

# CHARACTERISTIC OF TYPE 2 DIABETES MELLITUS PATIENTS IN THE WEST JAKARTA COMMUNITY HEALTH CENTER

*by* Nanda Rumana

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## CHARACTERISTIC OF TYPE 2 DIABETES MELLITUS PATIENTS IN THE WEST JAKARTA COMMUNITY HEALTH CENTER

Nanda Aula Rumana<sup>1</sup>, LarasSitoayu<sup>2</sup>, MertienSa'pang<sup>3</sup>

<sup>1</sup>Lecture of Medical Record and Health Information Department, Faculty Health Sciences, Universitas Esa Unggul, Jakarta

<sup>2</sup>Lecture of Nutrition Department, Faculty Health Sciences, Universitas Esa Unggul, Jakarta

<sup>3</sup>Lecture of Nutrition Department, Faculty Health Sciences, Universitas Esa Unggul, Jakarta

Correspondence author : Nanda Aula Rumana

Postal address: Jalan Arjuna Utara No. 9 Jakarta Barat. Email :  
nanda.rumana@esaunggul.ac.id (ph:+6285692408058)

### ABSTRACT

**Introduction :** Diabetes Mellitus is chronic disease that occurs when the pancreas cannot produce enough insulin or when the body cannot produce enough insulin or when the body cannot effectively use the insulin. In 2000, there were 171 million people in the world suffering from diabetes, while in 2014 as many as 8,5% adults aged 18 years and over suffered from diabetes. It is projected that by 2030 the figure will increase to 366 million.

**Method:** This research was conducted using quantitative descriptive method where each characteristic was described individually without statistical test

**Result:** The results showed that average age of respondents is 54-years-old, majority respondents are female (72%), have primary education level (34.5%), Betawi (46.6%), married (91.6%), have income below average (68%). Nutrition intake data showed that the average of energy intake  $1296.22 \pm 260/66$  kcal, protein intake  $51.8 \pm 12.62$  g, fat intake  $46.04 \pm 15.48$  g and carbohydrate intake  $173.59 \pm 41.87$  g. The results also showed that average body mass index (BMI) of respondents is  $25.63 \text{ kg/m}^2$  and the majority of respondent are housewives (53.8%).

**Conclusion:** patient who have been diagnosed as diabetics are expected to be able to regulate the daily stressor that arise when doing activities, this is overcome by good self-management for example by taking medication regularly, eating food according to recommended diet and routinely doing physical activity.

**Keywords:** diabetes type 2, characteristics

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### INTRODUCTION

Diabetes Mellitus is a chronic disease that occurs when the pancreas cannot produce enough insulin or when the body cannot effectively use the insulin. Insulin is a hormone that regulates blood sugar levels. The common effect of an increase in uncontrolled blood sugar levels is the occurrence of hyperglycemia, over time causing serious damage to many body

systems, especially nerves and blood vessels<sup>1</sup>.

In 2000, there were 171 million people in the world suffering from diabetes<sup>2</sup>. While in 2014 as many as 8.5% of adults aged 18 years and over suffered from diabetes<sup>3</sup>. It is projected that by 2030 the figure will increase to 366 million<sup>2</sup>. In 2012 diabetes was the direct cause of 1.5 million deaths<sup>3</sup>.

The classification of diabetes consists of Type 1 Diabetes Mellitus, Type 2 Diabetes Mellitus, Diabetes Mellitus in pregnancy / Gestational Diabetes Mellitus, and other types of diabetes<sup>1</sup>. Type 2 diabetes mellitus constitutes 90% of all diabetes mellitus events<sup>4</sup>.

Type 2 Diabetes Mellitus (previously referred to as NIDDM / Non Insulin Dependent of Diabetes Mellitus) occurs because of the ineffective use of insulin in the body. This incident is a result of being overweight and lacking physical activity. Therefore, most people in the world suffer from this type of diabetes<sup>3</sup>.

The prevalence of diabetes is increasing faster in middle and low income countries<sup>3</sup>. Indonesia which is a developing country with low income has a high risk too. Data said that the prevalence of diabetes in Indonesia in the 1980s at the age above 15 years was 1.5%-2.3%<sup>4</sup>. Whereas according to the results of RISKESDAS (Basic Health Research) there was an increase in the prevalence of diabetes in 2007 by 1.1% to 2.1% in 2013<sup>5</sup>.

Diabetes risk factors include genetic factors / family history, age, being

## METHODOLOGY

This research was conducted at the West Jakarta Health Center

overweight / obese, unhealthy diets, lack of physical activity and smoking<sup>3</sup>. Several studies conducted in Indonesia produced several risk factors for diabetes including > 45 years; more weight: (Relative Body Weight) BBR > 110% ideal weight or (Body Mass Index) BMI > 23 kg / m<sup>2</sup>; hypertension (> 140/90 mmHg); history of DM in the lineage; history of recurrent abortion, giving birth to a disabled baby or a newborn baby > 4000 g; HDL cholesterol < 3 mg / dL and / or triglycerides > 250 mg / dL<sup>6</sup>.

