

Original Article

Knowledge and Attitudes Relating to Barotrauma Incidents, Fishermen Communities in Buko Village, Banggai District, Central Sulawesi Islands

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ABSTRACT

Exclusive breastfeeding begins within one hour after birth until the baby is six months old. Early initiation of Diving is a technique that is often carried out by fishermen in Batangono village with traditional techniques without using tools, from their knowledge that diving is obtained from generation to generation so that the consequences of diving activities have an impact on health, and the attitude shown in the Barotroma incident is also still lacking in handling. The aim of the research is to know the relationship between knowledge and attitudes, the incidence of Barotrauma in the community in Batangono Village, Buko District, Banggai Islands Regency. This research method uses a cross sectional approach. A sample of 42 respondents was selected from the Islands using purposive sampling. Data collection was carried out in January 2023. Data analysis used the Mann Whitney test. The results of this study show that the incidence of barotrauma is 68.4%. The results of the analysis show that there is a relationship between knowledge and events of barotrauma in the community with a p-value = 0.05. The attitude variable obtained a p-value = 0.02, meaning that there is a relationship between attitude and barotrauma events in society. The conclusion is that there is a significant relationship between knowledge and attitudes with the incidence of barotrauma in the community, suggestions for standard diving procedures to prevent barotrauma, and health agencies play a role in disseminating information about diving health.

Keywords: Knowledge, Attitude, Barotrauma.

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INTRODUCTION

Barotrauma is tissue damage resulting from the direct effects of pressure. Pressure imbalance occurs when a person is unable to equalize the air pressure in the middle ear space when the water pressure increases or decreases. Extreme changes or imbalances between environmental pressures and internal pressures associated with body cavities can cause physical damage to the tissue lining of the cavities. The body cavities most at risk of experiencing barotrauma are the middle ear, paranasal sinuses, and lungs¹. The incidence of barotrauma in Indonesia in 2019 reached 54%, in 2020 it increased to 62%, and in 2021 it experienced a slight increase reaching 64%, this shows that the incidence of barotrauma is an

important focus of attention for the community and health facilities in handling barotrauma so as not to cause focus of problems that do not become an increase in cases every year². Traditional divers generally pay little attention to matters related to occupational safety and health, so they have the potential to be exposed to middle ear barotrauma, middle ear barotrauma occurs in 30% when diving for the first time and 10% in divers who have often dived³.

Banggai Islands Regency is a large sea area in the province of Central Sulawesi, which has a large population, the majority work as fishermen, both fishing and some catching fish by diving, the incidence of barotrauma in this district has also greatly increased every year, recorded from In 2020 there were 19 cases of

barotrauma, and in 2021 it increased to 22 cases, 1 of them died, and until June 2022 there were 8 patients with barotrauma cases (Banggai Islands District Health Office, 2021). The aim of the study was to determine the relationship between knowledge and attitudes with the incidence of barotrauma in the people of Batangono Village, Buko District, Banggai Islands Regency.

METHOD

This research is a type of analytical research. This research is to see the relationship between knowledge, attitudes and actions with the incidence of barotrauma in the people of Batangono Village, Buko District, Banggai Islands Regency. Data collection was carried out in a cross-sectional way where data collection was carried out by looking at the independent variables and the dependent variable at the same time. This research was conducted in Batangono Village, Buko District, Bangkep Regency. The population is all people who work as fishermen in Batangono Village, Buko District, Banggai Islands Regency, totaling 42 people. The sampling technique is the total population. Data collection, primary data, data sourced from fishermen, and secondary data, data obtained from incident reports at the Puskesmas. Processing data in an univariate way, namely analysis of proportions or percentages by comparing the cross distribution between the two variables concerned and bivariate analysis of the results of the chi square statistical test with a confidence level of 95% where if the P value $< \alpha$ (0.05).

RESULTS

Table 1. Characteristics Respondents in Batangono Village, Buko District, Banggai Islands Regency.

