Relationship Diet And Regulate Blood Sugar In The Elderly With Dm Type Ii In Waimital Village, Kairatu District, West Seram Regency

Wiwi Rumaalat, Epi Dusra, Ira Sandi Tunny, Marijte SJ. Malinsgorar, Sunik Cacyawati, M Chairul Basrun Umanailo

Abstract: Diabetes mellitus (DM) is a collection of symptoms that occur in a person due to impaired body in controlling blood sugar levels. According to the World Health Global status report Organization (WHO, 2010) reported that 60% of the causes of death of all ages in the world is due to non-communicable disease (PMT) PMT One that drew a lot of attention is diabetes mellitus. This study aimed to analyze the relationship between diet and blood sugar regulation in adults with Type II diabetes mellitus in the village Waimital Kairatu subdistrict of West Seram regency year 2017. This study is a quantitative research design using observational analytic research. With the approach of cross sectional design, the study sample was determined using the total sampling which amounts to 32 respondents. This study used a questionnaire instrument. Data processing with SPSS, using chi-square test and the significance level 0.05. From these results we conclude that there is a relationship between diet and blood sugar regulation.

Keywords: Diet, Blood Sugar Regulation, Seram, Diet

1. INTRODUCTION

The wrong diet, malnutrition or overweight both increase the risk of diabetes mellitus. Poor nutrition (malnutrition) can damage the pancreas, while overweight (obese) results in impaired insulin action (insulin resistance)[1]. According to the World Health Global status report Organization (WHO, 2010) reported that 60% of the causes of death of all ages in the world is due to non-communicable peyak (PMT) PMT One that drew a lot of attention is diabetes mellitus. According to the international of diabetic federation (IDF, 2015) global prevalence rate of people with diabetes in 2014 amounted to 8.3% of the total population of the world and increased in 2014 to 387 million cases. Indonesia is the country ranks 7th with DM patients amounted to 8.5 million people, after China, India, and the United States, Brazil, Russia, Mexico[2]. The prevalence of diabetes in the population aged 15 years or older in Indonesia in 2013 based on the doctor's diagnosis and diagnosis / symptoms by 1.5% and 2.1%. The highest prevalence is based on the doctor's diagnosis contained in Yogyakarta by 2.6%, while based on diagnosis / symptoms is highest in Central Sulawesi province. Lowest prevalence based on the doctor's diagnosis and diagnosis / symptoms found in Lampung province at 16.8% (Rikesdas, 2013). Diabetes mellitus in Maluku province was 0.7%, while based on the diagnosis of health workers found 0.4%. The highest prevalence by district in West Southeast Maluku District. The percentage of cases of diabetes mellitus who is already underserved by health workers by district, among the lowest in West Seram and Aru Islands[3].

Based on a preliminary study of the overall data seniors who reside in the village Waimital Kairatu District of West Seram regency were 110 elderly people, and after data collection "Door To Door" obtained the number of Type II Diabetes mellitus is 32 elderly. 12 same-sex male and female as many as 20 people. Diabetes mellitus (DM) is a collection of symptoms that occur in a person due to impaired body in controlling blood sugar levels. The disorder can be caused by insulin secretion inadequate, impaired insulin action (insulin resistance) or may be a combination of both[4]. Based on the results of research conducted by[5] with the title of relationship with the consumption patterns of diabetes mellitus type 2 show the results of that research results are obtained, there is a risk factor of diabetes mellitus miraculous. According to previous studies conducted by Agus Sudaryanto 2014 with the title of the relationship between diet, genetics and exercise habits to the incidence of diabetes mellitus type II shows the results that there is a relationship of foods with the incidence of diabetes mellitus type II[6].

2 LITERATURE REVIEW

2.1 Definition of Eating

Diet according Sediooetama (2004) is a lot or quantity of food, singly or diverse, consumed by a person or group of people who aim to meet the needs of physiological, psychological, and sociological[7]. Physiological purpose is an attempt to satisfy the desire to eat (hunger) or to obtain the nutrients that the body needs. Psychological purpose is to meet the emotional satisfaction or taste, whereas sociological purpose is to nurture human relationships within the family and society[8]. Diet is a major factor of weeks to meet the nutritional needs of a person. It is thus expected that diverse diet can improve the nutritional quality of a person's diet. A diet is the way a person or group of people to choose and eat as a response to the effect of physiological, psychological, cultural and social[9], while Guthe and Mead, (1945) in Suyuti, et al (2004) defines diet as the ways individuals and groups of individuals to choose[10], consumption and use of food available that is based on social factors and the culture in which they live[11].

