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THE RELATIONSHIP BETWEEN KNOWLEDGE AND ATTITUDE LEVELS WITH THE BEHAVIOR OF USING PERSONAL PROTECTIVE EQUIPMENT (PPE) IN DIVERS USING COMPRESSOR EQUIPMENT IN DORO VILLAGE, NORTH KAO DISTRICT, NORTH HALMAHERA REGENCY IN 2022

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ABSTRACT

Background: The coastal pandan plant (*Pandanus odorifer*) has biological properties, namely anti-inflammatory, antioxidant, anticancer, antitumor, antiviral, antidiabetic and cholesterol-lowering activities. **Objective:** This study aimed to determine the toxicity level of ethanol extract of coastal pandan leaves (*Pandanus odorifer*) to shrimp larvae (*Artemia salina* Leach) by BSLT method. **Method Research:** The sample used in this study was 200 grams of coastal Pandan simplisia powder (*Pandanus odorifer*) which had been dried at room temperature. 2 maceration processes were carried out using 70% ethanol solvent. The concentration of the test solution is 500 mg/L, 250 mg/L, 100 mg/L, 50 mg/L and 0 mg/L.

Research Results: of the toxicity test of sea pandan ethanol extract on shrimp larvae (*Artemia salina* Leach) obtained an LC50 value of 68.43 mg / L showing that the toxic level in sea pandan leaves has a fairly strong toxic level.

Conclusion: from the results of the research carried out are recommended to conduct further research, namely the identification of pure compounds present in coastal pandan leaves (*Pandanus odorifer*) so that they can be used as herbal medicines or new drug findings.

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PRELIMINARY

Indonesia is an archipelagic country; almost 70% of its territory consists of the sea. In geographical conditions like this, most coastal residents have livelihoods as fishermen. Traditional divers are scattered throughout Indonesia, especially in coastal areas and islands, but until now, there has been no accurate data regarding the whereabouts of these traditional divers.¹ North Maluku is a province in Indonesia, officially formed on October 14, 1999, through RI Law number 46 of 1999 and RI Law number 6 of 2003. And is a maritime area in Indonesia, and many compressor divers in North Maluku.²

Personal protective equipment is a set of tools workers use to protect all or part of their bodies from potential hazards or work accidents.³ Traditional divers are a profession that many mining or fish-seeking fishermen do. Fishermen use compressors to set traps (fish traps) on the reef, looking for sea cucumbers or pearl shells.⁴

The accident rate in the United States, where Caisson Disease (CD) incidence for type II (severe) is 2.28 cases per 10,000 divers. Meanwhile, for type I (mild), the number of cases is unknown because many divers do not seek treatment. Experience decompression sickness in the United States for military diving 1 case per 3,770 dives and tourism diving 1 case per 2,900 divers annually.⁵

In a survey conducted by the Indonesian Ministry of Health, with 251 diver respondents in 9 provinces with complaints that were often felt included 21.2% with complaints of dizziness/headaches, 12.6% felt tired, 12.5% decreased hearing frequency, 10.8 % felt pain in the joints, 10.2% bleeding in the nose, 9.7% pain in the chest/shortness of breath, 6.4% decreased vision, 6.0% spots on the

skin, 5.6% animal bites, 3, 2% paralyzed and 1.7% experienced a loss of consciousness.⁶

The activities of traditional divers in Doro Village, Kao Utara District, are still standing or not by health procedures. In general, fishing gear and personal protective equipment are boats, jubi fishing gear, compressor machines, masks, and frog legs. This condition impacts divers' health due to the lack of knowledge and awareness and negligence of traditional divers in this village resulting in casualties such as the risk of paralysis or paralysis, up to death.

Nursing is a profession that emphasizes the attitude of "care" or concern and affection for patients. Nursing services are a unique form that distinguishes them from health services provided by doctors or other professions.⁷

Based on the background of the problem above, the researcher conducted a study, "The relationship between knowledge and attitudes with the use of personal protective equipment (PPE) in compressor divers."