Gender	Frequency (f)	Percentage (%)
Man	42	100
Age		
30 – 38 Year	11	26,3
39 – 47 Year	8	19,0
48 – 56 Year	15	35,7
57 – 64 Year	8	19,0
Education	Frequency	Percentage (%)
Elementary	29	69,0

Junior high	13	31,0
Income	Frequency (f)	Percentage (%)
Rp. 500.000	30	71,4
Rp. 800.000	7	16,7
Rp. 700.000	5	11,9
Rp.1.000.000>	0	0
Diving Depth	Frequency (f)	Percentage (%)
2 – 5 M	12	28,6
6 – 10 M	28	66,6
10 > M	2	4,8
Pain in the ear	Frequency (f)	Percentage (%)
Never	4	9,5
Once	38	90,5
Knowledge	Frequency (f)	Percentage (%)
Good	23	54,8
No Good	19	45,2
Attitude	Frequency (f)	Percentage (%)
Good	24	57,1
No Good	18	42,9
Incident Barotrauma	Frequency (f)	Percentage (%)
Ever Experienced (Yes)	16	38,1
Haven't Experienced (no)	26	61,9

Source: Primary data processed

Based on table 1 of the 42 respondents, all were male or (100%) and seen from the age of the 42 respondents, the youngest age 30-38 years was 11 people or (26.3%), aged 39-47 years were 8 people or (19.0%), aged 48-56 years as many as 15 people or 35.7%), while aged 57-64 years as many as 8 people or (19%). Furthermore, judging from the education level of the 42 respondents, the lowest level of elementary school (SD) was 29 people or (69.0%) while the highest level of education was junior high school with 11 people or (31.0%). The average respondent's income is Rp. 500,000/month or (71.4%). The depth of diving made by the majority of respondents was 6-8 meters 28 (66.6%), and depths of more than 10 m 2 of respondents (4.7%). The majority of respondents had experienced ear pain as many as 38 (90.5%). Based on table 1 of 42 respondents, there were 23 people with good knowledge (54.8%), and there were 19 respondents who had poor knowledge (45.2%). Based on table 1 shows that of the 42 respondents who have the highest attitude, namely respondents who have a

good attitude as many as 24 respondents (57.1%). Based on table 1, out of 42 respondents, 16 people had experienced barotrauma or 38.1%, while 26 people had never experienced barotrauma or 61.9%.

Table 2. Relationship between knowledge and barotrauma events in the community in Batangono Village, Banggai Islands Regency

Knowledge	Barotrauma				Total (f)	p-Value
	Yes		No			
	f	%	f	%		
Good	10	43,5	13	6,5	23	0,00
Not good	6	31,6	13	8,4	19	
Total	16	38,1	26	1,9	42	

Source: Primary data processed

Table 2 above shows that of the 42 respondents who have good knowledge and understand related to barotrauma as many as 10 respondents (43.5%), who have good knowledge but do not know about barotrauma as many as 13 respondents (56.5%), knowledge is not good 6 respondents (31.6%) understood barotrauma, 13 respondents (68.4%) had poor understanding of barotrauma. Statistical test results with the Chi-Square test obtained a value of $p = 0.00$ ($P < 0.05$) means that there is a relationship between knowledge and barotrauma events in the people of Batangono Village, Banggai Islands Regency. The contingency coefficient test results obtained 0.673 results indicating that there is a relationship between knowledge with the incidence of barotrauma in the community in Batangono Village, Islands Regency.

Table 3. The relationship between attitude and barotrauma in the people of Batangono Village, Banggai Islands Regency.

Attitude	Barotrauma				Total (f)	p-Value
	Yes		No			
	f	%	f	%		
Good	10	41,7	14	58,3	26	0,02
Not good	6	33,3	12	66,7	14	
Total	16	38,1	26	61,6	42	

Source: Primary data processed

Based on table 3 shows that of the 42 respondents who have a good attitude and understand barotrauma as many as 10 respondents (41.7%), and respondents who have a good attitude who do not understand barotrauma as many as 14 respondents (58.3%),

who have a bad attitude and 6 respondents (33.3%) understood barotrauma, and 12 respondents (66.7%) had a bad attitude and understood barotrauma. The results of the static test with the Chi-Square test obtained a value of $p = 0.006$ ($P < 0.02$) meaning that there is a relationship between attitudes and the incidence of barotrauma in the people of Batangono Village, Banggai Islands Regency. The results of the Contingency Coefficient test obtained the result of 0.682 indicating that there was a relationship between attitude and the incidence of barotrauma in the community in Batangono Village, Islands Regency.