3290

IJSTR©2019
www.ijstr.org
2.2 Definition of Diabetes
DM disease characterized by high blood sugar levels due to the body has no insulin or the insulin does not work as it should. Insulin is secreted by the beta cells, which is one of four types of cells within the islands of Langerhans of the pancreas. Insulin secretion increases and moves glucose into muscle cells, liver and fat[12]. Insulin in these cells cause effects such as stimulating the storage of glucose in the liver and muscles (in the form of glycogen), increases storage of dietary fat in adipose tissue and speed up the transport of amino acids (derived from dietary protein) into cells [13]. Diabetes mellitus is a group of metabolic diseases with characteristic hyperglycemia that occurs due to abnormalities in insulin secretion, insulin action or both. Diabetes mellitus is a metabolic disease in which the body cannot control glucose due to insulin deficiency. Deficiency of this hormone in the body caused by genetic and environmental factors [14]. In Type 2 diabetes, the pancreas to produce sufficient amount of insulin to metabolize glucose (sugar), but the body is unable to utilize it efficiently. Over time, a decrease in insulin production and blood glucose levels rise[15].

2.3 Elderly
Based on the general definition, a person is said to be elderly when he was 60 years and older, both men and women. While the RI Department of Health said a person is elderly starting from the age of 55 years and older. According to the World Health Organization (WHO) old age begins at the age of 60 years [16].

Elderly are groups of people who are going through a process of gradual change in a period of decades (Notoadmojo, 2010). Elderly is a group of people who are going through a process of gradual change within a certain period. According to WHO, the elderly are grouped into 4 groups:
Middle age (middle age): age 45-59 years
Elderly (elderly): age 60-74 years
Elderly parents (old): age 75-90 years
Very old (very old): age over 90 years

While the MOH (2008) gives the elderly the following restrictions:
Virilitas (prasenium): preparation period, which reveal the maturity of elderly people (aged 55 -59 years).
Early old age (senescen): yan group started entering the early old age (ages 60-64 years).
Elderly at high risk for suffering from various degenerative diseases: age over 65 years (Fatmah, 2010).

3 METHOD
This type of research will be used in this research is using quantitative kind. The study design was observational analytic use. The approach used is a cross-sectional design. The research was conducted in the village Waimital Kairatu District of West Seram regency on 3 August s / d 3 September 2018. The population in this study were all elderly people who suffer from Type II DM sampling using total sampling, then obtained the total sample of 32 respondents. Inclusion criteria Elderly residing in Hamlet Village Waimital Kairatu District of West Seram regency. Diabetes mellitus type II Aged 55 years and older Willing to become respondents. Exclusion criteria Exclusion criteria in this study are: Not being on the current location of the study. In accordance with the exclusion criteria researchers exclusion of the two respondents because there is no on-site at the time of the study. Data collection techniques in this study was obtained through direct interviews with respondents using a questionnaire and conducted research instrument with home to home.

Data processing
After data collection is done with the data obtained, we then performed the data processing that includes several parts: Editing, Coding, Data Entry, and CleaningOnce the data is processed, then performed the data analysis using SPSS computer software. The analysis used is: Univariate and Bivariate analysis using Chi-Square statistic Uji with a value of significance (α = 0.005).

4 RESULT
Univariate 4.1 Analisis
Distribution of Respondents by Gender

<table>
<thead>
<tr>
<th>Characteristics of Respondents</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>woman</td>
<td>19</td>
<td>63.3%</td>
</tr>
<tr>
<td>Man</td>
<td>11</td>
<td>36.7%</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: primary data were processed in 2019

Information:
Based on table 1 above can be seen that out of 30 respondents there were 19 respondents (63.3%) were female and the remaining 11 respondents (36.7%) male sex.

Characteristics of Respondents by Age

<table>
<thead>
<tr>
<th>Characteristics of Respondents</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-59</td>
<td>5</td>
<td>16.7%</td>
</tr>
<tr>
<td>60-64</td>
<td>13</td>
<td>43.3%</td>
</tr>
<tr>
<td>65-69</td>
<td>7</td>
<td>23.3%</td>
</tr>
<tr>
<td>70-74</td>
<td>3</td>
<td>10.0%</td>
</tr>
<tr>
<td>75-79</td>
<td>2</td>
<td>6.7%</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: primary data were processed in 2019

Information:
Based on table 2 above, the majority of respondents aged 60-64 years (43.3%) and the least aged 75-79 tahun (6.7%)

Characteristics of Respondents by Job

<table>
<thead>
<tr>
<th>Characteristics of Respondents</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not work</td>
<td>11</td>
<td>36.7%</td>
</tr>
<tr>
<td>entrepreneur</td>
<td>1</td>
<td>3.3%</td>
</tr>
<tr>
<td>farmer</td>
<td>18</td>
<td>60.0%</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Sources: Primary data were processed in 2019

Table 1
Frequency Distribution by Sex Elderly Patients with Type I diabetes hamlet Waimital Kairatu District of West Seram regency

Table 2
Frequency Distribution Based on Age In Elderly With Type II DM hamlet Waimital Kairatu District of West Seram regency

Table 3
Frequency Distribution Based on the Work In Elderly With Type II DM hamlet Waimital Kairatu District of West Seram regency
Information:
Based on table 4.3 above, from 30 respondents most of his work is the farmer 18 respondents (60.0%) and the least was self-employed one respondent (3.3%).

