Behavioral Risk Factors in Prevention of Hypertension Among Adolescent

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Background : *Data from the World Health Organization (WHO) in 2015 showed that around 1.13 billion people in the world have hypertension, meaning that 1 in 3 people in the world are diagnosed with hypertension. The number of people with hypertension continues to increase every year, it is estimated that by 2025 there will be 1.5 billion people affected by hypertension, and it is estimated that each year 9.4 million people die from hypertension and its complications. Measurement of blood pressure in children and adolescents is needed to detect whether there is a tendency for hypertension in children and adolescents. The management of hypertension in children and adolescents can reduce the prevalence of hypertension in adulthood. This study aims to analyze the risk factors of Behavioral Risk Factors for Prevention of Hypertension in Adolescents in the Work Area of the Mendahara Public Health Center, Tanjung Jabung Timur Regency 2019.* ***Method :*** *This study uses a quantitative approach with a survey research type with a cross sectional design with 117 adolescents in the working area of the Puskesmas. The treasurer is 13-18 years old. The sampling technique is random sampling. Data collection used a questionnaire and was carried out in August 2020.* ***Results :*** *The results showed that there was a significant relationship between behavioral risk factors and efforts to prevent adolescent hypertension in the work area of Mendahara Public Health Center, Tanjabtim Regency ((p <0.05).* ***Conclusion :*** *The results of this study are expected to be a reference for the Puskesmas Treasurer for early detection of the risk of hypertension in adolescents in an effort to prevent hypertension in adulthood*

Keywords :
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I. Background

Hypertension is the most common cause of cardiovascular events and is a major problem in both developed and developing countries. Cardiovascular is also the number one cause of death in the world every year. Data from the World Health Organization (WHO) in 2015 showed that around 1.13 billion people worldwide have hypertension, meaning that 1 in 3 people in the world are diagnosed with hypertension[1]. The number of people with hypertension continues to increase every year, it is estimated that by 2025 there will be 1.5 billion people affected by hypertension, and it is estimated that each year 9.4 million people die from hypertension and its complications. Hypertension is called the silent killer because it is often without complaints, so that sufferers do not know that they have hypertension and only know it after complications occur.

Based on Riskesdas 2018, the prevalence of the population aged 18 years is 34.1%, the highest is in South Kalimantan (44.1%), while the lowest is in Papua (22.2%). Hypertension occurs in the age group of 31-44 years (31.6%), age 45-54 years (45.3%), age 55-64 years (55.2%). Population aged 15 years and over obtained data on risk factors such as the proportion of people who eat less vegetables and fruit (95.5%), the proportion of less physical activity (35.5%) the proportion of smoking 29.3%, the proportion of central obesity is 31% and the proportion general obesity 21.8%[2]. The data above shows an increase when compared to the Riskesdas 2013[3].

The prevalence of diseases due to an unhealthy lifestyle in Indonesia is increasing from year to year. The morbidity rate in non-communicable diseases is also getting higher. Hypertension is a cardiovascular disease that contributes to at least 45% of deaths from heart disease, and 51% of

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deaths from stroke3. Teens with high blood pressure have a high risk of developing hypertension as adults[4].

Based on data from the Ministry of Health, from 25.8% of people with hypertension, only 1/3 are diagnosed, the remaining 2/3 are undiagnosed[5]. Hypertension experienced in adulthood can start from childhood and adolescence. Adolescents who have hypertension can continue to adulthood and have higher morbidity and mortality. Measuring blood pressure in children and adolescents is needed to detect whether there is a tendency for hypertension in children and adolescents. The management of hypertension in children and adolescents can reduce the prevalence of hypertension in adulthood[5]..

II. Method

This research method used a quantitative approach with the type of survey research with a cross sectional design with the number of respondents 117 adolescents who were in the working area of Mendahara Public Health Center, aged 13-18 years. The sampling technique is random sampling. Data collection used a questionnaire and was carried out in August 2020.

III. Results and Discussion

A. Results

Based on the data obtained from the results of filling in the respondent's identity which is carried out on the respondent's examination sheet as follows:

1. Univariat

Table 1. Frequency Distribution of Respondents by Gender in Adolescent Hypertension in the Work Area of Mendahara Health Center

No	Sex	Amount (N)	Percentage (%)
1.	Male	93	79,5 %
2.	Female	24	20,5 %
Total		117	100.0%

Based on table 1. data on the number of adolescents based on male gender were 93 respondents (79.5%) and 24 female respondents (20.5%).

Table 2. Frequency Distribution of Respondents Based on Smoking Behavior in Adolescent Hypertension in the Work Area of Mendahara Health Center

No	Smoking Behaviour	Amount (N)	Percentage (%)
1.	Yes	93	79,5 %
2.	No	24	20,5 %
Total		117	100.0%

Based on table 2, data on the number of adolescents based on smoking behavior that answered Yes were 93 respondents (79.5%) and 24 respondents (20.5%) answered Not.

