Relationship Between Diet And Type 2 Diabetes Militus at Dr. Mamik Clinic

Dedi Supriadi[1] , Siva Khoerun Nisa[1], Rudi Kurniawan[1], Henri Setiawan[1] , Dadi Hamdani[1]

[1] STIKes Muhammadiyah Ciamis, Ciamis, Indonesia

Correspondence author: Siva Khoerun Nisa

Email: : sivakhoerunnisa667@gmail.com

address : Jl. K.H. Ahmad Dahlan No. 20, Ciamis, Jawa Barat, 46216, Indonesia

ABSTRACT

Diabetes Mellitus is now a serious threat to humans in the world. One of the factors that cause Diabetes Mellitus is diet. Diabetes Mellitus is a degenerative disease that is closely related to diet. Improper dietary regulation as recommended by 3J (Schedule, Amount, and Type) can result in an increase in blood sugar levels Objective: This study aims to determine the relationship between Diet and Type 2 Diabetes Mellitus at dr. Mamik in 2020. The research method used is a quantitative analysis using a cross-sectional approach. The population in this study were all patients who went to dr. Mamik in May 2020 as many as 142 people. Samples were taken using the quota sampling technique of as many as 59 people. The results of the study show an overview of the diet of patients with type 2 diabetes mellitus at the dr. Mamik, most of whom were in the bad category as many as 40 people (67.8%), a description of the incidence of type 2 diabetes mellitus at the dr. Mamik, the highest frequency was in the category of Type 2 DM as many as 37 people (62.7%) and there was a significant relationship between diet and type 2 diabetes mellitus at Dr. Mamik Clinic because the value of > value (0.05 > 0.000) and the value of chi-square ($\chi2$) count > chi-square ($\chi2$) table (32,638> 3,841). Conclusion: there is a relationship between diet and type 2 diabetes mellitus.

Keywords: diet, type 2 diabetes mellitus

Introduction

Diabetes Mellitus, is now a serious threat to humans in the world, this type of Non-Communicable Disease (NCD) is increasing every year and is becoming a serious threat to global health, the percentage of which continues to increase, including type 2 Diabetes Mellitus. The International Diabetes Federation (IDF) states, that there are at least 10,681,400 Diabetes patients in the year 2020 with a prevalence of 6.2%.

This figure is estimated to increase to 16.7 million patients per year by 2045 (Ministry of Health, 2020). Quoted from the 2016 World Health Organization (WHO) data, 70% of the total deaths in the world and more than half the burden of disease. 90-95% of cases of type 2 Diabetes Mellitus. As of May 14, 2020, the International Diabetes Federation (IDF) reported that 463 million adults in the world have diabetes with a global prevalence of 9.3%. A dangerous condition is that 50.1% of people with diabetes (diabetes) are undiagnosed. The status of diabetes as a silent killer still haunts the world (Ministry of Health, 2020).

The Ministry of Health of the Republic of Indonesia is also facing a Diabetes threat situation similar to the world. Atlas (2017) reports that the Diabetes epidemic in Indonesia still tends to increase. Indonesia is the sixth-ranked country in the world after China, India, the United States, Brazil, and Mexico with the number of people with diabetes aged 20-79 years around 10.3 million people (Kemenkes RI, 2018). In line with this, the Basic Health Research (Riskesdas) in 2018 showed the prevalence rate of Diabetes Mellitus in Indonesia reached 10.9% which is predicted to continue to increase. This condition can certainly complicate the process of controlling and managing Diabetes Mellitus.

Diabetes Mellitus does not look at age or gender, The incidence of Diabetes Mellitus in West Java Province in 2018 was 1.28% with a prevalence in the city of Banjar as much as 0.72% (Ministry of Health, 2018). According to Sukardji in Alisah Cahyanti's study, Diabetes Mellitus is a health disorder in the form of a collection of symptoms caused by increased blood sugar (glucose) levels due to insulin deficiency or resistance. Factors that cause Diabetes Mellitus itself are divided into two factors, namely: lifestyle factors and age factors. Lifestyle factors are factors that can be changed which include diet, obesity, lack of exercise, excess nutrient intake, and others. The age factor is a factor that cannot be avoided or cannot be changed as well as gender. Diabetes can decrease according to the family side due to gene abnormalities that cause the body to not produce insulin properly (Cahyanti, 2018).