If diabetes is not managed properly, it will develop into complications that can threaten health and endanger life. Acute complications are a significant contributor to mortality, cost loss and poor quality of life<sup>3</sup>.

The illness and the length of the treatment process in diabetic patients can affect physical, psychological, social and welfare functions which are defined as the quality of life (Quality of Life). According to WHO, quality of life is the individual's perception of their position in life in the context of the culture and values in which they live and in relation to their goals, hopes, standards and concerns<sup>7</sup>.

The Puskesmas in West Jakarta consists of 8 sub-district health centers and 66 kelurahan puskesmas. In this study focused only on 8 sub-district health centers because the highest non-communicable disease services were in sub-district health centers. The 8 sub-district

health centers included Taman Sari District Health Center, Kebon Jeruk District Health Center, Grogol Petamburan Sub-district Health Center, Palmerah Sub-district Health Center, Tambora District Health Center, Cengkareng District Health Center, Kalideres District Health Center, Kembangan District Health Center. The data used in this study are primary data. The research conducted is a descriptive quantitative study. The study design used a cross sectional study design. The data collection technique used is interview technique.

The variables in this study consisted of demographic characteristics including age, gender, education level, ethnicity, marital status, economic level, intake, nutritional status, and occupation.

### ETHICAL CONSIDERATION

This research has gone through an ethical approval process by obtaining a certificate of passing the ethical review no: 218-18.146 / DPKE-KEP / FINAL-EA /

UEU / IV / 2018 issued by the Ethics Commission of Esa Unggul University. In this case, the researcher is obliged to

### RESULTS

Variable	Mean	Youngest	Oldest	SD	95% CI
Age	53.82	22	65	6.916	52.94-54.71

Table 1. Age of Respondents

Of the 238 respondents obtained, the average age is around 54 years. Where is the youngest respondent aged 22 years and the oldest is 65 years old. This is maintain the confidentiality of the identity of the respondent by not asking the name and address of the respondent, reporting serious unwanted events, not taking any action to the subject before passing the ethical review and informed consent by the subject. distributed in all Puskesmas areas in West Jakarta.

Table 2. Overview of Respondent Intake

Variable	Mean	Min	Max	SD	95% CI
Intake of Energy	1296.22	559.4	2258.4	260.66	1262.2-1329.5
Intake of Protein	51.8	19.8	90.65	12.62	50.19-53.41
Intake of Fat	46.04	12.5	100.2	15.48	44.07-48.02
Intake of Carbohydrate	173.59	75.3	305.5	41.87	168.24-178.94

Data on respondents' intake taken in this study included energy, protein, fat and carbohydrate intake. Where to get the respondent intake data, it is done using the food recall method. For the mean of each intake including energy intake  $1296.22 \pm 260.66$  kcal, protein intake  $51.8 \pm 12.62$  g, fat intake  $46.04 \pm 15.48$  g and carbohydrate intake  $173.59 \pm 41.87$  g. In energy intake, respondents in this study had the highest energy consumption of 2258.4 kcal, but there were still respondents who only consumed about 559.4 kcal.

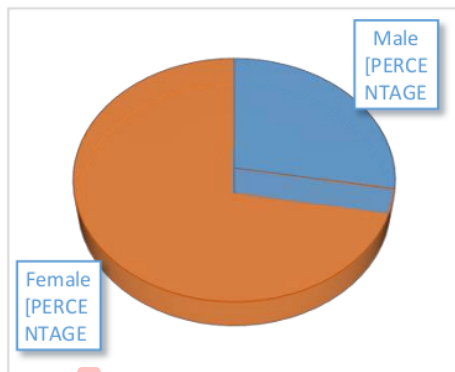
For protein intake, the largest consumption of respondents is 90.65 g while the lowest is 19.8 g. In contrast to protein intake, the highest fat intake consumed by respondents is 100.2 g, while the lowest is 12.5 g. Intake of other macro nutrients,

namely carbohydrates consumed by respondents at most amounted to 305.5 g while at least respondents consumed carbohydrates as much as 75.3 g.

Table 3 Overview of Respondents' Body Mass Index

Variable	Mean	Min	Max	SD	95% CI
BMI/Body Mass Index	25.63	16.68	38.83	4.28	25.09-26.18

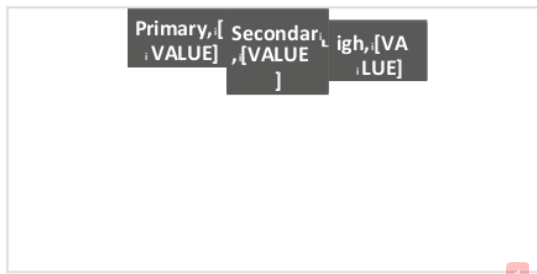
The nutritional status of respondents in this study is stated in BMI (Body Mass Index), where the average BMI of respondents is 25.63 kg / m<sup>2</sup> with a standard deviation of 4.28 kg / m<sup>2</sup>. The lowest BMI of respondents in all Puskesmas areas was 16.68 kg / m<sup>2</sup>, while the highest BMI of respondents reached 38.83 kg / m<sup>2</sup>. Figure 1. Overview of the Respondents' Gender



Most of the respondents in this study had female gender which was equal to 72%, compared to men, which was 28%. This proves that women have a higher risk of suffering from diabetes mellitus throughout the Puskesmas area in West Jakarta.

