multivariate test, it shows that of the 133 respondents, the most influential variable among the other variables is the negligence variable with a significant value of 0.002, where the result is smaller than 0.05 and has a positive sign, while the result of the Standardized Beta Coefficient is -0.373. smaller than other variables, meaning that the negligence variable has a negative and significant effect on the potential for work accidents. This study concludes that there is no influence of knowledge, attitude, or fatigue, while there is a significant influence of negligence on the potential for work accidents for nurses at RSU Labuang Baji.

Keywords: Occupational Accidents, Nurses, Health Service Facilities

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INTRODUCTION

Occupational Health and Safety (OHS) efforts must be carried out in all workplaces, especially workplaces that have a risk of health hazards, are susceptible to disease or have at least 10 employees (1). Labor is a resource that acts as a driving force in work and can be said to be the spearhead of a job, so that labor should be more considered and protected. Occupational Safety and Health (OHS) is safety that includes all types of workplaces on land, air, water surface, even in the ground, which are targeted in work safety regarding occupational risks and hazards (2).

Based on data released by *International Labour Organization* (ILO), every year about 2.78

million workers die due to occupational accidents and occupational diseases. About 83.6% (2.4 million) of these deaths were caused by occupational diseases and another 13.7% (380,000) were caused by occupational accidents. *International Labour Organization* (ILO) also reported that every day, about 860,000 workers experience workplace accidents and occupational diseases worldwide and 6,400 workers die from occupational accidents and occupational diseases. According to *National Safety Council*, in the United States there are more than 10,000 cases of fatal accidents and more than 2,000,000 cases occur every year with losses reaching more than 65 billion USD (3).

In Indonesia, based on data released by the Social Security Organizing Agency (BPJS) Employment, the number of work accident cases tends to have increased significantly over the past six years. In 2017, the number of work accidents was recorded at 123,040 cases of work accidents with total claims of Rp. 971.62 billion. In 2018 there were 173,415 work accidents with total claims of Rp. 1.22 trillion. Then in 2019 there were 182,835 work accidents with total claims of Rp. 1.3 trillion. In 2020 alone, there were 221,740 work accidents. In 2021, the number of work accidents was 234,270 cases and in 2022, 265,334 cases of work accidents were recorded (4).

BPJS Employment for Sulawesi and Maluku regions noted that in 2020, there were 2,679 cases of work accidents, of which 397 cases were recorded in South Sulawesi Province (5). OHS behavior in the workplace that has been formulated by WHO consists of 6 main or main elements. These elements are related to thoughts and feelings (*thoughts and felling*) i.e. knowledge, perceptions, attitudes, education, workplace, and type of work (6).

The South Sulawesi Provincial Health Office recorded the number of nurses in different hospitals in 2014 as many as 9,289 nurses, in 2015 there were 11,019 nurses and in 2016 there were 11,005 nurses (7). Several hospitals with the number of inpatient visits include the Makassar Haji Regional General Hospital in 2020 there were 573 patients (8). Meanwhile, the number of inpatient visits at TK II Pelamonia Hospital in Makassar City in 2021 with the number of inpatient visits was 954 patients and increased by 10% to 15% every year (9). In contrast to the number of inpatient visits of the Labuang Baji Regional General Hospital, South Sulawesi Province, which has a fairly high number of inpatient visits and is increasing every year.

Based on the results of the initial survey, it is known that there are various cases that occur in nurses related to unsafe actions and unsafe conditions that can potentially cause work accidents at Labuang Baji Hospital, South Sulawesi Province. There were 15 cases in October 2022 recorded in the OHS book in the hospital's emergency room. From January to December 2023, there were 32 cases in hospital emergency rooms recorded in the OHS book. In the inpatient treatment room itself, there were 46 cases of work accidents due to unsafe actions and unsafe conditions carried out by nurses in 2023. These cases include nurses who experience a decrease in physical conditions such as fever, headache and pain in the back, waist or spine, needle pricked, scalpel incisions, falls and exposure to patient body fluids.