There are several types of Diabetes Mellitus, namely Type 1 Diabetes Mellitus, Type 2 Diabetes Mellitus, Gestational Diabetes, and Diabetes Mellitus associated with other conditions or syndromes. The most common type of Diabetes Mellitus is Type 2 Diabetes Mellitus, which is 90%-95% of all people with Diabetes Mellitus. Diabetes Mellitus Type 2 is a metabolic disorder disease characterized by an increase in blood sugar due to impaired insulin secretion or insulin resistance. The exact mechanism that causes insulin resistance and impaired insulin secretion in type 2 diabetes mellitus are still unknown. Genetic factors are thought to play a role in the process of insulin resistance. In addition, there are certain risk factors associated with the occurrence of type 2 Diabetes Mellitus, such as age (insulin resistance tends to increase over the age of 45 years), obesity, and family history. The incidence of Type 2 Diabetes Mellitus is strongly influenced by genetic factors. . This disorder is inherited in an autosomal dominant manner and gene mutations cause metabolic disorders that lead to the onset of Type 2 Diabetes Mellitus (Fahrudini, 2018).

Diabetes Mellitus is a degenerative disease that is closely related to diet. Diet is a description of the kinds, amounts, and composition of foodstuffs eaten every day by a person

(Cahyanti, 2018). But according to Susanti, (2018) in her article Mentioned the notion of diet as food intake that provides a variety of amounts, schedules, and types of food that a person gets. Improper dietary arrangements as recommended by 3J (Schedule, Amount, and Type) can increase blood sugar levels (Bistara Nobel, Difran, 2018). Terested in researching what happened to Diabetes Mellitus patients who visited dr. Mamik in 2020 with the title "The Relationship between Diet and Type 2 Diabetes Mellitus at the dr. Mamik."

Objective

This study aims to determine the relationship between diet and type 2 diabetes mellitus at dr. Mummy of the Year 2020

Method

The design used in the study is quantitative analytic with a cross-sectional approach, namely the collection of data collected at the same time to further shorten the time (Notoadmojo, 2010). The population in this study were all patients who went to dr. mamik in May 2020 as many as 142 people. But the researchers only took 59 people as samples. Data were collected by filling out questionnaires by distributing questionnaires to all respondents.

Results

Tabel 1. Frequency distribution of eating patterns

Variabel	N	%
dietary habit		
good	19	32,2
not good	40	67,8

Based on table 1, it is known that the diet of patients with type 2 diabetes mellitus at the dr. Mamik, the highest frequency is in a bad category as many as 40 people (67.8%), and the lowest frequency is in a good category as many as 19 people (32.2%).

Tabel 2 Distribution of the frequency of occurrence of type 2 diabetes mellitus

Variabel	N	%
DM type 2		
Occurs	37	62,7
not occur	22	37,3

that the diet of patients with type 2 diabetes mellitus in dr. Mamik, the highest frequency is in a bad category as many as 40 people (67.8%), and the lowest frequency is in a good category as many as 19 people (32.2%).

Tabel 3 Distribution Frequency distribution of the relationship between diet and the incidence of type 2 diabetes mellitus

Dietary Habit	DM Type 2						χ^2	ρ value
	occur		not occur		Total			
	N	%	N	%	N	%		
Good	2	10,5	17	89,5	19	32,2	32,638	0,000
Not Good	35	87,5	5	12,5	40	67,8		

73

Based on table 3 above shows that from 19 people (32.2%) patients with a good diet as many as 17 people (89.5%) patients did not have type 2 DM and 40 people (67.8%) patients with no diet well, as many as 35 people (87.5%) are patients with type 2 diabetes mellitus. From the results of the data analysis, the value of chi-square ($\chi2$) is 32,638 and the value of value is 0.000. Based on the results of the data analysis above, it can be concluded that there is a significant relationship between diet and type 2 diabetes mellitus at Dr. Mamik Clinic because the value of > value (0.05 > 0.000) and the value of chi-square ($\chi2$) count > chi-square ($\chi2$) table (32,638> 3,841).

