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The Relationship between Smoking and Hemoglobin Levels in Men Aged 30-40 Years in Nggaro Kumbe Hamlet

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Abstract: Smoking is the act of inhaling smoke resulting from burning plants such as Nicotiana rustica, Nicotiana tabacum, and other types of plants whose smoke contains dangerous substances such as nicotine and tar which have been converted into cigars. The aim of this research is to provide understanding and awareness to the public about the impact of smoking, so that it is hoped that it can reduce the rate of cigarette use. The method used in carrying out this research is a cross-sectional method and the data obtained is primary data taken using consecutive non-random sampling techniques. The materials used were a questionnaire to measure the respondent's smoking status and an Hb meter to measure the respondent's hemoglobin levels. The data analysis process was carried out using analytical tests, namely the Chi-square test with the test value said to be relevant or significant with a p-value <0.05. After conducting analytical tests, the results showed that there was a significant relationship between smoking frequency and hemoglobin levels (p=0.00), no relevant or significant relationship was found with type of cigarette (p=0.09) and duration of smoking (p=0.58) on hemoglobin levels. Researchers provide advice to the East Rabadompu Subdistrict to establish rules or policies that can reduce or eliminate smoking habits in the community. The entire community of East Rabadompu Subdistrict is expected to reduce or eliminate the habit of smoking considering the bad impact it can have on the wider community.

Keywords: Adulthood, hemoglobin, man, smoking.

Introduction

Smoking is something action inhale smoke from results burning shaped tobacco changed into cigar or the like. A person who performs an Action or smoke normal is called as smoker. By literally smoker can classified into 2 types that is smoker who smokes cigarette in a way direct (active), and a smoker who is someone who inhales cigarette smoke in a way no direct (passive) (Umbas et al., 2019), apart from that smokers can too shared based on frequency use cigarettes per day, starting from smoker light with frequency use cigarettes 1-10 cigarettes/day, moderate 11-20 cigarettes/day, and heavy >20 cigarette/day (Sari, 2020). Data obtained amount smoker globally available as many as 1.3 billion consisting of from smoker 942 million men and smoker women 175 million. Based on The Tobacco Control Atlas ASEAN Region edition fourth said Indonesia had to be a country that has user cigarette with the largest number in the ASEAN region (Salsabila *et al*, 2022).

Impact bad about cigarette Already is known since 1960. Globally smoking has cause death more from 1:10 worldwide. Can cause as many as 6 million people and causes loss in a way economy as much as 150 million each the year (Jebet *et al*, 2018). Reason death of the user cigarette none other than that substance dangerous contained in them. Cigarette at least

has 4000 substances chemistry and 20 of them can be toxic cause death (Nahak & Kora, 2021).

Cigarette can shared become a number of kind, but in a way general type cigarette white or filter cigarettes and non-filter cigarettes are the most cigarettes circulating and most numerous used by society. Cigarette white made of from processed material tobacco without exists mixture from cloves, meanwhile For non-filter cigarettes have addition other materials such as cloves, caryophyllene epoxide, α-humulene, acetyl eugenol, eugenol (Marmanik, 2021). Content The dangers found in frequent cigarettes found is Nicotine can cause dependency (West & Robert, 2017), tar that can nature carcinogenic (Vernia *et al*, 2019), and carbon monoxide which can interfere with oxygen transport (King, 2014).

Hemoglobin (Hb) is a heterotetrametic hemoprotein that has role For bring all over oxygen in the lungs Then will distributed all organs of the body For need metabolism aerobics (Saraswati, 2021). Hemoglobin will transport and distribute oxygen from the respiratory organs to all network or peripheral organs, after which CO gas comes from network or peripheral organs will transported return to lungs (Barbalato & Pillarisetty, 2022). According to WHO hemoglobin levels are classified become three, viz low (<13), normal (13-18), high (>18) (Saraswati, 2021). Other functions of hemoglobin besides transport oxygen is maintaining blood pH (Barus, 2022). Internal hemoglobin levels blood can changed If there is factor affecting like lack intake nutrition, bleeding I or chronic, inflammatory chronic, disease contagious, disorder cell blood red, and genetic disorders (Barrera & Tejero, 2019).

