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FACTORS ASSOCIATED WITH INCIDENCE OF DIABETES MELLITUS IN INTERNAL DISEASE POLY BUDI LESTARI BEKASI HOSPITAL

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Introduction: The World Health Organization (WHO) states, the number of people with diabetes has increased from 108 million in 1980 to 422 million in 2014. The global prevalence of diabetes among adults over 18 years has increased from (4.7%) in in 1980 to (8.5%) in 2014. Diabetes prevalence is increasing faster in middle and low income countries. In 2015, an estimated 1.6 million deaths were directly caused by Diabetes. 2.2 million other deaths were caused by high blood glucose in 2012. Nearly half of all deaths due to high blood glucose occurred before the age of 70 years. **Research Objectives :** To determine the factors related to the incidence of diabetes mellitus in the Internal Medicine Clinic of Budi Lestari Bekasi Hospital in 2019. **Research Methods :** This research method uses Analytical Quantitative Design with Cross Sectional Approach, with Independent Variables, Heredity, Diet and Sports Habits while the Dependent Variable is Diabetes Mellitus, with a population of 300 patients during the last 6 months July-December 2019, for sampling using accidental sampling as many as 35 respondents, the type of statistical test used is chi square. **Research Results :** The results showed that there was a significant relationship between heredity, diet, exercise habits with the incidence of diabetes mellitus in the Internal Medicine Clinic of Budi Lestari Hospital in Bekasi with a P.Value value of 0.014 or P.Value ≤ α (0.05) with OR (Odds Ratio) = 0.050. **Suggestion :** It is expected that hospitals can provide maximum health services for patients seeking treatment and input for nurses in providing health education to patients with Diabetes Mellitus about Factors Related to Diabetes Mellitus.

Key words: heredity, diet, exercise habits

INTRODUCTION

According to WHO (World Health Organization), the increasing prevalence of Diabetes Mellitus will have an impact on increasing the number of sufferers and the incidence of deaths caused by Diabetes Mellitus and complications from DM itself. Diabetes Mellitus is a disease that is hidden before visible symptoms appear, such as easy hunger, thirst and frequent urination. These symptoms are often realized when the patient has experienced complaints, so it is called (the silent killer), the most common one in society is type two DM (WHO, 2017).The World Health Organization (WHO) states that the number of diabetes sufferers has increased from 108 million in 1980 to 422 million in 2014. The global prevalence of diabetes among adults over 18 years has increased from (4.7%) in 1980 to (8.5%) in 2014. Diabetes prevalence is increasing faster in middle and low income countries. In 2015, it was estimated that 1.6 million deaths were directly caused by Diabetes. Another 2.2 million deaths were caused by high blood glucose in 2012. The prevalence of DM according to Basic Health Research (Riskesdas) in 2014 nationally was (6.9%) increased from 2010 which was only (5.8%) and placed DM in 6th place as the most common cause of death, while

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for Lampung Province the prevalence of Diabetes Mellitus was (0.8%) with a prevalence of (6.9%) in population over 15 years, (Riskesdas, 2015).

Meanwhile, based on data (Riskesdas, 2016), the highest prevalence of diabetes is in DKI Jakarta at (2.6%) above the national figure of (1.1%). This figure still persists according to the 2018 Riskesdas results, where DKI Jakarta is the second province with the highest prevalence of Diabetes Mellitus, namely (2.5%) after Yogyakarta (2.6%). The prevalence of diabetes in South Jakarta is (1.9%) the second highest after Central Jakarta (4.8%). Meanwhile, in West Java Province, the prevalence rate of DM cases is (4.2%), (PERKENI, 2018).Based on data from the Budi Lestari Hospital Medical Records, data was obtained on outpatient diabetes mellitus patients in 2016, namely 495 patients, in 2017 there were 515 patients and in 2018 there were 540 patients, so there has been an increase in the last 3 years. Researchers also conducted a review during the last 6 months in 2019, it was found that DM cases in July 2019 were 35 patients, August 39 patients, September 45 patients, October 52 patients, November 60 patients and December 69 patients. So, there is an increase in the percentage of DM cases. This shows that the trend in the incidence of DM patients has increased over the last 6 months (Budi Lestari Hospital Medical Records 2019).

METHODS

This study intends to find out the factors associated with the incidence of Diabetes Mellitus. This research was conducted in December 2019–February 2020 at the Internal Medicine Polyclinic at Budi Lestari Bekasi Hospital, the respondents were patients who came for treatment with Diabetes Mellitus with a total of 30 respondents. . The factors studied were heredity, diet and exercise habits. This type of research is a Quantitative Analytical Design using a Cross Sectional Approach, the type of statistical test is chi square.

