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DIET AND EXPOSURE TO SOURCES OF INFORMATION AS CAUSE FACTORS OF TYPE II DIABETES MELLITUS IN KENDARI CITY

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ABSTRACT

Diabetes Mellitus is also known as a disease related to food intake, both as a causal factor and treatment. Diabetes is increasing every year. The worldwide commonness of Diabetes among grown-ups is expanding and happening quicker in the center world. Until 2020 when the age of the Indonesian population over 20 years reached the number of 178 million people and assuming the number of people with Diabetes Mellitus 4%, the proportion of cases of Diabetes Mellitus from 2018 to 2019 increased to 2546 cases from all Community Health Center in Kendari City. This analysis could be a sort of quantitative analysis with a cross-sectional style. The population in this study is all new cases of Diabetes Mellitus patients who conducted examinations or treatment at the Labibia Health Center Kendari city as many as 107 people and samples in this study took 52 people with accidental sampling techniques. The statistical test used was Chi-square with a 95% confidence level. The results showed that the diet about diabetes mellitus in the sufficient category was 19.2%, and the less category was 80.8%. In comparison, the exposure to sources of information about diabetes mellitus in the sufficient category was 46.2%, and the less category was 53.8%. The analysis results also show a significant relationship between diet and Diabetes Mellitus, as evidenced by the p -value = 0.036 ($= 0.05$), and exposure to information sources with Diabetes Mellitus as evidenced by the p -value = 0.012 ($= 0.012$ value). 0.05).

INTRODUCTION

Diabetes Mellitus is a chronic disease characterized by hyperglycemia and glucose intolerance that occurs because the pancreas gland cannot produce insulin adequately or because the body cannot use effectively produced insulin or both¹.

The transition of disease patterns has shifted from communicable infectious diseases to non-communicable diseases or degenerative diseases. Until now, degenerative diseases have become the cause of death in the world. Shifts in disease patterns have also occurred in Indonesia, where

degenerative diseases have increased. Indonesia currently bears the double burden of conditions in the health sector, namely infectious diseases that are still rampant and various chronic degenerative diseases³.

The high number of people with diabetes mellitus is partly due to changes in people's lifestyle, low level of knowledge, awareness attitude to conduct early detection of diabetes mellitus disease is lacking, lack of physical activity and traditional dietary arrangements containing a lot of carbohydrates and fiber from vegetables to westernized diets, with the

composition of overeating protein, fat, sugar, salt, and a little fiber. Among people with diabetes mellitus, many do not realize they have a disease more commonly called sugar disease or Diabetes due to several factors, including knowledge level, education level, attitude, behavior, eating habits, and exposure to information sources.

According to World Health Organization (2015), the global prevalence of Diabetes among adults is increasing and occurring more rapidly in middle and low-income countries. And in 2015, there were 1.6 million deaths directly caused by Diabetes and 2.2 million deaths caused by high blood glucose. Half of the deaths of people with Diabetes mellitus caused by high blood glucose occur at 70 years. WHO projects that Diabetes will be the cause of death by 2030. Based on the current pattern of population growth, it is estimated that in 2020 when the Indonesian population over 20 years reached the number of 178 million people and assuming the number of people with Diabetes Mellitus 4%, there will be about 7 million diabetes mellitus patients. According to WHO data, Indonesia occupies the 4th largest place with the highest prevalence of Diabetes in after India, China, and the United States. Indonesia with a growth of 152% or from 8,426,000 people in 2000 to 21,257,000 people in 2030 (Jelantik & Haryati, 2014)^{4,9}.

Data of Kendari City Health Office, the proportion of Diabetes Mellitus cases in 2018 was 184 cases and in 2019 increased to 2546 cases from all Community Health Center in Kendari City. There are still many cases and improvements related to Diabetes Mellitus type II disease, which is the 3rd out of the top 10 non-communicable conditions and has increased every year by 84%. Therefore, it is necessary to research factors related to Diabetes mellitus, especially in Kendari City.

METHODS

This research is a type of quantitative research with a cross-sectional design, where dependent variables and independent variables are collected simultaneously and directly. This study was aimed to examine the factors associated with Diabetes Mellitus type II patients⁵.

The population in this study is all new cases of Diabetes Mellitus patients who conducted examinations or treatment at the Labibia Health Center Kendari period January - December 2019

as many as 107 people. The sampling technique in this study was an Accidental Sampling technique by taking samples based on needs; namely, anyone who accidentally met with researchers can be used as a sample. The research instrument used was a questionnaire and examination of blood glucose levels in Diabetes mellitus, which was then analyzed in stages. A univariate analysis was carried out on each variable from the research results. Bivariate analysis was used to test whether there was a relationship between the independent and dependent variables using the Chi-square⁸.

