

Associated Analysis of Demographic Characteristics of Type 1 Diabetes Mellitus Patients in a hospital in Lombok, Indonesia

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Abstract: This study seeks to analyze the demographic character of type 1 diabetes mellitus patients in a hospital in Lombok, Indonesia. Factors analyzed included age, education and sex. General data explains characteristics based on age, sex, education. Specific data discusses the influence of this demographic factor on type 1 diabetes mellitus patients at a hospital in East Lombok. The results of the study showed that based on profiling the demographic characteristics of patients with diabetes mellitus type in a hospital in Lombok showing the results that based on age, there were respondents with age <35 years as many as 7 respondents (10%), respondents, aged 36-45 years were 33 respondents (47%), and respondents aged 46-55 years were 15 respondents (21.5%), aged > 55 years were 15 respondents (21.5%). This finding shows that respondents with male gender are 30 respondents (43%) and respondents with female gender are 40 respondents (57%). Profiling results from 70 respondents showed that respondents with primary school education were 30 respondents (43%), respondents with school education were 30 respondents (43%), and, respondents with tertiary education were 10 respondents (14%).

Keywords: demographic characteristics, type 1 diabetes mellitus, age, education, sex.

I. Introduction

Diabetes mellitus is a metabolic disease characterized by increased levels of glucose in the blood for which there is no cure yet to be completely cured. The classification of diabetes mellitus based on its etiology is divided into 2. Type 1 diabetes mellitus caused by damage to pancreatic cells due to autoimmune processes, whereas type 2 diabetes mellitus is caused by

insulin resistance and impaired insulin secretion (Ozougwu et al., 2013; Muoio&Newgard, 2008).

Diabetes mellitus is a disease that is an increase in glucose levels in the blood. Diabetes mellitus is a chronic disease that arises due to high blood sugar levels (O'Sullivan & Mahan, 1965). High blood sugar levels are caused by the body's inability to produce the hormone insulin or ineffective use of insulin production. Blood sugar can increase due to food, stress, illness, and certain drugs. This is in

accordance with the explanation that diabetes mellitus is a metabolic disorder caused by many factors, with symptom in the form of chronic hyperglycemia and impaired metabolism of carbohydrates, fats, and proteins, as a result of deficiency of insulin hormone secretion, insulin activity, and glucose transporter deficiency (Hameed et al., 2015). This study seeks to analyze the demographic character of type 1 diabetes mellitus patients in a hospital in Lombok, Indonesia. Factors analyzed include age, education and gender, with a sample from a hospital in East Lombok, Indonesia.

II. LITERATURE REVIEW

Diabetes mellitus is a chronic condition characterized by increased concentrations of blood glucose or high blood sugar accompanied by the emergence of a typical main symptom, namely urine that tastes sweet in large amounts (Eknoyan & Nagy, 2005). Diabetes Mellitus is a chronic condition characterized by an increase in blood glucose concentration accompanied by the emergence of a typical main symptom, namely urine that tastes sweet in large amounts (O'Sullivan & Mahan, 1965). Diabetes Mellitus is a chronic disease that arises due to high blood sugar levels (Bilous & Donnelly, 2010). Diabetes mellitus is a chronic condition that results in an increase in blood sugar from normal limits and is caused by insulin deficiency (Ferrannini, 1998). Factors affecting diabetes mellitus are genetics, viruses and bacteria (coxsackie viruses, rubella, CMV, and herpes), toxic materials, nutrition, environment, and immunology. Diabetes mellitus factors include genetics, viruses and bacteria (coxsackie viruses, rubella, cytomegalovirus/CMV, and herpes), toxic materials, nutrients (Gamble et al., 1973; Menser et al., 1978; Pak et al., 1988). This was also supported by others explaining that the factors of diabetes mellitus, namely viruses and bacteria, genetics,

environment, and immunology (Horikawa et al., 2000; Robitaille & Grant, 2008).

III. METHOD

This study analyzes the effect of demographic factors on type 1 diabetes mellitus at the Namira Islamic Hospital in East Lombok, Indonesia. The results of the study will discuss the general description of the research location, general data, and special data. General data explains characteristics based on age, sex, education. Specific data discusses the influence of this demographic factor on type 1 diabetes mellitus patients at the hospital. Based on data obtained at the hospital found 100 patients with diabetes mellitus. From all respondents, only 70 respondents were willing to be involved in this study.