Characteristics of Respondents Based Measurement Blood Sugar

Table 4
Frequency Distribution Based Elderly Examination Blood Sugar In the hamlet Waimital Kairatu District of West Seram regency

<table>
<thead>
<tr>
<th>Characteristics of Respondents</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>6</td>
<td>20.0%</td>
</tr>
<tr>
<td>High</td>
<td>24</td>
<td>80.0%</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Sources: Primary data were processed in 2019

Information:
Based on table 4.4 above, from 30 respondents normal blood sugar No 6 respondents (20.0%) and high blood sugar there are 24 respondents (80.0%).

Characteristics of respondents Based Diet

Table 5
Frequency Distribution Based Diets Elderly With Type II DM hamlet Waimital Kairatu District of West Seram regency

<table>
<thead>
<tr>
<th>Characteristics of Respondents</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well</td>
<td>6</td>
<td>20.0%</td>
</tr>
<tr>
<td>Bad</td>
<td>24</td>
<td>80.0%</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Sources: Primary data were processed in 2019

Information:
Based on Table 4.5 above, from 30 respondents good diet No 6 respondents (20.0%) and poor diet there are 24 respondents (80.0%).

Bivariate Analysis Results

Results of Analysis Chi-Square Test.

Table 6
Chi-Square Test Results

<table>
<thead>
<tr>
<th>Blood sugar</th>
<th>Normal</th>
<th>Abnormal</th>
<th>Total</th>
<th>( p ) Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietary habit</td>
<td>Well</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Not good</td>
<td>0</td>
<td>23</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>27</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Primary data were processed in 2019

Information:
Based on the test results table 4.6 Chi-square analysis for cell values <5 there are more than 20% then the alternative using Fisher's Exact Test, the value of \( p \): 0.009 which is less than \( p \): 0.05 then expressed Ho rejected and Ha accepted that explains that there is a relationship between Diet with blood sugar regulation in the elderly in the village of Hamlet Waimital Waimital district. Kairatu district. SBB.

5 DISCUSSION

Eating In Elderly With Diabetes Mellitus
From the results of this study explains that elderly patients with Type II diabetes mellitus who resides in the village of Dusun Waimital Waimital Kairatu District of West Seram regency which has a good 20% diet and poor diet 80% of the elderly because they often consume a lot of fiber. Fiber is a component of the cell wall that can not be digested or absorbed by the body. Vegetable fiber is present in nuts, fruits, seeds, and whole grain products [17]. From the results of this study showed that the elderly consume more vegetables and fruits than necessary ie 1 day 2 tablespoons. Beside that also the elderly frequently consume fat or fatty foods eg fried-fried. Fat is one of the important components of the food. Without fat our bodies can not function normally, but excess fat can also cause diseases, including Type II diabetes. According to Ginsberg et al (1981), the quality of dietary fat, especially affecting cell membrane fatty acid composition that is predicted to alter cellular functions, including membrane fluidity, ion permeability, and the insulin receptor affinity. Such changes in turn, can affect the body's tissues and overall insulin sensitivity. The findings are reinforced by the results of the study Risner et al (2009) also suggests that the consumption of fat plays a role in Type II diabetes due to fatty acids affect glucose metabolism by altering the function of the cell membrane, enzyme activity, insulin signaling, and gene expression. According Sukardji (2009), people with diabetes have a high risk of getting heart disease and blood vessels[18]. Cholesterol fats in foods should be limited. Large amounts of cholesterol in the blood, can form deposits of blood vessel walls, causing narrowing is called atherosclerosis. Food processing should not be too much fried and no more than just a side dish at every meal. People with diabetes have a high risk of getting heart disease and blood vessels[19]. Cholesterol fats in foods should be limited. Large amounts of cholesterol in the blood, can form deposits of blood vessel walls, causing narrowing is called atherosclerosis. Food processing should not be too much fried and no more than just a side dish at every meal. People with diabetes have a high risk of getting heart disease and blood vessels. Cholesterol fats in foods should be limited. Large amounts of cholesterol in the blood, can form deposits of blood vessel walls, causing narrowing is called atherosclerosis[20]. Food processing should not be too much fried and no more than just a side dish at every meal. Dietary factors moreover modern lifestyles often prepared foods today lead to increased risk of the emergence of the influence of diabetes mellitus type 2, the consumption of sugar-sweetened beverages containing excessive also associated with increased risk. Consumption of too much white rice also play a role in increasing the risk achieve the more than 7% (Farrell, 2008). Some respondents said that with so many places fast food growing desire to consume food resulting in the higher and more efficient sense when it breaks during working hours. This is also supported by the reviews the theory suyono (2008) and suiraoka (2012), a diet high in fat, salt and sugar lead to excessive food consumption society, According to Sabella (2010) the content of purines in foods are grouped into three high purine content of 150-180 mg / 100 grams (offal, duck meat and seafood) are foods that should be avoided, purine content was 50-150 mg / 100 grams (meat beef, chicken, tofu, tempeh, cauliflower, beans, nuts, spinach and kale and mushrooms) is a food that should be consumed...
is not excessive or restricted, the content of low purine below 50 mg / 100 grams (rice, potato, cassava, corn, bread, noodles, pudding, milk, cheese and eggs) are foods that should be consumed every day. It can be seen from the eating habits of elderly who often consume coconut milk, fried foods rather than foods that are boiled and still found the elderly sometimes still consume offal and meat duck. Other than that, According Almatsier (2009), the number of calories consumed in excess will increase the patient's blood sugar levels. Suggested intake of fiber for patients with Type II DM is equal to a normal person is between 20-35 g / day with emphasis on water soluble fiber [21]. According to AD (2010), regulations on the feeding schedule for patients with diabetes because of the delay or the frequency of eating will affect the blood glucose levels.