RESULTS

Table 1. Frequency Distribution of Diabetes Mellitus in the Internal Medicine Polyclinic at Budi Lestari Bekasi Hospital in 2019

Diabetes Mellitus	F (n=35)	P (%)
Yes	30	85,7%
No	5	14,3%
Total	35	100%

Source : Medical Record (MR)

The results of the study in Table 1 with a total of 35 respondents showed that the number of incidents of Diabetes Mellitus in the Internal Medicine Polyclinic at the Budi Lestari Hospital Bekasi who had Diabetes Mellitus was 30 people (85.7%), and not Diabetes Mellitus 5 people (14.3%).

Table 2. Distribution of Offspring Frequency at the Internal Medicine Polyclinic at Budi Lestari Bekasi Hospital in 2019

Descendants	F (n=35)	P (%)
Yes	9	25,7%
No	26	74,3%
Total	35	100%

Source: Questionnaire

The results of the research in Table 2 with a total of 35 respondents show that the number of Diabetes Mellitus incidents in the Internal Medicine Clinic at Budi Lestari Hospital Bekasi was because there were 9 people (25.7%) who had offspring and 26 people (74.3%) who had no descendants.

Tabel 3. Frequency Distribution of Diet in the Internal Medicine Polyclinic at Budi Lestari Bekasi Hospital in 2019

Dietary habit	F (n=35)	P (%)
Good Bad	6 29	17,1% 82,9%
Total	35	100%

The results of the research in Table 3 with a total of 35 respondents show that the number of incidents of Diabetes Mellitus in the Internal Medicine Clinic at Budi Lestari Hospital Bekasi due to a good diet was 6 people (17.1%), and a poor diet was 29 people (82,9%).

Table 4. Frequency Distribution of Exercise Habits at the Internal Medicine Polyclinic at Budi Lestari Bekasi Hospital in 2019

Sports Habits	F (n=35)	P (%)
Regular irregular	11 24	31,4% 68,6%
Total	35	100%

The results of the research in Table 4 with a total of 35 respondents show that the number of incidents of Diabetes Mellitus in the Internal Medicine Clinic of Budi Lestari Hospital Bekasi due to regular exercise habits was 11 patients (31.4%), and irregular exercise habits were 24 patients (68, 6%).

DISCUSSION

Relationship between heredity (n=35) and the incidence of diabetes mellitus in the internal medicine clinic at Budi Lestari Hospital, Bekasi 2019

The research results in Table 5 with a total of 35 respondents show that the results of the statistical test (Chi-Square test) are P. Value = 0.014 or P. Value ≤ □ (0.05), the conclusion is that Ho is rejected and Ha is accepted, which means there is a relationship significant relationship between heredity and the incidence of diabetes mellitus in the internal medicine clinic at Budi Lestari Hospital, Bekasi. And the value obtained is OR (Odds Ratio) = 0.050, meaning that respondents who do not have offspring have a 0.050 risk of developing diabetes mellitus compared to respondents who have offspring.

According to Dyah Ayu (2013), the results of the research show that the P.Value = 0.000 < 0.05 so that the conclusion is that Ha is accepted or there is a relationship between heredity and the incidence of type II Diabetes Mellitus in the Nusukan Health Center Working Area. The results of the Odds Ratio test show that the correlation between heredity has a value of OR= 25.0; 95% (97%) which can be interpreted as meaning that respondents with a history of heredity have a 25 times higher risk of developing type II diabetes mellitus. Based on research by Agus Sudaryanto (2014), family history is related to genetic type II Diabetes Mellitus with the results P.Value=0.000, OR=25.0; 95% with family history (97%) genetic factors have an important influence on the incidence of Diabetes Mellitus.

From the research results that i obtained, almost all of the respondents who sought treatment at Budi Lestari Hospital had diabetes mellitus, both from the nuclear family, such as parents (father/mother), so it can be concluded that the respondents who had diabetes mellitus were inherited from heredity/genes. Respondents almost inherited DM from their parents (mothers), so

the risk factor for getting DM from their mothers was 10-30% greater than that of fathers with DM, because the genetic inheritance in the womb was greater than that of the mother. Because heredity is a trait inherited from offspring, such as from a respondent's family who has Diabetes Mellitus, it is likely that the respondent will also experience Diabetes Mellitus.

This is in line with the theory put forward by Michael et al (2016) which states that the prevalence of DM is high in children of parents suffering from Diabetes Mellitus, the emergence of DM which usually appears in adulthood is a monogenic form of type II DM at the age of 45 years and over. Only daughters can pass this disease on to their offspring. The risk of a child getting DM is 15% if one parent suffers from DM and the possibility is 75% if both suffer from DM. In general, if someone suffers from DM, their sibling has a 10% risk of DM and 90% if the person suffering from it is an identical twin.