IV. RESULT

Characteristics based on age showed that respondents with ages 26-35 years were 7 respondents (10.00%), respondents, aged 36-45 years were 33 respondents (47.14%), respondents with ages 46-55 years were 15 respondents (21.42%), aged 56-65 years as many as 8 respondents (11.42%), and respondents aged 65 years and over as many as 7 respondents (10.00%). Type 1 diabetes mellitus experienced generally appears in children and adolescents, but some cases occur in adults <40 years because of low or no insulin levels, weight loss (Wagner et al., 2005). Type 1 diabetes mellitus is diabetes which is almost caused by insulin deficiency (Lee et al., 2011). This deficiency occurs due to the immune system which wrongly attacks the insulin-forming cells in the pancreas, and type 1 diabetes mellitus usually attacks early adulthood until early adulthood late adulthood. Type 1 diabetes mellitus mostly occurs at the age of 30-40 years, the causes include viral infections or nutritional factors that can cause the destruction of insulin-producing cells in the pancreas (American Diabetes Association, 2016).

The results also showed that respondents with male gender were 30 respondents (42.85%) and respondents with female gender were 40 respondents (57.14%). Female sex suffers the most from type 1 diabetes mellitus because women love to eat sweet, bread and all foods that have high carbohydrate levels, these foods are a factor in the onset of diabetes mellitus (Okatiranti, 2015). Risk factors for diabetes mellitus such as obesity, diet, lack of physical activity/exercise, age and history of DM during pregnancy, caused a high incidence of DM in women (Sae-Sia et al., 2013; Gabbe & Graves, 2003). Diabetes mellitus is characterized by the destruction of pancreatic beta cells, genetic factors, immunology, and the environment (Gerber & Rutter, 2017).

Based on education, patients with primary school education were 30 respondents (42.85%), respondents with junior high school education were 15 respondents (21.42%), respondents with high school education were 15 respondents (21.42%), respondents with education universities as many as 10 respondents (14.28%). Education is an important factor in understanding illness, self-care, and controlling blood sugar (Watts, 1980). Education is an effort and all efforts to make society able to develop human potential in order to have self-control, have personality, have intelligence, and have the skills needed in DM treatment (Cutler & Lleras-Muney, 2006). In accordance with the explanation expressed by Law No. 20 of 2003 which explains that education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have spiritual strength.

Table 1. Demographic Characteristics of Respondents and the prevalence of diabetes mellitus

Classification	Frequency (n)	Percentage (%)
Gender:		
Men	30	43

Women	40	57
Education:		
Primary school	30	43
Secondary school	30	43
College	10	14
Age:		
<35	7	10
36-45	33	47
46-55	15	21.5
>55	15	21.5

Table 1 shows that respondents aged <35 years were 7 respondents (10%), respondents, aged 36-45 years were 33 respondents (47%), respondents aged 46-55 years were 15 respondents (21%), age > 56 years as many as 8 respondents (22%). The results showed that respondents with male gender were 30 respondents (43%) and respondents with female gender were 40 respondents (57%). Female sex suffers the most from type 1 diabetes mellitus because women like to eat sweet, bread and all foods that have high levels of carbohydrates, these foods are factors for diabetes mellitus, risk factors such as obesity, diet, lack of activity/physical exercise, age and history of DM during pregnancy, causing a high incidence of DM in women (Hans, 2010). The results showed that respondents with primary school education were 30 respondents (43%), respondents with secondary school education were 30 respondents (43%), respondents with tertiary education were 10 respondents (14%). Based on the theory, education is an important factor in understanding illness, self-care, and controlling blood sugar.

Treatment of type 1 diabetes mellitus the hospital is to inject insulin, assess glycemic control by self-monitoring of blood accompanied by clinical tests such as: Insulin Replacement, intensive insulin therapy. Diabetes mellitus is a disease that is an increase in glucose levels in the blood. Diabetes mellitus is a chronic disease that arises due to high blood sugar levels (O'Sullivan & Mahan, 1965).

