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Risk Factors Associated with the Incidence of Type 2 Diabetes Mellitus in Adults

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Abstract

Background: Type 2 Diabetes Mellitus is a global health problem with increasing prevalence. Risk factors such as age, unhealthy lifestyle, and family history play a role in the incidence of this disease.

Objective: To determine the risk factors associated with the incidence of type 2 Diabetes Mellitus in adults.

Method: This study used a cross-sectional design with 100 adults aged 30–60 years as respondents. Sampling was carried out by purposive sampling. Data were collected through questionnaires and fasting blood sugar examinations. Data analysis used the Chi-Square test.

Results: There was a significant relationship between diet (p=0.003), physical activity (p=0.010), and family history (p=0.001) with the incidence of type 2 Diabetes Mellitus.

Conclusion: Unhealthy diet, lack of physical activity, and family history are dominant risk factors. Prevention can be done through public education about a healthy lifestyle.

Keywords: Type 2 Diabetes Mellitus, Risk Factors, Diet, Physical Activity, Family History

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1. Introduction

Diabetes mellitus (DM) is a non-communicable disease whose prevalence continues to increase globally, including in Indonesia. According to data from the International Diabetes Federation (IDF) in 2021, around 537 million adults worldwide live with diabetes, and this number is predicted to continue to increase every year. In Indonesia, data from the 2018 Riskesdas shows that the prevalence of diabetes mellitus has reached

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10.9% of the total population, making it a public health problem that requires serious attention.

Diabetes mellitus is a chronic metabolic disorder characterized by increased blood glucose levels (hyperglycemia) due to impaired insulin secretion, insulin action, or both. This condition can cause various long-term complications such as cardiovascular disease, kidney damage (nephropathy), nerve damage (neuropathy), and visual impairment (retinopathy) if not treated optimally.

Unhealthy modern lifestyles such as consumption of foods high in sugar and fat, lack of physical activity, and smoking and stress habits are the main risk factors for diabetes mellitus. In addition, genetic factors and age also affect the possibility of someone suffering from this disease. Therefore, promotive and preventive efforts through health education, lifestyle changes, and early detection are very important to control the rate of increase in DM cases.

Diabetes Mellitus (DM) is a metabolic disease characterized by chronic hyperglycemia due to impaired insulin secretion, insulin action, or both. WHO states that more than 400 million people in the world live with diabetes, and this number continues to increase, especially in developing countries. Type 2 diabetes accounts for about 90% of all DM cases.

The increasing incidence of type 2 DM is closely related to lifestyle factors such as high-calorie diet, lack of physical activity, obesity, and family history. This study aims to identify the risk factors that most influence the incidence of type 2 DM in adults.

2. Research Methods

This study is quantitative with a cross-sectional design. The population is people aged 30–60 years in region X. A sample of 100 people was taken by purposive sampling based on the inclusion criteria: not pregnant, not suffering from other chronic diseases, and willing to undergo fasting blood sugar examination.

a) Instrument:

1) The questionnaire included demographic data, diet, physical activity, and family history.

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2) Digital blood sugar checker is used to measure fasting blood glucose levels.

b) Data analysis:

1) Statistical tests using Chi-square to test the relationship between independent variables (diet, physical activity, family history) and dependent variables (incidence of type 2 DM).

2) Significance was set at $p < 0.05$.

3. Research Result

a. Results

Of the 100 respondents, 30 people (30%) were diagnosed with type 2 DM based on fasting blood sugar test results >126 mg/dL.

Risk Factors	DM (+)	DM (-)	p-value
Bad eating habits	25	20	0.003
Low physical activity	22	18	0.010
DM family history	20	12	0.001

The results showed a significant relationship between diet, physical activity, and family history with the incidence of type 2 DM.

b. Discussion

This study shows that a high-calorie, low-fiber diet contributes greatly to the incidence of DM. The consumption pattern of fast food and sweet drinks is the main trigger. Low physical activity reduces insulin sensitivity, exacerbating the risk of insulin resistance.

Family history is also an important factor because of the genetic predisposition to type 2 DM. This study is in line with previous studies which stated that a combination of environmental and genetic factors increases the risk of DM.

4. Conclusion

Significant risk factors for the occurrence of type 2 Diabetes Mellitus are poor diet, low physical activity, and family history. Promotive and preventive efforts are needed, especially in the form of education and healthy lifestyle campaigns to the community.

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