Table 3. Frequency Distribution of Respondents Based on Alcohol Drinking Behavior in Adolescent Hypertension in the Work Area of Mendahara Public Health Center

No	Alcohol Consumtion	Amount (N)	Percentage (%)
1.	Yes	25	21,4 %

2.	No	92	78,6 %
	Total	117	100.0%

Based on table 3, data on the number of adolescents who consume alcohol are 25 respondents (21.4%) and those who do not consume are 92 respondents (78.6%).

Table 4. Frequency Distribution of Respondents Based on Sodium Consumption in Adolescent Hypertension in the Work Area of Mendahara Health Center

No	Sodium Consumption	Amount (N)	Percentage (%)
1.	more than 1 time per day	70	59,8%
2.	1 time per day	21	17,9%
3.	3 to 10 times per week	20	17,1%
4.	1 to 2 times per week	4	3,4%
5.	less than 3 times per month	2	1,7%
	Total	117	100,0%

Based on table 4, data on the number of adolescents who consume sodium> once per day are 70 respondents (59.8%), 21 respondents (17.9%) once per day, 3-6 times per week, 20 respondents (17, 1%), 4 times per week for 4 respondents (3.4%) and <3 times per month for 2 respondents (17%).

Table 5. Frequency Distribution of Respondents Based on Prevention of Adolescent Hypertension in the Work Area of Mendahara Health Center

No	Prevention	Amount (N)	Percentage (%)
1.	Yes	102	87, 2%
2.	No	15	12,8%
	Total	117	100.0%

Based on table 5, data on the number of adolescents based on prevention efforts who answered no were 15 (12.8%) and 102 (87.2%) answered yes.

Table 6. Number of Patients with Hypertension in the Work Area of Mendahara Health Center

No	Blood pressure	Amount (N)	Percentage (%)
1.	Normal 136/84	82	70,1
2.	Hypertension >140/90	35	29,9
	Total	117	100.0%

Based on table 6, data on the number of hypertensive patients with Normal adolescents were 82 respondents (70.1%) while those with hypertension were 35 respondents (29.9%).

2. Bivariat

The analysis was conducted to determine the relationship between the independent variable and the dependent variable

Table 7. Bivariate Analysis of Smoking Behavior on Efforts to Prevent Hypertension in Adolescents in the Mandahara Health Center Work Area

Smoking Behaviour	Prevention				Total	P-Value
	No		Yes			
	N	(%)	N	(%)		
Yes	9	9,7	84	90,3	93	0,045
No	6	25,0	18	75,0	24	
Total	15		102		117	

From the table, it is known that of the 93 adolescents who smoke by making hypertension prevention efforts as much as 90.3% and do not make prevention efforts 9.7% and of the 24 adolescents who do not smoke by making hypertension prevention efforts as much as 75% and not making prevention efforts 25% .

After analyzing the data with the Chi Square test, a significant p-value of 0.045 was obtained, which is below the table significance level of 5% (0.05). This can be concluded that there is a significant relationship between smoking behavior and efforts to prevent hypertension. This means that the worse a person's behavior, the better the prevention of hypertension and the better the person's behavior, the better the prevention efforts.

Table 8. Bivariate Analysis of Alcohol Consumption Behavior on Efforts to Prevent Hypertension in Adolescents in Mandahara Health Center Work Areas

Alcohol Cunsumption	Preventions				Total	P-Value
	Tidak		Ya			
	N	(%)	N	(%)		
Yes	4	16	21	18	25	0,592
No	11	12	81	8	92	
Total	15		102		117	

From the table, it is known that 18% of the 25 adolescents who consume alcohol by making hypertension prevention efforts and of the 92 adolescents who do not consume alcohol make the prevention efforts by 8%. After analyzing the data with the Chi Square test, a significant p-value of 0.592 was obtained, which is above the table significance level of 5% (0.05), it can be concluded that there is no significant relationship between alcohol consumption and hypertension prevention efforts

Table 9. Bivariate Analysis of Sodium Consuming Behavior on Efforts to Prevent Hypertension in Adolescents in the Work Area of Mandahara Health Center

Sodium Comsumption	Preventions				Total	P-Value
	No		Yes			
	N	%	N	%		
more than 1 time per day	5	7,10%	65	92,9%	70	0,028
1 time per day	7	33,3%	14	66,7%	21	
3 to 10 times per	3	15,0%	17	85,0%	20	

week					
1 to 2 times per week	0	0,0%	4	100,0%	4
less than 3 times per month	0	0,0%	2	100,0%	2
Total	15		102		117

From the table above, it is known that out of 70 adolescents who consume sodium more than once per day with prevention efforts as much as 92.9%. After analyzing the data with the Chi Square test, a significant p-value of 0.028 was obtained, where the number is above the table significance level of 5% (0.05), it can be concluded that there is a significant relationship between alcohol consumption behavior and hypertension prevention efforts. This means that adolescents consume high sodium (a lot), then these adolescents make efforts to prevent hypertension

B. Discussion

In this study, the risk factors for smoking had a significant relationship with efforts to prevent hypertension compared to other factors. This can be seen from the test results known that the PR value is 0.387 with a 95% CI (0.153 - 0.982) so that the conclusion is smoking behavior is a protective factor. This means that adolescents who smoke are able to make prevention efforts depending on individual behavior. Teens smoking is caused by their environment, both internally and externally. In the external environment, adolescents become smokers because of the coping behavior of their fathers or other families who smoke. Externally, adolescents become smokers due to the influence of friends in Surabaya, the influence of the media and the feeling of trial and error.