Figure 2. Description of

respondents' education level



Of the 4 criteria for respondent's education level spread throughout the West Jakarta Puskesmas area, the level of education that is most widely owned is primary school, which is 34.5%, followed by high school at 29.4%. For the lowest education, the number possessed by respondents is University, which is 2.9%. a lot of frequency<sup>14</sup>. Based on the results of data analysis, most of the respondents were Betawi. This has an effect on the consumption of respondents which ultimately also affects blood glucose.

Marriage status is very influential on the incidence of diabetes, people who have a partner, tend to be passionate in self-management such as food consumed, medication, and physical activity<sup>15</sup>. In contrast to the research results obtained in this study, most of the respondents were married (91%), the rest were widows / widowers (9%). This happened because data collection was carried out at the Puskesmas which had the dominant tendency for visitors to be married people.

Palimbunga's research results<sup>16</sup> show that people who have income levels <UMP have a chance of 0.33 times lower to suffer from DM and in this case the level of



income is a protective factor against the incidence of Type 2 diabetes. Indonesia as a developing country, with socio-economic changes and tastes eating this results in a changing lifestyle pattern. The diet of the people who used to provide food with many types of food but a little menu of food, but has changed into many dishes with a small selection of foods. Respondents with high income levels consume more outside snacks with their families after going home from work. However, individuals with low income levels can also influence the incidence of Type 2 Diabetes Mellitus. This is due to the difficulty in reaching health services with health costs that can be said to be expensive. In this study, most respondents had a high economic level, so they would likely consume more outside snacks with their families. The World Health Organization (WHO) estimates that more than 347 million people worldwide suffer from diabetes. This number is likely to more than double by 2030 without intervention. Nearly 80% of diabetes deaths occur in low and middle income countries<sup>17</sup>.

Type II Diabetes Mellitus is strongly influenced by its food intake so that medical therapy should control glucose, fat and hypertension.

Meal planning should be with sufficient nutrient content, along with a reduction in total fat, especially saturated fat. Energy consumption that exceeds the body's needs causes more glucose in the body. Sugar is a source of food and fuel for the body that comes from the digestive process of food. In patients with type II diabetes mellitus, their body tissue is unable to store and use glucose, so blood glucose levels will rise and will become toxic to the body. High blood glucose levels are influenced by high energy intake from food<sup>18</sup>. So it is important for patients with diabetes to pay attention to their food intake such as energy intake, carbohydrates, protein and fat. Respondents in this study had a fairly high intake compared to their adequacy, and this risked increasing blood glucose levels.

Nutritional status is one of the risk factors for high blood glucose. Respondents in this study mostly have more nutritional status and obesity, so it is very possible to have high blood glucose in people with diabetes mellitus. The results of the study stated that weight gain would potentially pose a risk of hypertension, diabetes mellitus, as well as a combined incidence of hypertension and diabetes mellitus, with the highest risk found in the combined incidence of hypertension and diabetes mellitus compared to single events, both in hypertension alone or diabetes mellitus alone<sup>19</sup>.

A person's work influences his physical activity. Groups not working tend to lack physical activity so that there is no movement of the members of the body, this results in easier access to diabetes mellitus. The results of the Chi Square test analysis showed that there was a relationship between the level of work and the incidence of Type 2 DM in outpatients at the RSU GMIM Internal Medicine Polyclinic of Pancaran Kasih Manado. This is because the respondents in this study with the status of not working are

## CONCLUSION

The average age of respondents is 54 years, dominated by 72% female, the highest level of education is elementary school which is 34.5%, the most dominant tribe of respondents is Betawi with a total of 46.6%, almost all respondents are married as many as 91.6%, mostly

mostly housewives and retirees<sup>16</sup>.

Based on the results of interviews conducted by respondents working as IRTs, they only do homework in a short time such as cooking, sweeping, washing, etc. But on the contrary they use more time to relax (sitting, watching etc.) so as to enable respondents to lack physical activity. Respondents who worked as retirees were also found in old age so they no longer carried out heavy work. These things affect the incidence of Type 2 DM<sup>16</sup>. This is in line with the results of this study which most of the respondents were housewives.

respondents had less than UMP income of 68%, intake distribution consisted of energy intake  $1296.22 \pm 260/66$  kcal, protein intake  $51.8 \pm 12.62$  g, fat intake  $46.04 \pm 15.48$  g and carbohydrate intake  $173.59 \pm 41.87$  g, nutritional status of respondents in this study stated in BMI,

where the average BMI of respondents is 25.63 kg / m<sup>2</sup>, 53.8% of respondents in

this study are Housewives.

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