The Relationship between Diet (n=35) and the Incidence of Diabetes Mellitus in the Internal Medicine Polyclinic at Budi Lestari Hospital Bekasi 2019

The research results in table 5.6 with a total of 35 respondents show that the results of the statistical test (Chi-Square test) are P.Value = 0.035 or P.Value ≤ □ (0.05), the conclusion is that Ho is rejected and Ha is accepted, which means there is a relationship significant difference between diet and the incidence of Diabetes Mellitus in the Internal Medicine Polyclinic, Budi Lestari Hospital, Bekasi. And we got an OR (Odds Ratio) = 0.074, meaning that respondents who had a poor diet had a 0.074 risk of Diabetes Mellitus compared to respondents who had a good diet.According to research by Dyah Ayu (2013), the results of the research show that the P.Value = 0.000 < 0.05 so that the conclusion is that Ha is accepted or there is a relationship between diet and the incidence of type II Diabetes Mellitus in the Nusukan Health Center Working Area. The results of the Odds Ratio test show that the relationship between eating patterns has a value of OR=10.0; 95% (91%) which can be interpreted to mean that respondents with poor eating patterns have a 10 times higher risk of type II diabetes mellitus.

From the results of research that I obtained from respondents who were treated at Budi Lestari Hospital, respondents had poor eating habits such as excessive food containing unlimited sugar, resulting in a high increase in blood sugar levels which resulted in Diabetes Mellitus. This can be concluded by respondents having a lifestyle with a certain eating pattern which will affect their blood sugar, especially if the food consumed contains a lot of sugar, often consumes fast food, eats too many carbohydrates and consumes food processed by excessive frying can have an effect on High fat intake can lead to fat accumulation, which will inhibit the pancreas from carrying out its insulin secretion function. If insulin secretion is inhibited, blood sugar levels will increase, resulting in diabetes mellitus. This is in line with the theory put forward by Waspadji (2014) which states that food factors are also the main factor responsible for causing type II diabetes mellitus. Eating too many carbohydrates, fats and proteins are all harmful to the body. Our body in general requires a balanced diet to produce energy to carry out vital functions. People who are used to consuming foods that contain lots of carbohydrates such as biscuits, chocolate, ice cream, etc. have the potential to develop DM. A healthy diet is recommended for everyone: high in nutrition, low in fat, low in calories and contains sufficient calories. Limit consumption of white rice, pasta, soda, alcohol, foods that contain sweeteners or excess sugar.

Relationship between exercise habits (n=35) and the incidence of diabetes mellitus in the internal medicine clinic at Budi Lestari Hospital, Bekasi 2019

The results of the study in table 5.7 with the number of respondents 35 show the results of the statistical test (Chi-Square test) obtained P.Value = 0.045 or P.Value ≤ □ (0.05), the conclusion is that Ho is rejected and Ha is accepted, which means there is a relationship There is a significant relationship between exercise habits and the incidence of diabetes mellitus in the internal medicine clinic at Budi Lestari Hospital, Bekasi. And the value of OR (Odds Ratio) = 0.076, meaning that respondents who have irregular exercise habits are at risk of 0.076 Diabetes Mellitus compared to respondents who have regular exercise habits.According to Dyah Ayu (2013), the results showed that the P.Value = 0.002 <0.05 so that the conclusion is that Ha is accepted or there is a relationship between exercise habits and the incidence of type II Diabetes Mellitus in the Working Area of the Nusukan Health Center. The results of the Odds Ratio test show that the relationship between exercise habits is OR = 5.67; 95% (85%). It can be interpreted that respondents with irregular exercise habits have 5 times the risk of Type II Diabetes Mellitus. According to the research of John S. Kekenusa, et al, (2015) with a sample size of 120 samples, the results of the study between exercise habits and the incidence of type II Diabetes Mellitus resulted in a P.Value value = 0.000 (OR = 6.7).

From the results of the research I got from respondents who went to Budi Lestari Hospital, respondents did not do sports activities and respondents preferred to relax at home compared to other activities, respondents who were not classified as doing sports because they thought that the homework that had been done was included in sports because sweating, and work done by housewives also includes physical activities such as sweeping, washing, etc. So that metabolic processes in the blood do not break down due to lack of physical activity. Such as exercise, walking, gymnastics, etc. so that blood sugar levels increase which can cause Diabetes Mellitus. Exercise also needs to be emphasized for respondents regarding that regular exercise can slow the occurrence of disease, the factors that encourage respondents to exercise are due to the severity of Diabetes Mellitus and the economic status and motivation within the respondent are also necessary, therefore support and explanations from health workers are very necessary for respondents.

This is in line with the theory put forward by Soegondo (2016) that physical activity is a factor in the occurrence of Diabetes Mellitus, sport is a body exercise to strengthen and nourish the body such as football, swimming and others. Sport or physical activity is identified as physical movement carried out by the muscles and supporting systems, the less frequent the activity, the longer the sugar consumed will be used, as a result the prevalence of increased blood sugar levels will also increase, causing DM.

CONCLUSION

Based on the research that has been conducted by the researchers, it can be concluded that there is a significant relationship between heredity, eating patterns, exercise habits and the incidence of diabetes mellitus in the Internal Medicine Polyclinic, Budi Lestari Hospital, Bekasi, with P.Value = 0.014 or P.Value ≤ □ (0 .05), and the value of OR (Odds Ratio) = 0.050.

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