High blood sugar levels are caused by the body's inability to produce the hormone insulin or ineffective use of insulin production. Blood sugar can increase due to food, stress, illness, and certain drugs. Diabetes mellitus is a metabolic disorder caused by many factors, with symptom in the form of chronic hyperglycemia and impaired metabolism of carbohydrates, fats, and proteins, as a result of deficiency of insulin hormone secretion, insulin activity, and glucose transporter deficiency (Di Carli et al., 2003).

Based on data obtained at the hospital found 100 patients with diabetes mellitus. However, from all respondents, only 70 respondents are willing to be respondents. A person's age can affect the incidence of diabetes mellitus because the older a person is, the weaker his immune system, the more susceptible to diabetes mellitus, this is because diabetes mellitus is a chronic disease that arises due to high blood sugar levels. Blood sugar can increase due to food, stress, illness, and certain drugs. Based on the data from the field of research results including respondents aged 26-35 years as many as 7 respondents (10%), respondents, aged 36-45 years as many as 33 respondents (47%), respondents aged 46-55 years were 15 respondents (21, 5%), aged > 55 years by 15 respondents (21.5%). This happens because diabetes mellitus is caused by many genetic, viral and bacterial, environmental and nutritional factors.

Based on age, gender can also influence the occurrence of diabetes mellitus, it is caused by the habits of most women who like to eat sweet foods, bread, and all foods that have high carbohydrate levels. Based on data from the results of the field study, 70 respondents (70 respondents) were divided by male respondents (30%) and 40 female respondents (57%). This happens because if blood sugar is not well controlled, diabetes mellitus can cause problems in the limbs. In other words, diabetes mellitus is a disease that has the most complications.

Education as one of the factors that can affect individuals in experiencing diabetes mellitus because of higher education a person will be better able to care for his own health (Cutler & Lleras-Muney, 2006). The higher one's education, the better one's knowledge. The more information a person gets, the more knowledge he gets about how to maintain his health. Based on the results of the study in the field that of 70 respondents showed that respondents with primary school education were 30 respondents (42.85%), respondents with junior high school education were 15 respondents (21.42%), respondents with high school education were 15 respondents (21.42%), respondents with tertiary education were 10 respondents (14.28%). This happens because of the lack of knowledge of family members in caring for their health and family members suffering from diabetes mellitus.

V. CONCLUSIONS

The results of the study showed that based on profiling the demographic characteristics of patients with diabetes mellitus type in a hospital in Lombok showing the results that based on age, there were respondents with age <35 years as many as 7 respondents (10%), respondents, aged 36-45 years were 33 respondents (47%), and respondents aged 46-55 years were 15 respondents (21.5%), aged >55 years were 15 respondents (21.5%). This finding shows that respondents with male gender are 30 respondents (43%) and respondents with female gender are 40 respondents (57%). Profiling results from 70 respondents showed that respondents with primary school education were 30 respondents (43%), respondents with school education were 30 respondents (43%), and, respondents with tertiary education were 10 respondents (14%).

These results indicate that from the educational aspect, the lack of knowledge of family members in caring for their health and family members suffering from diabetes mellitus. From the aspect of age, this happens because diabetes mellitus is

caused by many genetic, viral and bacterial, environmental and nutritional factors. From the aspect of gender, the most female sex suffer from type 1 diabetes mellitus because women like to eat sweet, bread and all foods that have high levels of carbohydrates, these foods are factors for diabetes mellitus, risk factors such as obesity, eating patterns, lack of physical activity/exercise, age and history of DM during pregnancy, cause a high incidence of DM in women.

