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ORIGINAL ARTICLE

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THE RELATIONSHIP BETWEEN LONG AGE DIVING AND THE INCIDENCE OF DECOMPRESSION DISEASE IN LUARI VILLAGE, NORTH HALMAHERA SUB-DISTRICT, NORTH MALUKU PROVINCI

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ABSTRACT

Background: Decompression sickness is a disease caused by the presence of gas bubbles in the blood which can cause various complaints and symptoms such as headache, ear fullness, itching.. **Objective:** To see signs and symptoms of decompression sickness in divers in the village of Luari
The Research is to analyze the relationship between old age of diving and the incidence of decompression sickness in the Luari Village, North Tobelo District, North Halmahera Regency.

Research Results: This research design uses an analytic survey with a cross approach sectional . This research was conducted on divers in the village of Luari, North Tobelo District, North Halmahera Regency. Based on the results of the analysis with the chi-square statistical test that in get p value = 0.00 < (a = 0.05). Hence the p valuen is more small from a, so that Ho is rejected and Ha is accepted, which means that there is a significant (real) relationship between dive duration and decompression sickness.
Conclusion: There is a relationship between diving duration and decompression sickness in divers in the Luari Village, Tobelo Utara District, North Halmahera Regency with a p value = 0.00. There is no relationship between age and decompression sickness in divers in Luari Village, North Tobelo District, North Halmahera Regency with a p value = 0.143

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PRELIMINARY

Decompression is a disease caused by the formation and increase in the size of gas bubbles in the blood . causing Headaches, Numbness, Itching, Paralysis, joint pain, and can cause death.[1]

According to the WHO (Word Health Organization) 80% of divers who experience hearing loss problems live in developing countries. Data on the health of traditional divers in Southeast Sulawesi Province in 2017 there were 285 divers who experienced health problems including 83 people experiencing joint pain, 58 people experiencing headaches, 8 people experiencing paralysis, 4 people experiencing nosebleeds and 1 person who died. [3]

Preliminary data collection in the village of Luari on June 23 2022. The results were obtained from the village secretary, from the local village.

RESEARCH METHODS

A. **Type of Research**

The type of research used in this research is to use an analytic survey method, with a cross sectional approach. To see signs and symptoms of decompression sickness in divers in the village of Luari

B. **Population and sample**

1. Population There are 50 people in the village of Luari Tobelo Utara who do diving. It was obtained from interviews with the village secretary that out of the 50 divers who experienced decompression, 30 of them were due to long dives.
2. Research Place
   The location of this research will be held in the village of Luari on October 7, 2022.
3. Research time
   This research was conducted for 2 months, starting from October 7 to November 1, 2022.

Data analysis

Data analysis is interpreted as an effort to data that is already available and then processed with statistics and can be used to answer the formulation of the problem in this study, thus data analysis techniques can be interpreted as a way of carrying out analysis of data, with the aim of processing the data to answer the problem formulation.[22]

a. Univariate analysis
   Univariate analysis, which is an analysis that describes the independent and dependent variables in the form of a frequency distribution.

b. Bivariate Analysis

Bivariate analysis, namely the analysis was carried out to see the factors of the independent variables with the dependent variable using the chi square test with P = 0.05. at the 95% confidence level.

RESEARCH RESULTS
A. RESULTS

Table 4.6 The Relationship Between Length of Diving and Decompression Illness in Luari Village, Tobelo District, North Halmahera Regency

Long Dive	Decompression sickness				Total		P Value
	Caught		Not Affected				
	N	%	N	%	N	%	
At risk	11	76.8	6	37.5	17	100	0.023
No risk	3	21.4	10	62.5	13	100	
Total	14	100	16	100	30	100	

The table above shows that the duration of diving with the risk of developing decompression sickness is 11 respondents (76.8%) the duration of diving with the risk of not getting decompression sickness is 6 respondents (37.5%) the duration of diving without being at risk of developing decompression sickness is 3 respondents (21.4%) and duration of dives with no risk of not getting decompression sickness were 10 respondents (62.5%) affected or 0.(0.023)

Relationship between age and decompression sickness

Table 4.7 The relationship between age and decompression diving in divers in Luari Village, North Tobelo District, North Halmahera Regency.

Age	Decompression sickness				Total		P Value
	Caught		Not Affected				
	N	%	N	%	N	%	0.143
Risky	5	35.7	2	12.5	7	100	
No risk	9	64.3	14	87.5	23	100	
Total	14	100	16	100	30	100	

Analysis of the relationship between long diving age and decompression sickness that out of 5 respondents (35.7%) was at high risk. There were 2 respondents (12.5%) who were at high risk of developing decompression sickness, 9 respondents (64.3%) who did not have decompression sickness and 14 respondents (87.5%) who did not have decompression sickness. or 0.(0.143%)

DISCUSSION

The table above shows that the duration of diving with a risk of developing decompression sickness is 11 respondents 76.8%, the duration of diving with a risk of not getting decompression sickness is 6 respondents 37.5%, the duration of diving without being at risk of developing decompression sickness is 3 respondents 21.4 % and duration of dives with no risk of not getting decompression sickness was 10 respondents 62.5%.

From the results of the chi square statistical test, it was found that p = 0.023, so HO was $_{\text{rejected}}$ and H_1 was accepted, which means that there is a relationship between the independent variable and the dependent variable.

This result is strengthened by the results of research (Arif Parasetion) which states that the air we breathe while diving is the majority of oxygen and nitrogen, the binding of inhaled oxygen will have a positive impact on the body, but nitrogen gas will accumulate in the diver's body.

The results of this research also according to this research results in a decrease in seawater temperature, will increase the risk factor for decompression in divers by two times. In addition, the longer a person dives. The water temperature is getting colder. Therefore divers can lose body heat.

Reinforced by the health service journal. Age is not associated with the incidence of decompression sickness due to the *chi test square* obtained p = 0.285, this means that age is not related to the incidence of decompression sickness

The table above shows that the age at risk of developing decompression sickness is 5 respondents 35.7%, the age at risk not having decompression sickness is 2 respondents 12.5%, the age without being at risk of developing decompression sickness is 9 respondents 64.3%, and age not at risk of developing decompression sickness, namely 14 respondents 87.5%. Based on the chi square statistical test, p = 0.143, then H_1 is rejected and $_{HO}$ is accepted, which means there is no relationship between the independent variable and the dependent variable.

Reinforced by the health service journal. Age has no relationship with the incidence of decompression sickness due to the *chi test square* obtained p = 0.285, this means that age is not related to the incidence of decompression sickness

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusion

Based on the results of research on the factors associated with decompression sickness in divers in the village of Luari, Kec. Tobelo, Halut Regency. then it can be concluded as follows:

1. There is a relationship between duration of diving and decompression sickness among workers as divers in the village of Luari, Tobelo District, Halut Regency
2. There is no relationship between age and decompression sickness in workers as divers in the village of Luari, Tobelo District, Halut Regency

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