According to the secretary of the OHSRS unit at Labuang Baji Hospital, South Sulawesi Province, unsafe actions carried out by nurses are one of the causes of work accidents. The head of the Emergency Room and the Person in Charge of the Emergency Room as well as the head of the OHSRS unit have appealed to nurses to wear PPE, but there are still those who are not obedient in wearing PPE while working. By using PPE which is considered to interfere with comfort while working and high confidence in performing a medical action to patients, nurses are reluctant to use PPE that should be used so they ignore their own safety while working so this becomes the cause of accidents and work pain.

Efforts needed to protect nurses and hospitals so as not to cause potential work accidents due to unsafe actions or unsafe conditions are to make occupational safety and health efforts. In accordance with Law number 1 of 1970 and Law number 13 of 2003 which states that every worker is obliged to comply with company rules and every company is obliged to protect workers from work accidents. Seeing the low level of awareness of nurses on potential hazards in the work environment, as well as to improve the quality of service to patients so as to realize the goal of *zero accident* in hospitals, researchers are interested in conducting research on "Analysis of the Effect of Potential Work Accidents on Nurses at Labuang Baji Hospital, South Sulawesi Province."

METHOD

The type of research used is quantitative research with a descriptive approach. The study was conducted in the Inpatient Unit and Emergency Department (IGD) of Labuang Baji Hospital, South Sulawesi Province. The study was carried out for two months, from January to February 2024. The population in this study was all nurses working in the Inpatient Unit and IGD of Labuang Baji Hospital, South Sulawesi Province, which was 199 nurses. The sample size in this study using the Slovin formula for nurses in the emergency room and inpatient unit of Labuang Baji Hospital, South Sulawesi Province, during 2023, then obtained the results of 133 respondents.

The technique used for sampling in this study is *probability sampling* with *proportionate stratified random sampling* techniques. The data sources used are primary data obtained through interviews using questionnaires, secondary data obtained through documentation studies, data from Labuang Baji Hospital South Sulawesi Province such as hospital health profiles, organizational structure, patient visit data and others, and tertiary data obtained through literature studies such as books, journals, scientific papers, electronic sources and literature that has to do with the object of research. The types of data analysis used are univariate, bivariate and multivariate multiple linear regression analysis.

RESULT

Univariate Analysis

Table 1. Distribution of Respondents at Labuang Baji Hospital, South Sulawesi Province in 2024

	n	%
Age		
20-30 Years	18	13,5
31-40 Years	61	45,9
41-50 Years	48	36,1
51-60 Years	6	4,5
Gender		
Man	27	20,3
Woman	106	79,7
Period of Service		
≤ 5 years	30	22,5
> 5 years	103	77,5
Knowledge		
Not Good	13	9,8
Good	120	90,2
Attitude		
Not Good	11	8,3
Good	122	91,7
Fatigue		
Low	0	0
Keep	4	3,0
Tall	57	42,9
Very High	72	54,1
Negligence		
Low	3	2,3
Tall	130	97,7
Potential Work Accidents		
Low	123	92,5
Tall	10	7,5

Source: Primary Data, 2024

Based on table 1, it shows that respondents are dominated by 31-40 years old as many as 61 people (45.9%). Respondents were dominated by women as many as 106 people (79.7%). Respondents were dominated by their working period of more than 5 years as many as 103 people (77.5%). Respondents were dominated by good knowledge related to OHS as many as 120 people (90.2%). Respondents were dominated by good attitudes related to OHS as many as 122 people (91.7%). Respondents were dominated by very high levels of fatigue as many as 72 people (54.10%). Respondents were dominated by high fatigue levels as many as 130 people (97.7%). Respondents were dominated by the low potential for work accidents as many as 123 people (92.5%).