Materials and Methods

Time and location data retrieval

Data collection for study This done in the month July-August 2023. The data collection location is in Nggaro Hamlet Kumbe Ward East Rabadompu, Bima City.

Data collection method

Research design used is *cross-sectional* and for data retrieval using method *consecutive non-random sampling* by month July-August 2023. The population that is the target sample For study This all men who smoke and have range 30-40 years old and in place lives in Nggaro Hamlet Kumbe. The research sample used has fulfil criteria inclusion and criteria exclusion. Criteria inclusion consists from men aged 30-40 years, willing for follow research, capable communicate. Criteria exclusion consists from own history disease disturbance circulation blood, consume supplement substance iron, suffer anemia, suffering nutrition bad. Taking sample done with interview short and filling questionnaire, after charging questionnaire sample Hb levels will be measured use tool measure Hb meter *easy touch.*

Data analysis

Respondent data analysis process done in a way two stage that is analysis univariate For know characteristics samples used and analysis bivariate For know correlation from second variable research, data analysis using application IBM SPSS *software*. Results will be relate If The *Chi-square* p-value test value was found to be <0.05.

Results and Discussion

Characteristics respondent

Based on the research results obtained using a questionnaire, the characteristics of the respondents consisting of age, highest level of education and occupation of the sample used are as follows.

Table 1. Characteristics respondents

Characteristics	Frequency	%
Age		
30-34	33	50.0%
35-39	23	34.8%
40	10	15.2%
Last education		
Elementary school	3	4.5%
Junior High School	3	4.5%
Senior High School	42	63.3%
S1	18	27.3%
Work		
n't any	12	18.2%
Civil servants	4	6.1%
Self-employed	25	37.9%
Farmer	20	30.3%
Honorary	5	7.6%

It can be seen in **Table 1** that the characteristics of respondents aged 30-34 with

amount the most as many as 33(50.0%) people, level education final Most were high school as many as 42(63.3%) people, and employment the most self-employed as many as 25(37.9%) people.

Smoking status

Based on the research results obtained using a questionnaire, a picture of smoking status consisting of smoking frequency, type of cigarette and duration of smoking from the sample used is as follows.

Table 2. Description of smoking

	Frequency	%
Frequency		
Light (1-10 cigarettes/day)	18	27.3%
Medium (11-20 cigarettes/day)	29	43.9%
Heavy (>20 cigarettes/day)	19	28.8%
Type of cigarette		
Filter	48	72.7%
Non-Filtered	18	27.3%
Long time smoking		
<5 years	5	7.6%
5-10 years	12	18.2%
>10 years	49	74.2%

It can be seen in **Table 2** that the smoking picture in the sample used shows that the highest frequency of cigarette use among respondents was moderate (11-20 cigarettes/day) as many as 29(43.9%) people, the type of cigarette most frequently used was filter cigarettes with a total of 48(72.2%) people, the maximum number of years of smoking was >10 years as many as 49(74.2%) people.

Hemoglobin levels

Based on the research results obtained with the Hb meter measuring instrument, the hemoglobin level status of the samples used was as follows. It can be seen in **Table 3** that the highest number of hemoglobin levels in the sample was low (<13) with a total of 33 (50.0%) people.

Table 3. Hemoglobin levels

	Frequency	%
Low (<13)	33	50.0%
Normal (13-18)	23	34.8%
High (>18)	10	15,.2%

Analysis bivariate

After obtaining data for each required variable, an analytical test is carried out to determine the significant correlation value for each variable being tested. Following are the results of the analytical test. Based on the results of analytical tests carried out in **Table 4** obtained frequency test results smoke with indigo *p-value* 0.00 with thereby obtained connection in a way significant between smoke with hemoglobin levels. Test results on types cigarette got it *p-value* 0.98, length of smoking *p-value* 0.58 so No got it connection in a way significant between type cigarettes and duration of smoking on hemoglobin levels.