In addition to obesity, a risk factor for hypertension in adolescents that needs attention is smoking, because according to several surveys of teenage smoking is increasing, where the World Health Organization (WHO), smoking kills more than five million people per year, and is projected to kill ten million by 2020[5]. Of that number 70% of victims come from developing countries[1]. This is supported by the research of Gupta, et al. in Ghaziabad, which states that there is a significant relationship between smoking habits and hypertension in adolescents, with the results of smokers (6.7%) compared to nonsmokers (4.1%), which means that there were 6.7% smoking respondents (43 people) had hypertension, and it was found that 4.7% non-smoker respondents (29 people) did not have hypertension[6]. According to Leventhal and Cleary there are 4 stages in smoking behavior so that they become smokers, one of which is the preparatory stage, this stage teenagers get a fun model from the environment and the media, so that it raises an interest in smoking[7]

When you smoke, you are more likely to have heart attacks and hypertension. Smokers are two to four times more likely to suffer from heart disease and hypertension. The incidence of hypertension usually occurs in the elderly group, but several studies have shown that hypertension can occur since adolescence and its prevalence has increased in recent years. This condition needs to be watched out for considering that hypertension in adolescence will cause disturbances in various organs and is a risk factor.

The results showed that adolescents who consumed alcohol were 21.4% and after analyzing the data by using the Chi Square test, a significant p-value was found to be 0.592. It can be concluded that there is no significant relationship between consuming alcohol and efforts to prevent hypertension. Alcohol consumption behavior occurs in adolescents aged around 15-25 years, with a variety of driving factors starting from trial and error, due to solidarity with friends, as a search for self-identity[8]. The role and function of parents is very important to achieve a strong relationship between family members as a form of interdependence with each other[9].

Concern from parents can enable adolescents to control their emotions because the family is a place for teenagers to make complaints or just tell stories about their daily activities. As in the research conducted by Suseno, which explains that parental attention and control over the association of adolescents with their peers is an important factor in the occurrence of drinking alcohol behavior among adolescents. Individuals with good self-concept may be able to control their emotions well so as to achieve emotional stability[10].

Salt is a compound consisting of sodium and chloride. The increase in blood pressure when consuming salty foods is actually influenced by the sodium contained in these foods. This sodium is not only contained in salt, but also in food flavoring (MSG) and food preservatives (sodium benzoate). Adolescence is a prone period for hypertension, because adolescents tend to have foods high in energy, high in fat, and high in sodium, which are the initial manifestations of hypertension

Dietary changes that lead to consumption of ready-to-eat foods that contain high fat, protein and salt but low in fiber have consequences for the development of degenerative diseases such as heart disease, diabetes, cancer, osteoporosis, obesity and hypertension[11]. Fast food and foods with a high salt content are among the foods that are often consumed by teenagers. This is due to the ease of access to get food. Destiany's 2012 study showed that high sodium intake was associated with early adolescent hypertension, namely with a p value = 0.001 and high sodium intake had a 7.9 times greater risk of developing hypertension[12]

Hypertension in adults is related to an increase in blood pressure in childhood, which will more effectively prevent the increased risk of hypertension in adolescence[13]. Adolescents still have unhealthy lifestyles, often sleeping late at night, consuming fast food, lack of exercise and various other bad activities. Information technology makes teenagers tend to choose to endure sitting for a long time in front of a computer or laptop on the grounds of looking for information related to school work or just for entertainment so they rarely do sports, as a result the body is often less fit, tired quickly and often sleepy This behavior causes hypertension in adolescents.

IV. Conclusion

The results of this study prove that healthy lifestyle education includes activities, dietary patterns, sleep patterns and smoking habits in adolescents which have an impact on regular exercise, adopting healthy eating and sleeping patterns and eliminating smoking habits. This is proven to reduce systolic and diastolic blood pressure in adolescents, so that hepension in adolescents can be prevented early and thus is expected to reduce the incidence of hypertension..

Hypertension that occurs in adolescents is a health problem that needs to be paid attention to both parents, educational and health institutions. One of the prevention measures for hypertension in adolescents is to carry out routine health checks at the health center, not smoking and staying away from shop smoke, being diligent in physical activity, having a balanced diet, getting enough rest and managing stress. In addition, there is a need for education regarding the importance of hypertension risk factors to prevent cardiovascular disease and stroke in adulthood.

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