Bivariate Analysis

Table 2. The Influence of Knowledge, Attitudes, Fatigue and Negligence with the Potential for Work Accidents at Labuang Baji Hospital, South Sulawesi Province in 2024

Variable	Potential Work Accidents						P Value	Regression Test
	Tall		Low		Total			
	n	%	n	%	N	%		
Knowledge								
Not good	0	0	13	100	13	100	0,279	0,084
Good	10	8,3	110	91,7	120	100		
Attitude								
Not good	10	90,9	1	9,1	11	100	0,000	0,599
Good	0	0	122	100	122	100		
Fatigue								
Keep	0	0	4	100	4	100	0,010	0,904
Tall	0	0	57	100	57	100		
Very high	10	13,9	62	86,1	72	100		
Negligence								
Tall	10	7,7	120	92,3	130	100	0,617	0,002
Low	0	0	3	100	3	100		

Source: Primary Data, 2024

Based on table 2 shows that the results of the *Chi square Statistical Test* obtained a value of $p = 0.279 > 0.05$ and the T Test of multiple linear regression models obtained a value of $\alpha = 0.084 > 0.05$, then H_0 was accepted and H_a was rejected, meaning that there is no influence between knowledge and the potential for work accidents.

The results of the *Chi square Statistical Test* obtained a value of $p = 0.000 < 0.05$ and the results of the T Test of multiple linear regression models obtained a value of $\alpha = 0.599 > 0.05$, then H_0 was accepted and H_a was rejected, meaning that there was no influence between attitude and the potential for work accidents.

The results of the *Chi square statistical test* obtained a value of $p = 0.010 < 0.05$ and the results of the T Test of multiple linear regression models obtained a value of $\alpha = 0.904 > 0.05$, then H_0 was accepted and H_a was rejected, meaning that there was no influence between fatigue and the potential for work accidents.

The results of the *Chi Square test* obtained a value of $p = 0.617 > 0.05$ and the results of the T Test of multiple linear regression models obtained a value of $p = 0.002 < 0.05$, then H_0 was rejected and H_a was accepted, meaning that there is an influence between negligence and the potential for work accidents.

Multivariate Analysis of Multiple Linear Regression

Table 3. Analysis of Potential Work Accidents in Nurses at Labuang Baji Hospital, South Sulawesi Province in 2024

Type	Unstandardized Coefficient	Standardized Coefficients	T	Sig.
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	B	Std. Error	Beta		
Constant	60,831	7,208		8,439	0,000
X1_Pengetahuan	-0,264	0,152	-0,221	-1,743	0,084
X2_Sikap	0,050	0,096	0,680	0,526	0,599
X3_Kelelahan	0,110	0,094	0,150	0,121	0,904
X4_Kelalaian	-0,443	0,142	-0,373	-3,116	0,002

Source: Primary Data, 2024

Based on table 3, the multivariate results of multiple linear regression tests show that of the 133 respondents, the most influential variable among other variables is the negligence variable with a significant value of 0.002 where the results are smaller than 0.05 and have a positive sign, while the results of *the Standardized Coefficients Beta* -0.373 is smaller than other variables, meaning that the negligence variable has a negative and significant effect on the potential for work accidents. The conclusion of this study is not a influence of knowledge, attitude, fatigue, while there is a significant influence on negligence on the potential work accidents of Labuang Baji Hospital nurses.

DISCUSSION

The Effect of Knowledge with the Potential for Work Accidents

According to Notoatmodjo, knowledge is the result obtained from the process of sensory observation of a particular object. These observations are through the senses he has ranging from the eyes, ears, nose, and so on. Workers with good knowledge are able to manage risks in the workplace because of a good understanding in workers. This study measures nurses' knowledge based on nurses' understanding of the function of Standard Operating Procedures (SOP), causes and sources of hazards, the function of OHS posters and signs, MSDS functions, and minimum PPE standards when working in hospitals.

The results showed that nurses with good knowledge were greater than nurses with less good knowledge. The results of the statistical test obtained a P-value of 0.084 which means that knowledge has no influence on the potential for work accidents at Labuang Baji Hospital, South Sulawesi Province in 2024. This happens because if high knowledge is not supported by awareness to continue to behave safely, so the potential for work accidents is still quite low. A person's knowledge cannot fully determine the occurrence of potential work accidents, nurses who have good knowledge do not make it also avoid work accidents. This is because a person's knowledge has several levels to contribute to the potential that can cause work accidents. The level starts from the first one, namely *know*, then understanding (*comprehension*), application (*application*), analysis (*analysis*), synthesis (*synthesis*) and finally the level of evaluation (*evaluation*).