RESULTS AND DISCUSSION

Characteristics of Respondents

The frequency distribution of respondent characteristics from this study can be seen in Table 1 below:

Table 1. Frequency Distribution of Respondent Characteristics by Age, Gender, Education, and Occupation at Labibia Public Health Center, Kendari City in 2020

Characteristics of Respondents	Total	Percentage (%)
Age (y.o) :		
23 – 33	7	135
34 – 44	17	32.7
45 – 55	16	30.8
56 – 66	6	11.5
67 - 77	6	11.5
Gender:		
Male	27	51.9
Female	25	48.1
Education :		
No School	4	7.7
Elementary School	10	19.2
Junior High School	5	9.6
Senior High School	22	42.3
Academy/University	11	21.2
Occupation :		
Retired/out of work	3	5.8
Civil Servant/Army/Police	7	13.4
Entrepreneur/Merchant	8	15.4
Private Employee	18	34.6
Housewife	16	30.8

Table 1 shows that out of 52 respondents, the most were the age group of 34 - 44 years old, namely 17 people (32.7%), and the smallest age group is 56 - 66 years old and 67 - 77 years old, which is as many as six respondents each (11.5%) from the gender group 51.9% male and 48.1% Female. The education level of most respondents, namely 42.3%, is high school educated. Only a tiny percentage of respondents do not go to school, i.e., four people (7.7%). In comparison, of the types of work, most of the respondents are private employees that are as many as 18 people (34.6%), and a small percentage are retirees / not working as many as three people (5.8%).

Univariate Analysis

Distribution of respondents' diet in Labibia Health Center Work Area, Kendari City

The distribution of the diet of respondents in the Working area of Labibia Health Center, Kendari City, can be seen in the table below:

Table 2. Distribution of Frequency of Respondents According to the diet of respondents in Labibia Health Center Work Area, Kendari City in 2020

No	Diet	n	%
1	Sufficient	24	46,2
2	Insufficient	28	53,8
Total		52	100

Table 2 shows that the respondents' diet in the Working Area of Labibia Health Center Kendari city with a category of sufficient category as many as ten respondents (19.2%), while the category of insufficient category as many as 42 respondents (80.8%).

This study showed that respondents had an unhealthy diet due to the interaction between genetic susceptibility factors and exposure to the environment, and changes in one's lifestyle. Among them is that unbalanced eating habits will lead to obesity. The obesity condition will trigger the onset of Diabetes mellitus type II. In adults, obesity will have a four times greater risk of the onset of Diabetes mellitus type II

compared to people with normal nutritional status. In contrast, some respondents gave different assessments of the insufficient diet but did not suffer from Diabetes Mellitus type II. This is supported by other factors, namely physical activity and regular exercise.

Distribution of exposure of respondents' information sources in Labibia Health Center working area, Kendari City

Distribution of exposure of respondents' information sources in Labibia Health Center working area, Kendari City can be seen in the table below:

Table 3. Distribution of Frequency of Respondents According to the exposure of respondents' sources of information in Labibia Health Center working area, Kendari City in 2020

No	Exposure to information source	n	%
1	Sufficient	24	46,2
2	Insufficient	28	53,8
Total		52	100

Table 3 shows the exposure of respondents' information sources in Labibia Health Center's working area, Kendari City, with a sufficient category of as many as 24 respondents (46.2%). In comparison, the insufficient category has as many as 28 respondents (53.8%).

One of the factors that influence a person's actions in improving the quality of health is the availability of information related to the activities that a person will take. In Diabetes Mellitus patients, the ease of obtaining information about blood sugar level control can facilitate measures to control blood sugar levels.

Bivariate Analysis

Bivariate analysis using Chi-Square statistical test at a confidence level of 95% ($\alpha = 0.05$) can be seen in the following table:

Table 4. Distribution of Diet Relationship with Diabetes Mellitus Type Ii disease in the working area of Labibia public Health Center, Kendari City in 2020

Diet	Incidence of Diabetes Mellitus				Total		X ² Hit	phi
	Suffer		No Suffer		n	%		
	n	%	n	%				
Sufficient	8	80	2	20	10	100		
Insufficient	17	40,5	25	59,5	42	100	5,054	0,312
Total	25	48,1	27	51,9	52	100		

Table 4 shows out of 52 respondents, 80% of respondents have a sufficient diet causing diabetes mellitus, and those who have an adequate diet do not cause diabetes mellitus 20% of respondents. In comparison, 40.5% of respondents with a insufficient diet cause diabetes mellitus, and 59.5% of respondents have a insufficient diet but do not cause diabetes mellitus.