Table 4. Relationship smoke with rate hemoglobin

Frequency smoke	Hemoglobin levels			Test results
	Lo	Normal	Tall	
	n(%)	n(%)	n(%)	
Frequency smoke				
Light	0(0.0%)	18(100%)	0(0.0%)	**,000***
Currently	4(13.8%)	25(86.2%)	0(0.0%)	
Heavy	0(0.0%)	10(52.6%)	9(47.7%)	
Type of cigarette				
Filter	2(4.2%)	37(77.1%)	9(18.8%)	**,098***
Non-filter	2(11.1%)	16(88.9%)	0(0.0%)	
Long time smoking				
<5	0(0.0%)	5(100%)	0(0.0%)	**,588***
5-10	1(8.3%)	8(66.7%)	3(25.0%)	
>10	3(6.1%)	40(81.6%)	6(12.%)	

Discussion

Relationship between smoking frequency with hemoglobin levels

Can seen test results in table 5 obtained exists connection in a way significant on frequency use cigarette with rate hemoglobin to man smoker who own range aged 30-40 years in Nggaro Hamlet Kumbe with rate hemoglobin. Based on results the study This in line with study previously said that No there is connection in a way significant between frequency use cigarette with rate hemoglobin (Septiani, 2022; Astuti, 2019; Ayu, 2021).

Change rate hemoglobin in respondents the caused by caused reduced supply oxygen is coming to network, this will increase hormone erythropoietin so that will increase production cell blood red and hemoglobin (AlQahtany *et al*, 2022). Exposure of CO2 which is results from burning cigarette will form connection between Hemoglobin and Carboxy so that will become Carboxyhemoglobin. Carboxyhemoglobin is compound hemoglobin that has been inactivated so that No can own ability For transport oxygen, on the other hand carboxyhemoglobin will shift curve dissociation hemoglobin so that will lower ability hemoglobin in transport oxygen (Mahassni & Bukhari, 2019).

Relationship between cigarette type with hemoglobin levels

Can seen the test results in table 5 are not obtained exists connection in a way significant between type cigarettes used with rate hemoglobin. Based on results the study This in line with study previously said that No there is connection in a way significant to type cigarettes used with rate hemoglobin (Syarfaini, 2013). The amount of CO gas contained in filter cigarettes have more amount tall If compared to with non-filter cigarettes. Filter cigarettes contain 8,300 ppm of CO, while non-filter cigarettes contain 7,367 ppm. Difference This CO content is what causes it rate The hemoglobin found in filter smokers tends to be more tall if compared with non-filter smokers (Aristawati *et al*, 2021).

Relationship between smoking duration with hemoglobin levels

Can seen the test results in **table 5** are not obtained exists connection in a way significant between years of smoking with rate hemoglobin. Based on results the study This in line with study previously said that No there is connection in a way significant on length of use cigarette with with rate hemoglobin (Syarfaini, 2013; Septiani, 2022; Ardiana, 2018). Change rate hemoglobin This caused by existence CO content can be shift function hemoglobin in tie oxygen, this will make body will do response compensation with method increase rate hemoglobin (Purnadianti *et al*, 2021). Impact from decline function hemoglobin will increase secretion erythripoietin so that ereitropiesis will increases. There will also be other impacts from CO gas cause happen similar conditions polysthemia resulting from an increase permeability capillary so that will decreases plasma volume. Findings clinical findings form enhancement amount erythrocytes and hematocrit (Malenica *et al*, 2017).

Conclusion

Conclusions of study This is obtained connection in a way significant to smoke with change rate hemoglobin in men smoker with range 30-40 years old. In terms of This frequency use okay can influence rate hemoglobin, meanwhile type cigarettes used and duration of use cigarette No own significant relationship.

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