REFERENCES

- [1] American Diabetes Association. (2016). 2. Classification and diagnosis of diabetes. Diabetes care, 39(Supplement 1), S13-S22.
- [2] Bilous, R., & Donnelly, R. (2010). Handbook of diabetes. John Wiley & Sons.
- [3] Cutler, D. M., & Lleras-Muney, A. (2006). Education and health: evaluating theories and evidence (No. w12352). National bureau of economic research.
- [4] Di Carli, M. F., Janisse, J., Ager, J., & Grunberger, G. (2003). Role of chronic hyperglycemia in the pathogenesis of coronary microvascular dysfunction in diabetes. Journal of the American College of Cardiology, 41(8), 1387-1393.
- [5] Eknoyan, G., & Nagy, J. (2005). A history of diabetes mellitus or how a disease of the kidneys evolved into a kidney disease. Advances in chronic kidney disease, 12(2), 223-229.
- [6] Ferrannini, E. (1998). Insulin resistance versus insulin deficiency in non-insulin-dependent diabetes mellitus: problems and prospects. Endocrine Reviews, 19(4), 477-490.
- [7] Gabbe, S. G., & Graves, C. R. (2003). Management of diabetes mellitus complicating pregnancy. Obstetrics & Gynecology, 102(4), 857-868.
- [8] Gamble, D. R., Taylor, K. W., & Cumming, H. (1973). Coxsackie viruses and diabetes mellitus. Br Med J, 4(5887), 260-262.
- [9] Gerber, P. A., & Rutter, G. A. (2017). The role of oxidative stress and hypoxia in pancreatic beta-cell dysfunction in diabetes mellitus. Antioxidants & redox signaling, 26(10), 501-518.
- [10] Hameed, I., Masoodi, S. R., Mir, S. A., Nabi, M., Ghazanfar, K., & Ganai, B. A. (2015). Type 2 diabetes mellitus: From a metabolic disorder to an inflammatory condition. World journal of diabetes, 6(4), 598.
- [11] Horikawa, Y., Oda, N., Cox, N. J., Li, X., Orho-Melander, M., Hara, M., & del Bosque-Plata, L. (2000). Genetic variation in the gene encoding calpain-10 is associated with type 2 diabetes mellitus. Nature genetics, 26(2), 163-175.
- [12] Lee, Y., Wang, M. Y., Du, X. Q., Charron, M. J., & Unger, R. H. (2011). Glucagon receptor knockout prevents insulin-deficient type 1 diabetes in mice. Diabetes, 60(2), 391-397.
- [13] Menser, M., Forrest, J., & Bransby, R. (1978). Rubella infection and diabetes mellitus. The Lancet, 311(8055), 57-60.
- [14] Muoio, D. M., & Newgard, C. B. (2008). Molecular and metabolic mechanisms of insulin resistance and β -cell failure in type 2 diabetes. Nature reviews Molecular cell biology, 9(3), 193-205.
- [15] Okatiranti, O. (2015). Gambaran Pengetahuan Dan Sikap Perawat Dalam Pelaksanaan Discharge Planning Pada Pasien Diabetes Mellitus Type II. Jurnal Keperawatan BSI, 3(1).
- [16] O'Sullivan, J. B., & Mahan, C. M. (1965). Blood Sugar Levels, Glycosuria, and Body Weight Related to Development of Diabetes Mellitus: The Oxford Epidemiologic Study 17 Years Later. JAMA, 194(6), 587-592.
- [17] Ozougwu, J. C., Obimba, K. C., Belonwu, C. D., & Unakalamba, C. B. (2013). The

- pathogenesis and pathophysiology of type 1 and type 2 diabetes mellitus. *Journal of physiology and pathophysiology*, 4(4), 46-57.
- [18] Pak, C., Mcarthur, R., Eun, H. M., & Yoon, J. W. (1988). Association of cytomegalovirus infection with autoimmune type 1 diabetes. *The Lancet*, 332(8601), 1-4.
- [19] Robitaille, J., & Grant, A. M. (2008). The genetics of gestational diabetes mellitus: evidence for relationship with type 2 diabetes mellitus. *Genetics in Medicine*, 10(4), 240-250.
- [20] Sae-Sia, W., Maneewat, K., & Kurniawan, T. (2013). Effect of a self-management support program on diabetic foot care behaviors. *International Journal of Research in Nursing*, 4(1), 14.
- [21] Wagner, V. M., Müller-Godeffroy, E., Von Sengbusch, S., Häger, S., & Thyen, U. (2005). Age, metabolic control and type of insulin regime influences health-related quality of life in children and adolescents with type 1 diabetes mellitus. *European journal of pediatrics*, 164(8), 491-496.
- [22] Watts, F. N. (1980). Behavioural aspects of the management of diabetes mellitus: education, self-care and metabolic control. *Behaviour Research and Therapy*, 18(3), 171-180.