RESULTS AND DISCUSSION

This study explores knowledge, attitudes, and barotrauma incidents in fishing communities in Batangono Village, Buko District, Islands Regency. Preliminary findings in this study indicate that most fishing communities in Batangono village have good knowledge and attitudes towards Barotrauma incidents. Ardiansyah et al. (2021) and Herman et al. (2020) who identified a good increase in knowledge from fishing communities. Besides that, this study identified a relationship between variables that were considered related to the incidence of barotrauma⁵. The results of the univariate analysis showed that out of 42 respondents who had good knowledge and understood related to barotrauma as many as 10 respondents (43.5%), who had good knowledge, but did not know about barotrauma as many as 13 respondents (56.5%), poor knowledge that 6 respondents (31.6%) understood barotrauma, 13 respondents (68.4%) had poor understanding of barotrauma. After the analytical test was carried out using the Chi-Square statistical test, a value of < 0.05 was obtained. The p-value < 0.05 . This shows that there is a significant relationship between knowledge and the incidence of barotrauma for respondents in the village of Batangono, Buko District, Islands Regency. In the research that has been done, the results obtained from the 42 respondents who had more elementary school (SD) education than those with higher education. The level of education influences the formation of a mindset that is open to new things. The most important knowledge is knowledge about equalizing techniques for underwater workers, because it greatly influences hearing loss⁶. Knowledge of the respondents includes knowledge about the use of

personal protective equipment, equalizing techniques, how to know the situation, sea conditions around the object of work, and unsafe work attitudes⁷. According to the results of research by Dharmawirawan and Modjo (2012), among traditional fishermen in the Thousand Islands, one of the things included in the identification of occupational safety and health hazards is the low knowledge of fishermen about safety diving⁴. Diving activities at a depth of more than 20m have a considerable risk to the safety and health of divers⁸. Diseases related to diving activities require special attention because diving activities can pose a risk to health⁹. This knowledge has an impact on occupational disorders and diseases on dives¹⁰. Tradition (culture) affects knowledge because someone who has a good culture will have good knowledge, but if the social culture is not good then the knowledge will be poor¹¹. When viewed from the age of the respondents, it can be said that they are still productive, have higher enthusiasm, will, and abilities¹². Education is one of the factors that will shape and increase fishermen's knowledge about barotrauma. The level of education can affect the quality of human resources. The higher the level of education, the pattern of thinking is also more advanced so that it will be faster in accepting innovation¹³. Knowledge is a very important domain for the formation of open behavior and the formation of a behavior based on the existence of knowledge that encourages someone to take an action¹⁴. 10 respondents (41.7%) had a good attitude and understood barotrauma, and 14 respondents (58.3%) had a good attitude who did not understand barotrauma, 6 respondents (33.3%) had a bad attitude and understood barotrauma (%), as well as respondents who had a bad attitude and understood barotrauma as many as 12 respondents (66.7%). Table 7 above shows the analysis of the relationship between attitudes and barotrauma events. The statistical test results using the Mann Whitney alternative test in the table above obtained a p-value = 0.006 (p-Value = <0.05). Means that attitude is related to barotrauma events in the community in Batangono village, Islands Regency, which means that there is a significant relationship between attitude and barotrauma events. The results of this study prove that attitudes can influence a person's health behavior¹⁵. The attitude is not good and does not understand the highest barotrauma because most respondents have less knowledge, the less knowledge a

person has, the less the way to respond to something he does not know¹⁶. This can also be seen from the low level of education, as a result of low knowledge can affect attitudes in handling barotrauma. Attitude is a response to a person's readiness or tendency to take action, be it accepting or rejecting a change¹⁷. A positive attitude is a person's tendency to accept the recommended behavior, while a negative attitude is a person's tendency to reject the recommended behavior¹⁸. The attitude of fishermen can be formed from experience through the learning process¹³. The end result of an attitude cannot be seen immediately but can only be interpreted from the behavior of someone who is extroverted. Attitudes can also shape innovation in changing society to take actions that are considered good¹⁹. Barotrauma events in society are more likely to avoid problems because things that are felt can be self-defeating²⁰.

CONCLUSION

Knowledge and attitude have a relationship with the incidence of barotrauma in the community in Batangono Village, Buko District, Bangai Islands Regency. It is recommended to carry out standard diving procedures to prevent barotrauma, and health agencies play a role in disseminating information about diving health.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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