The process of knowledge to potentially cause work accidents through several levels, so that knowledge does not fully affect the potential for work accidents. The highest level will be reached when

there is increased awareness and positive attitude, then the potential for work accidents will also not occur. The results of this study are in line with research conducted by Rahmawati and Hananingtyas (2020) at the Transmission Service Unit (UPT) Cawang which shows that workers' knowledge is not related to unsafe behavior that has the potential to cause work accidents (10).

This shows that the potential for work accidents is not only based on knowledge, but also awareness and positive attitude. With this, the potential for work accidents will not occur (11). Although the knowledge of nurses at Labuang Baji Hospital is good, it is necessary to maintain and improve this knowledge by conducting socialization about OHS in the workplace. Such socialization can be in the form of *Safety Talk* which can affirm and increase workers' awareness of potential hazards that exist in the workplace and the minimum standards of PPE that needs to be used for work.

The Effect of Attitude with the Potential for Work Accidents

Attitude by definition is a response, reaction or judgment of a person to an object and will drive that person's behavior or actions. Newcomb and Notoatmodjo (2012) say that attitude is a closed response and is a person's readiness to do something. The tendency of good or bad attitudes will be influenced by the information obtained by the person (12). Attitudes in occupational safety and health science are defined as good or poor responses or responses from workers to OHS. The attitude in this study was measured through several components of questions in the form of nurses' responses regarding SOPs at work, causes and sources of work hazards, the function of OHS signs and posters, the importance of PPE and *Material Safety Data Sheet* (MSDS), as well as the urgency of reporting occupational hazards.

The results of the frequency distribution show that nurses at Labuang Baji Hospital have a good attitude and the potential for work accidents is low at 92.6% and workers who have a bad attitude and the potential for work accidents is high at 7.4%. The results of the analysis using the T Test multiple linear regression model showed that there was no relationship between attitude and potential work accidents in nurses at Labuang Baji Hospital with a Pvalue value of 0.599. This result is not in line with research with research by Shiddiq, et al (2014) and Pratiwi, et al (2019) which states that attitudes have a correlation with unsafe behavior that has the potential to cause work accidents. Although attitude has many factors until it eventually becomes a behavior, but attitude can affect behavioral intentions. Attitude has 4 levels, namely accepting, responding, appreciating, and being responsible (13,14). Accidents that have occurred at Labuang Baji Hospital can indicate that the attitude is not good in line with the potential for work accidents. Accidents that have occurred have occurred due to nurses not using PPE, inappropriate use of PPE, lack of information related to tools and materials used, inappropriate PPE, and lack of experience in running tests. This is not in line with the results of research that shows that the negative attitude of nurses at Labuang Baji Hospital who work regarding the low number of nurses who understand the urgency of using MSDS before work, so that workers are less concerned with how to work safely.

Effects of Fatigue with the Potential for Work Accidents

Fatigue in general, the occurrence of work accidents is caused by physical and human factors. Physical factors, such as unsafe worker environmental conditions, minimal lighting, slippery floors, glare, and others. While the human factor, namely the behavior of workers who do not meet safety, such as drowsiness, fatigue, and so on. Various work accidents that occur show that the human factor is the biggest cause (15). Physical workload is also a contributing factor to fatigue. Where the physical workload in a certain situation results in reduced muscle performance, the symptoms shown are also in the form of lower movement. This situation is caused not only by a single cause such as too hard workload, but also by pressures that accumulate every day over a long period of time. This protracted condition results in deterioration of health, also called clinical or chronic fatigue (16).