Discussion

Overview of the Diet of Type 2 Diabetes Mellitus Patients at dr. Mamik the results showed that the diet of patients with type 2 diabetes mellitus at dr. Mamik, the highest frequency is in a bad category as many as 40 people (67.8%). Based on the results of the research conducted, show that the patient's diet is still not good. When viewed from the results of the questionnaire analysis, it appears that patients often eat snacks as snacks or snacks as many as 32 people (54%), like to consume fast food (eg instant noodles, hamburgers, etc.) as many as 30 people (51%) and likes to consume soft drinks or soft drinks as many as 31 people (53%).

Eating fast food or known as fast food and junk food is one of the causes of diabetes mellitus because in fast food there is a high sugar content which can cause the metabolism to be depressed, and also in fast food, there are not many nutrients needed by the body. Food plays a role in increasing blood sugar levels. In the process of eating, the food you eat will be digested in the digestive tract and then converted into a form of sugar called glucose.

According to Oetoro (2013), a Nutritionist, said, Junk food is often known as a delicious food unhealthy (junk food). Junk food contains large amounts of fat, low in fiber, high in salt, sugar, additives, and calories but low in nutrients, low in vitamins, and low in minerals. Junk food or junk food is described as food that is unhealthy or lacking in nutrients, which includes chips, candy, all sweet desserts, fried fast food, soda drinks or carbonated drinks, and so on. Junk food also contains a lot of sodium, saturated fat, and cholesterol. If this amount is too much in the body, it will cause many diseases, such as diabetes, obesity, heart disease, and cancer.

The results of this study are under the theory put forward by Wibowo (2014) which states that excessive eating causes sugar and fat in the body to accumulate excessively. This condition causes the pancreas gland to have to work hard to produce the hormone insulin to process the incoming sugar. If one day the pancreas is not able to meet the needs of the growing hormone insulin, then the excess sugar can no longer be processed and will enter the blood and urine (urine).

The habit of consuming unhealthy foods increases the incidence of various degenerative diseases, one of which is Diabetes Mellitus. Some types of foods that need to be avoided or reduced in number because they can cause Diabetes Mellitus include foods that contain high sugar levels, the habit of consuming more sugar will increase the risk of Diabetes Mellitus. The same goes for foods that are high in fat. Potassium intake from foods such as fruits and vegetables in sufficient quantities may be able to protect the body from Diabetes Mellitus, and play a role in lowering blood sugar levels (Kemenkes RI, 2019).

Diet is a description of the kinds, amounts, and composition of foodstuffs eaten every day by a person or a way or effort in regulating the amount and type of food with a specific

purpose such as maintaining health, nutritional status, and preventing or helping cure disease. Daily eating patterns are a person's eating patterns that are related to daily eating habits (Suyono, 2017).

Diet is a description of the kinds, amounts, and composition of foodstuffs that are eaten every day by a person (Cahyanti, 2018). Definition of diet as food intake that provides a variety of amounts, schedules, and types of food that a person gets. Improper dietary arrangements as recommended by 3J (Schedule, Amount, and Type) can increase blood sugar levels (Bistara Nobel, Difran, 2018).

This study is in line with Maryani's research (2018) that there is a relationship between diet and the incidence of type 2 diabetes mellitus.

Overview of Type 2 Diabetes Mellitus Incidence at dr. Momik the results of the study showed that the incidence of type 2 diabetes mellitus in dr. Mamik, the highest frequency is categorized as a type 2 DM disease as many as 37 people (62.7%). The high incidence of diabetes mellitus is caused by the patient's ignorance about the factors that cause diabetes mellitus. Patients often complain of thirst, eating a lot, drinking a lot, and also feeling tired quickly, and the occurrence of weight loss in patients and an increase in blood glucose levels. Diabetes mellitus is a chronic disease that can increase by rapid prevalence of chronic complications in the elderly. This is due to the condition of hyperglycemia due to the absolute absence of insulin or a relative decrease in the sensitivity of cells to insulin, which will trigger the emergence of other chronic non-communicable diseases, and even death of people with diabetes mellitus is not infrequently caused by complications.

Diabetes is a disease related to the patient's lifestyle. This disorder occurs when the body produces too much insulin, but the insulin cannot do its job. The function of the pancreas is to produce more insulin. Meanwhile, blood glucose increases which makes it more available to diabetes mellitus patients with obesity. In addition, the activity of the pancreas is trying harder over a long period. Thus, the body's cells become resistant to insulin. This means, that diabetes mellitus patients who were previously obese will experience metabolic disorders, causing diabetes mellitus patients to reduce to normal weight or underweight (Mutmainna, 2019).