**Elderly Blood Sugar With Diabetes Mellitus**

The results of this study explained that the value of abnormal blood sugar more than the normal blood sugar. Values increase in blood sugar caused by; according to the American Diabetes Association, diabetes mellitus (DM) occurs due to abnormalities in insulin secretion, insulin action or both [22].

**Relationships Diet With Blood Sugar Regulation On Elderly With Type II DM**

The results of this study explains that there is a relationship between diet and blood sugar regulation in older adults with Type II diabetes, which is where more and more elderly carb and fat, the higher their blood sugar values. Diabetes mellitus is a metabolic disorder with multifaktoral etiology. The disease is characterized by chronic hyperglycemia and affects the metabolism of carbohydrates, proteins, and lemak. Example poliur (many of urination), polydipsia (much to drink), and polyphagia (eat lots) with weight loss. Hyperglycemia is not detected due to diabetes mellitus causes no symptoms (asymptomatic) and cause damage faskular before the disease is detected [23]. In this study is in addition to respondents who have more and eating less well however, the work is also one factor changes in their blood sugar values. Diabetes mellitus is more prevalent in people aged over 40 years than those who were younger [24]. When someone in the job less physical exercise causes the amount of fat in the body will not be reduced and lead to more weight and cause Type II DM [25]. As a result of poor diet insulin secretion in pancreatic β cells contribute to the regulation of blood glucose levels in the body. The presence of glucose transporters in pancreatic β cells, namely GLUT 2, will lead to high concentrations of glucose in the blood can get into the pancreatic β cells. Will experience fororilasi glucose to glucose-6-phosphate by the enzyme glucokinase, and then be oxidized and form of ATP that serves to inhibit ATP-K + channels [26]. In Type II diabetes, increased plasma glucose levels cause the filtered glucose load will exceed the maximum transport (transport maximum of glucose = 320 ng / min), so that the reaction of glucose diurnal or glucosuria (Sylvia, 2006). Glucosuria will cause osmotic diuresis resulting in excessive urine output (poliuri), plasma hyperosmolaritas causing more particles in the plasma so as to stimulate the thirst receptors and cause a sensation of thirst (polydipsia) [27]. Glucose is lost with urine and insensitivities insulin receptors on the target organs resulting in a negative calorie balance, namely the lack of glucose is converted into energy in the body. So that this can cause increased hunger (polyphagia) as compensation for energy needs that are not fulfilled in the body. If this situation is not compensated, then the patient will find it easy and sleepy [28]. This study is in line with the results Windayanti (2004), which states that there is a significant association between adherence to a diet with levels of blood sugar. Rustam research results (2008), that there is a relationship of diet, exercise habits of family support on blood sugar levels in diabetic patient. Results of other studies showed no relationship proper diet, amount, schedule, and the type of the blood sugar levels in Type II diabetes patients Outpatient Installation Kediri Baptist Hospital [23].

**6 CONCLUSION**

In this study it can be concluded that a good diet No 6 respondents out of 30 respondents, while for bad there were 24 respondents from 30 respondents. In this study it can be concluded that there are 6 normal blood sugar respondents from 30 respondents, abnormal blood sugar values there were 24 respondents from 30 respondents. Based on the results of research on the relationship diet with Regulation Blood Sugar In Elderly With Type II DM In the village Waimital District of Kairatu District sinister Western Part of it can be concluded that there is a relationship diet and blood sugar regulation in older adults with DM Type II In one Waimital District of Kairatu Seram West Region.

**REFERENCES**