The results of frequency distribution show that nurses at Labuang Baji Hospital have high fatigue with a low potential for work accidents of 81.9% and workers who have high fatigue with a high potential for work accidents of 18.1%. The results of the analysis using the T Test multiple linear regression model showed that there was no relationship between fatigue and the potential for work accidents in nurses at Labuang Baji Hospital with a Pvalue value of 0.904. Work fatigue experienced by workers is generally caused by several things such as extreme work environments such as work environments with hot temperatures, lack of calorie needs needed by the body, work shifts and insufficient rest time that causes a decrease in work performance and concentration so that it can trigger unsafe actions that can lead to work accidents.

Effects of Negligence with Potential Work Accidents

Work accidents generally occur not because of the wishes of the workforce itself, but are caused by negligence of the labor, environmental factors and equipment factors. Negligence related to work accidents is regulated in Law Number 1 of 1970 concerning Work Safety so that it regulates different sanctions and finds benchmarks. Negligence is the failure to behave with the level of caution that a reasonable person would in a similar situation. During this time *human error* or human negligence is often cited as the cause of accidents. Negligence in recognizing the situation and negligence in making decisions to act at work become dominant factors in the occurrence of accidents (17).

The results of frequency distribution show that nurses at Labuang Baji Hospital have low negligence with a high potential for work accidents of 1.6%, nurses who have high negligence with a low potential for work accidents of 92.36% and nurses who have high negligence with high work potential of 7.64%. The results of the analysis using the T Test multiple linear regression model showed that there was a significant influence between fatigue and the potential for work accidents in nurses at Labuang Baji Hospital with a Pvalue value of 0.002. The results of this study are also in line with research conducted by Guritnaningsih (2018) which explains that human factors are classified as internal factors because they come from within themselves that affect behavior, such as skills, personality, attitudes, and fatigue. The human factor is often designated as the main factor causing accidents. About 90 percent of accidents are caused by human negligence. Reason et al. (1990) in Guritnaningsih (2018), divide human negligence

(*human error*) into four basic classifications, namely attentional negligence (*slips*), memory negligence (*lapses*), error (*mistakes*), and violations (*violations*) (17).

The Most Influential Variables with the Potential for Work Accidents

Based on the results of the analysis that has been carried out by researchers shows that of the four variables that most influence the potential for work accidents are work negligence variables, from the results of multiple linear regression tests obtained a significant value of 0.002 where the results are smaller than 0.05 and have a positive sign, while the results of *Standardized Coefficients* A beta of -0.373 smaller than other variables, meaning that the negligence variable has a negative and significant effect on the potential for work accidents.

In this study, work negligence plays an important role in the potential for work accidents in nurses at Labuang Baji Hospital. Therefore, researchers assume that work negligence plays an important role in the potential for work accidents where the more nurses often commit negligence, the higher the potential for work accidents to occur in the work environment, on the contrary, the less often nurses commit negligence, the lower the potential for work accidents.

CONCLUSION

Based on the results and discussion, it can be concluded that: 1). There is no influence of knowledge on the potential for work accidents in nurses at Labuang Baji Hospital, South Sulawesi Province 2024, ($r = 0.12$) and Pvalue $0.84 > 0.05$. 2). There is no influence on attitudes towards potential work accidents in nurses at Labuang Baji Hospital, South Sulawesi Province 2024, ($r = 0.033$) and Pvalue $0.599 > 0.05$. 3). There is no effect of fatigue on the potential for work accidents in nurses at Labuang Baji Hospital, South Sulawesi Province, 2024, ($r = 0.001$) and Pvalue $0.904 > 0.05$. 4). There is an effect of negligence on the potential for work accidents in nurses at Labuang Baji Hospital, South Sulawesi Province 2024, ($r = 0.000$) and Pvalue $0.002 < 0.05$. 5). The most dominant variable affects the potential for nurse work accidents at Labuang Baji Hospital South Sulawesi 2024, with multiple linear regression test results obtained a significant value of $0.002 < 0.05$ and a positive sign, while the results of *Standardized Coefficients* beta -0.373 are smaller than other variables, meaning that the negligence variable has a negative and significant effect on the potential for work accidents.

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