RESEARCH METHODS

The research design provides a framework for data collection and analysis. The choice of research design reflects priorities that will deliver multiple dimensions to the research process. The research design in this study used a *descriptive cross-sectional approach*, namely research conducted at a particular time in the population or research on samples that are part of the population. The sampling technique used in this study was quota sampling, and the number of pieces used was 25 samples. The research was carried out on a group of compressor diver fishermen paralyzed in Doro Village, North Kao District, North Halmahera Regency. The statistical analysis used was the 95% confidence level chi-square test.

RESEARCH RESULT

Characteristics of Respondents

The respondents' characteristics included age, education level, and length of work.

The following are the results obtained from the collection and processing of the data used, namely:

Table 1. Characteristics of research respondents

No	Characteristics of respondents	Frequency	Percentage (%)
1	Age		
	21-30 years	5	20
	31-40 years	12	48
	41-50 years	6	24
	>50 years	2	8
	Total	25	100
2	Level of education		
	SD	10	40
	JUNIOR HIGH SCHOOL	10	40
	SENIOR HIGH SCHOOL	5	20
	Total	25	100

Based on the results in Table 1, it shows that the highest age of diver respondents was in the 31-40 year age category with a total of 12 respondents (48%), and the lowest age of respondents was in the >50 year age category with two respondents (8%). Based on the

results in the table, it can be seen that the education level of most respondents was in the junior and elementary education categories, namely ten respondents (40%) each, and high school education as many as five respondents (20%)

Knowledge level

Based on the data in Table 2, it can be seen that most respondents knowledge level has a low level of expertise, namely 19 respondents

(76%), and a good level of understanding of 6 respondents (24%).

Table 2. Knowledge of Respondents

Knowledge category	Frequency	Percentage (%)
Well	6	24
Not enough	19	76
Total	25	100

Attitude

Based on the data in table 3, it can be seen that the attitude of most respondents has a low level of philosophy, namely 19

respondents (76%) and a good perspective of 6 respondents (24%).

Table 3. Attitude of Respondents

Attitude Category	Frequency	Percentage (%)
Well	6	24
Not enough	19	76
Total	25	100

PPE Usage Behavior

Table 4. Respondents' use of PPE

Knowledge category	Frequency	Percentage (%)
Use	6	24
Do not use	19	76
Total	25	100

Based on the data in Table 4, it can be seen that the behavior of using PPE is mainly not using PPE, namely 19 respondents (76%),

and using PPE as many as six respondents (24%).

Level of Knowledge of Respondents on PPE Usage Behavior

Based on data from Table 5, it shows that six respondents (24%) had good knowledge and did not use PPE and 0 respondents (0%) did not use PPE, while 0 respondents (0%) had less knowledge and used PPE. and not using PPE as many as 19 respondents (76%).

Based on the results of the *Chi-Square statistical test*, $p=0.000 < \alpha = 0.05$, then H_0

is rejected, H_1 is accepted, which means that the level of knowledge and the behavior of using PPE in traditional divers who use compressors in Doro Village, while the correlation coefficient value is interpreted that the strength of the relationship between variables is at a very high or extreme level.

Table 5. Relationship between Knowledge Level and PPE Usage Behavior

Research Variables	PPE use				Total	
	Use		Do not use			
Knowledge level	N	%	N	%	N	%
Well	6	24	0	0	6	24
Not enough	0	0	19	76	19	76
Total	6	24	19	76	25	100
$\alpha=0.05$	$r=1$				P Value =0.000	

Respondents' attitudes towards the behavior of using PPE

Based on the data in the table above, it can be seen that six respondents (24%) had a good attitude and did not use PPE, and 0 respondents (0%) did not use PPE, while 0 respondents (0%) had a poor attitude and used PPE. and not using PPE as many as 19 respondents (76%).

Based on the results of the *Chi-Square statistical test*, $p=0.000 < \alpha = 0.05$, then H_0

is rejected, H_1 is accepted, which means that the attitude and behavior of using PPE in traditional divers who use compressors in Doro Village, while the correlation coefficient means it is interpreted that the strength of the relationship between variables is at a very high or extreme level.