In addition, patients can not control the habit of consuming sweet foods and drinks, so patients tend to violate the rules on the types of healthy food consumed for people with diabetes mellitus. such as any fruit that contains a lot of sugar or calories and so on. According to Almatzier (2019), the amount of food consumed must be under the recommendations of a doctor/nutritionist. This amount of food is under the needs of diabetics, which of course differ from one person to another. Calculation of energy or calorie needs is based on weight and height a person's body and also other factors such as activity, complications, pregnancy, and so on. This calculation is carried out by a doctor or nutritionist. If it has been determined how much energy is needed will be determined how much food should be consumed in one day, for example, how many grams or tablespoons of rice, how many pieces of side dishes, and so on.

Smeltzer (2012) states that people with diabetes mellitus absolutely must know which foods can be eaten freely and which must be limited and know which foods are strictly restricted. The list of substitute food ingredients is a tool that is often used in diet counseling in meal planning (the Exchange Lists for Meal Planning). The types of foods that are included in one group (with a certain amount) contain the same number of calories and the same amount of protein, fat, and carbohydrates in grams.

Hartono's statement (2017) that people with diabetes mellitus must get used to eating regularly and at a predetermined time and the distribution of food portions must be adjusted to the patient's habits. Patients with diabetes mellitus must follow a regular eating schedule, the number of calories from food as needed, namely 3 staple foods and 3 snacks/day at approximately the same time every day.

Conclusion

An overview of the diet of patients with type 2 diabetes mellitus at dr. Mamik, mostly categorized as not good as many as 40 people (67.8%). Overview of the incidence of type diabetes mellitus, at the Clinic dr. Mamik, the highest frequency is categorized as a type 2 DM disease as many as 37 people (62.7%). There is a significant relationship between diet and type 2 diabetes mellitus at Dr. Mamik Clinic.

Based on the results of the study showed that among 19 people (32.2%) patients with a good eating pattern as many as 17 people (89.5%) patients did not have type 2 DM, and from 40 people (67.8%) patients with type 2 diabetes pattern. eating is not good as many as 35 people (87.5%) patients with type 2 diabetes mellitus.

From the results of the data analysis, the value of chi-square ($\chi2$) is 32,638 and the value of value is 0.000. Based on the results of the data analysis above, it can be concluded

that there is a significant relationship between diet and type 2 diabetes mellitus at Dr Mamik Clinic because the value of > value (0.05 > 0.000) and chi square value ($\chi2$) count > chi square ($\chi2$) table (32.638> 3.841)..

A poor diet can trigger the occurrence of diabetes mellitus because, in the modern era, many people are not concerned with their diet. The habit of consuming excessive food can trigger disease, especially now that people are more concerned with eating fast food than home cooking. Fast food whose content is unknown whether the food contains a lot of sugar or not. A poor eating pattern does not pay attention to the amount of food, the type of meal, and the established eating schedule so a poor or irregular eating pattern and eating carelessly or sometimes there are lazy to eat will cause a person to be susceptible to disease. The habit of consuming foods or drinks that contain lots of sugar can increase blood glucose levels so that glucose levels in the blood are not controlled and the pancreas is unable to produce insulin properly. But it is possible for someone who consumes foods that contain lots of sugar to get diabetes mellitus because the cause of diabetes mellitus can also be caused by other factors such as obesity, genetic factors, and so on.

From the results of this study, it was found that 2 respondents had a good diet but suffered from diabetes mellitus. Based on the results of interviews conducted by researchers, it turns out that the respondent has been suffering from diabetes mellitus for a long time because the respondent's parents also suffer from diabetes mellitus. Become a researcher

argues that the 2 respondents suffer from DM due to genetic factors or have suffered since birth without the sufferer realizing that they have been exposed to diabetes mellitus from birth, then genetic factors greatly determine the healthy incidence of each respondent. The results of this study are supported by Khomson (2014) who states that genetic factors play a sufficient role in triggering the onset of diabetes mellitus sufferers, if one of the respondents is elderly or both suffer from diabetes mellitus, the child's chances of developing diabetes mellitus are quite large. Meanwhile, Hasdianah (2018) states that diabetes mellitus

can be inherited from parents to children. The gene that causes diabetes mellitus will be carried by the child if the parents suffer from diabetes mellitus.