Statistical analysis obtained, the value of $0.036 < 0.05$ means H_0 received, or there is a relationship of dietary factors with the incidence of Diabetes mellitus type II in the working area of Labibia Health Center, Kendari City with a coefficient test value phi (0.312). Which means it has a moderate relationship strength.

The study results give an idea that 8 (80%) respondents have a sufficient diet but suffer from Diabetes Mellitus; this is due to the interaction between genetic susceptibility factors and exposure to the environment and changes in one's lifestyle. Among them is that unbalanced eating habits will lead to obesity. The obesity condition will trigger the onset of type 11 diabetes mellitus. In adults, obesity will have a four times greater risk of the onset of Diabetes mellitus type2 compared to people with normal nutritional status. While 25 (59.5%) respondents gave different assessments where the diet is lacking but do not suffer from Diabetes Mellitus type II. This is supported by other factors, namely physical activity and regular exercise.

People with Diabetes mellitus, a form of behavior change starting from increasing knowledge about diabetes management. Then, attitude to be willing to listen or see nutrition

information, including new dietary habits or diets in their lifestyle, group and family support, and sustainable nutrition counseling, greatly influences changes in one's behavior following a healthy lifestyle (Sari Paramitha, 2013). Despite having good nutritional knowledge but no awareness of changing his eating behavior, his diet will not change for the better. So that a person's behavior to obey or obey the diet can be related to the intensity of counseling, education, and motivation given regularly and continuously, the level of economy and awareness in the individual.

The results of this study are following the results of research from Febriana (2005), who expressed that there is a critical connection among diet and the rate of Diabetes mellitus in diabetes mellitus patients. Also, research led by Rahmawati 2011 said that there is a connection among diet and glucose levels in patients with diabetes mellitus type II^{3,7}. Another thing based on the assumption of dietary researchers related to the incidence of Diabetes Mellitus where a good diet and coupled with daily activities of respondents have a balance so can digest that food properly.

Table 5. Distribution of Dietary Relationship with Diabetes Mellitus Type II disease in the Working Area of the Labibia Public Health Center, Kendari City in 2020

Exposure to Source of Information	Incidence of Diabetes Mellitus				Total		X ² Hit	phi
	Suffer		No Suffer		n	%		
	n	%	n	%				
Sufficient	7	29,2	17	70,8	24	100	6,385	0,350
Insufficient	18	64,3	10	35,7	28	100		
Total	25	48,1	27	51,9	52	100		

Table 5 shows that out of 52 respondents who have sufficient exposure to sources of information is enough to cause diabetes mellitus, 29.2% of respondents and 70.8% of respondents have exposure to sufficient sources of information but do not cause diabetes mellitus. While 64.3% of respondents have exposure to insufficient information sources, cause diabetes mellitus, and have insufficient exposure to information sources but do not cause diabetes mellitus, 35.7% of Respondents.

Statistical analysis obtained the value of $0.012 < 0.05$ means H_a received, or there is a relationship of information source exposure factors with the incidence of Diabetes mellitus type II in the working area of Labibia Public Health Center, Kendari City. The value of the phi coefficient test (0.350) means it has a moderate relationship strength.

The results showed 29.2% of respondents have sufficient exposure to sources of information but suffer from Diabetes Mellitus; this is due to the ease in obtaining information, but the diet of respondents who are not maintained such as still consume sweet foods and often eat fried foods. While 10 (35.7%) respondents gave different assessments where exposure to information sources is lacking but do not suffer from Diabetes Mellitus type II. This is due to the high motivation to control the diet and control the diet, although the lack of health information, especially the control of blood sugar levels.

The results of this study are not in line with the research presented by Qurratuaeni (2009), which stated that based on the results of the study, there is not enough evidence to state the relationship of exposure factors of information sources with the incidence of Diabetes mellitus⁶.

This study suggests assumptions related to research on the exposure of sources of information. The information or instructions given by health workers should be digested and studied well and clearly by patients. Although the data obtained is very minimal but can be applied well by patients daily to control blood sugar levels.

CONCLUSIONS AND SUGGESTIONS

Dietary factors and exposure to information sources significantly affect Diabetes Mellitus type II disease in the Working Area of Labibia Public Health Center, Kendari City. Therefore, health agencies, in this case, health officials in the working area of Labibia public Health Center in Kendari city, monitor dietary and dietary compliance through the provision of nutrition knowledge questionnaires and diet conducted every month and increase the frequency of information for the public through health counseling.

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