Table 6. Respondents' Attitudes Towards PPE Usage Behavior

Research variable	PPE use				Total	
	Use		Do not use			
Attitude	N	%	N	%	N	%
Well	6	24	0	0	6	24
Not enough	0	0	19	76	19	76
Total	6	24	19	76	25	100
$\alpha=0.05$	$r=1$				P Value =0.000	

DISCUSSION

Relationship between Knowledge Level and PPE Usage Behavior

Individuals have a high level of knowledge when they can answer correctly, with an average above 75%. The results of this study can be said that respondents generally have increased knowledge about using PPE. ⁷ Based on the study's results, it was found that most traditional divers had a low level of knowledge about using PPE at work, namely as many as 19 respondents (76%). From the results of a bivariate analysis, it is known that the value is significant. Amounting to 0.00 or less than 0.05 ($p < 0.05$) and the importance of $r = 1$. Thus, there is a substantial relationship

between the level of knowledge and the behavior of using PPE.

The results of this study are in line with research conducted by Syekura and Febriyanto ⁸ regarding their research on the level of knowledge of PPE use and work accidents in divers, which said that the majority of respondents (60.2 %) had a low level of knowledge about the use of PPE so that there was a risk of work accidents. Another study, namely Adriansyah.⁹ research regarding the knowledge and behavior of using PPE, showed a relationship between the level of understanding of PPE and K3 with the conduct of using PPE.

Knowledge is closely related to education, where it is hoped that the person will have a more comprehensive understanding of higher education. However, it needs to be emphasized it does not mean that someone with low education has insufficient knowledge. This is considering that increased knowledge is not obtained through formal education. One's ability contains two aspects, namely, positive aspects and negative aspects. These two aspects will determine a person's attitude; the more positive elements and objects are known, the more positive attitudes towards particular objects will arise.¹⁰

From the description above, it can be concluded that traditional divers have good knowledge know the types of personal protective equipment used when working. Traditional divers who use more compressors have less understanding about using PPE. This is because many divers need to learn about the benefits of PPE, the types of PPE, and the conditions for using PPE. The influencing factors are the respondents' age and education level, so their understanding and knowledge still need to be improved. In other words, the higher and better the diver's ability, the better the diver will be at using PPE at work.

Correlation between Attitude and PPE Use Behavior

Based on the study's results, it was found that most traditional divers had a low level of knowledge about using PPE at work, namely 19 respondents (76%). The chi-square test results show that the significant value of the probability of attitude is $\text{sig-p} = 0.00$ or $< \text{sig } \alpha = 0.05$, and the importance of $r = 1$. This proves that the philosophy of traditional divers has a relationship with the use of personal protective equipment (PPE). In line with research conducted by Rorimpandey¹¹ which concluded that there is a relationship between attitudes and the use of PPE in welding workers.

Attitude is a person's closed response to a specific stimulus or object that already involves the opinion and emotional factors concerned. Attitude is a person's feelings, thoughts, and tendencies that are more or less permanent about certain aspects of his environment. Attitude is an evaluative inclination towards a stimulus or object that impacts how a person deals with that object. This means the attitude of showing one's approval or disapproval, one's likes or dislikes towards something.

Attitude measurement can be done by assessing a person's attitude statement. An attitude statement is a series of sentences that say something about the object of the attitude to be expressed. The attitude statement may contain or say positive things about the attitude object, the sentence is supportive or in favor of the attitude object.

According to the researcher's assumptions, attitudes and knowledge are inseparable factors because after the knowledge possessed is good, perspectives must be able to work well, too, as is the case with this study, where the majority of divers' attitudes were in the less category. This incident was because the divers did not react positively to work safety activities such as using PPE. Traditional divers still lack attitude regarding using PPE due to a lack of supervision, training, and outreach about PPE to reduce the risk of work accidents.

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