In this study, there were also 5 respondents whose diet was not good but who did not suffer from diabetes mellitus. Based on the results of interviews conducted by researchers, it turns out that the respondent's lifestyle is good, because they often exercise and are diligent in participating in gymnastics, so they are not affected by diabetes mellitus.

Researchers argue that the better a person's lifestyle, the smaller the risk of disease. Exercise serves to burn excess calories in the body, good exercise can help control blood sugar and excessive weight (obesity).

In line with the theory put forward by Muzakkir (2016) says that physical activity such as body movement or exercise that is carried out regularly is an effort that can be done to avoid obesity and obesity when the body performs activities or movements, the sugar content will be burned to be used as energy so that Sugar levels in the body will decrease so that the need for the hormone insulin is also reduced. Thereby

also to avoid the incidence of diabetes mellitus sufferers because their blood sugar levels increase due to excessive food consumption, it can be balanced with balanced physical activity, for example by doing gymnastics, sports, jogging, swimming, and cycling. If these activities are carried out regularly, they can reduce the risk of developing diabetes mellitus, so that blood sugar levels can return to normal and the workings of insulin are not disturbed.

Eating excessively and exceeding the number of calories needed by the body can trigger the onset of diabetes mellitus. Excessive food consumption and not balanced with adequate insulin secretion can cause blood sugar levels to increase and will certainly cause diabetes mellitus (Hasdianah, 2018).

According to research conducted by Sartika (2013) about the relationship between about the relationship between diet and the incidence of type-2 diabetes mellitus in the Blu.Rsup internal polyclinic. Prof. Dr. D. Kandou Manado. The results of this study state that there is a relationship between diet and the incidence of type-2 diabetes mellitus.

The results of this study are in line with research conducted by Dafriani (2019) under the title the relationship between diet and physical activity on the incidence of diabetes mellitus in the internal medicine clinic at the RSUD. Dr. Rasidin Padang. The results of the study stated that the incidence of diabetes mellitus was higher in respondents with poor eating patterns, namely:
27 respondents (51.9%) compared a good diet, namely 12 respondents (29.3%). Based on the results of statistical tests there is a relationship between diet and the incidence of diabetes mellitus with a p-value = 0.047 ($\alpha<0.05$)

Acknowledgement

Reference

1. Bistara Nobel, Difran, S. (2018). HubunganPola Makan Dengan Kadar Gula Darah Pada Penderita DiabetesMellitus. *Jurnal Kesehatan Vokasional*, *3*(1), 29
2. Cahyanti, A. (2018). Hubungan Frekuensi Makan dengan Diabetes Melitus pada Lanjut Usiadi Wilayah Kerja Puskesmas Karang Asam Samarinda Tahun 2018.
3. Fahrudini. (2018). Hubungan Antar Usia,Riwayat Keturunan dan Pola Makan dengan Kejadian Diabetes Mellitus Tipe 2 di Ruang Flamboyan RSUD Abdul Wahab

Sjahranie Samarinda.

4. Hidayat, D. A., Supriadi, D., Waluyo, E. M. J., Firmansyah, A., & El Haque, I. T. (2019). The Influence of the Four Pillars of Diabetes Mellitus Control on Complications in Diabetes Mellitus Patients. *JURNAL VNUS (Vocational Nursing Sciences)*, *1*(2), 52-62. https://doi.org/10.52221/jvnus.v1i2.158

5. Kemenkes. (2018). Laporan Provinsi Jawa Barat Riskesdas 2018.

6. Kemenkes. (2020). MBBR Mini plantWorld Diabetes Day 2020 Perhatian BioCell Beri a professional pada Caregiver system Supplier denganDiabetesi.

7. Kemenkes RI. (2018). Cegah, Cegah, dan Cegah: Suara Dunia Perangi Diabetes Direktorat P2PTM.

8. Pratama, R. A., Widianti, E., & Hendrawati. (2019). Gambaran Tingkat Kecanduan Game Online Pada Mahasiswa Fakultas Keperawatan Universitas Pajajaran Psdku Garut, *6*(3), 1–19

9. Notoadmojo, S. (2010). Metodologi Penelitian Kesehatan. In *Jakarta: Rineka Cipta*.