Open Access　　　　　　　　　　　　　　　　　　　　**Research Article**

How is the SelfCare Management of Patients with Type II Diabetes Mellitus ?- Characteristics and Knowledge

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A B S T R A C T

Background: Diabetes mellitus is a long-term disease characterized by increased blood sugar levels. The number of people with diabetes mellitus in Indonesia continues to increase from year to year. Diabetes control can be done with self care management which can be influenced by the characteristics of diabetics, knowledge, attitudes and behavior. Objective: To find out about the relationship between characteristics and knowledge with self care management in patients with type II diabetes mellitus. Research Methods: Quantitative research with analytical descriptive type and using a cross sectional approach. The population of this study was all patients with type II diabetes mellitus in the Kemyoran District Health Center aged 45 years and over with a sample of 93 respondents and using purposive sampling technique. The instrument used was a questionnaire and analyzed using the Chi-Square test. Results: In this study, the results of the Chi-Square test showed that the variables of age (p=0.013), gender (p=0.764), education (p=0.003), duration of diabetes mellitus (p=0.012) and knowledge (p= 0.005 Conclusion: there is a relationship between age, education, duration of diabetes mellitus and knowledge with self care management of patients with type II diabetes mellitus.

Key words: Self-care management, knowledge, type II diabetes mellitus

INTRODUCTION

Type II diabetes or non-insulin-dependent diabetes mellitus is usually diagnosed after the age of 40 years, namely in the adult group and affects 90% of people with diabetes worldwide. In 2021 as many as 537 million adults aged 20-79 years suffer from diabetes and it is estimated that the number of people with diabetes will increase to reach 643 million in 2030 and 783 million in 2045. It is estimated that a total of 6.7 people will die from diabetes in 2021 in the world.[1–3]

According to 2018 Basic Health Research data, it was found that 1.5% prevalence of diabetes mellitus in Indonesia based on doctor's diagnosis in all age groups. Then, as much as 3.88% of the prevalence of diabetes mellitus in Indonesia in the 45-54years age category, 6.29% in the 55-64 years age group, 6.03% in the 65-74 age category and 3.32% in the age category. more than 75 years. Then, the incidence of diabetes was higher for women by 1.78% than men by 1.78% and diabetes was found to be higher in urban areas as much as 1.89% than in rural areas as much as 1.01%.[4] The prevalence of diabetes based on doctor's diagnosis in DKI Jakarta is 2.57%. As many as 6.32% in the 45-54 years age group, 10.53% in the 55-64 years age group, 15.50% in the 64-74 years age group and 11.02% in the 75 years age group. Then, the incidence of diabetes in women was higher by 2.82% and in men by 2.33%. Then, in the Central Jakarta area as much as 4.15% prevalence of diabetes mellitus.[4] Based on data obtained by researchers at the Kemayoran District Health Center that as many as 1277 people suffer from diabetes mellitus. Diabetes Mellitus is the sixth of the ten most common diseases in the Kemayoran District Health Center.

Diabetes mellitus which is often referred to as diabetes is a long-term disease condition in which there is an increase in blood glucose levels because the body's cells produce little or no insulin, which is called type I diabetes and type II diabetes, namely the inability of the body's cells to respond to insulin or insufficient amount of insulin for the body. Diabetes is a metabolic disorder characterized by blood sugar levels exceeding normal limits.[5–7]

Control of diabetes mellitus is needed to reduce complications that occur such as monitoring blood glucose levels, diabetic diet, physical exercise and undergoing pharmacological therapy.Self-care management is an action to determine what is needed for changes in physical signs and symptoms in oneself. These changes may be due to disease, medication or the environment (Riegel, Jaarsma and Stromberg, 2012). One of the factors that influence self-care is providing social support for diabetics. In contrast to other studies, there was an increase in self-management behavior after being given self-care education to diabetes mellitus patients at the Sukapura Public Health Center, Jakarta.[8–10]

Research by Saqila and Muflihatin states that a good level of individual knowledge of self-management can lead to good self-management as well. This can be seen in the results of the study that there is a relationship between knowledge and self-management of people with type II diabetes mellitus. Then, individual attitudes can affect nutrition therapy, pharmacology and physical exercise.[11,12]

Knowledge is the result of knowing through sensing certain objects. In determining an action or decision an individual can be influenced by knowledge. The life of diabetics can be better if they understand diabetes knowledge which can be seen that there is a relationship between knowledge of type II diabetes mellitus sufferers about chronic complications with self-care motivation.Behavior is observable and learnable behavior that is influenced by internal and external factors. In Hidayah's research, poor self-management behavior is a risk factor for uncontrolled blood glucose levels. Can be affected by various aspects of diabetes self-management, including diet, physical activity, foot care and medication intake.[13–15]

METHODS AND MATERIALS

This research is a quantitative research with a cross sectional which is carried out at a time (point time approach) and the variables are measured simultaneously. The type of research used is descriptive analytic which aims to find out how the relationship between the independent and dependent variables is, as well as to search and find an unknown cause of behavior.

This study was conducted on patients with type II diabetes mellitus in the Kemayoran District Health Center, DKI Jakarta Province with 93 respondents. In this study, the researcher used a non-probability sampling method with purposive sampling technique because the sampling was based on the research objectives that set the inclusion criteria, including: people with type II diabetes mellitus; adults (45-60 years) and old (≥61 years); able to read and write.

The instrument in this study used a questionnaire made by the researcher. The questionnaire in this study consisted of several questionnaires, including the first questionnaire (the respondent's age, gender of the respondent, the respondent's last education and duration of suffering from diabetes mellitus), the second questionnaire (the respondent's knowledge level questionnaire about diabetes) and the third questionnaire (self-care management questionnaire for diabetes mellitus).

This study was conducted to test the validity and reliability of the questionnaire to 30 respondents with type II diabetes mellitus in the Jakarta area, and the test results contained several invalid questions on the knowledge variable with the results (-0.16 – 0.658) and reliable with the results 0.674>0.6. Furthermore, the self- care management variable also contains several invalid questions and the results are (0.141-0.665), and the reliability is 0.679.

The data analysis that will be used by the researcher is univariate and bivariate analysis. The purpose of univariate analysis is to identify the frequency of respondent characteristics and bivariate analysis is to determine the relationship between knowledge, attitudes and behavior with self-care management in type II diabetes patients. Bivariate analysis using Chi-Square to determine the 95% confidence level (CI).

RESULTS

Table 1: Frequency distribution of respondents based on their characteristics

Characteristics		n	%
Gender	Male	70	75.3
	Female	23	24.7
Age	45-60years	57	61.3
	>61years	36	24.7
Education	Elementary and junior high)	41	44.1
	Senior high school	38	40.9
	College	14	15.1
Duration of diabetes mellitus	>5years	34	36.6
	≤ 5years	59	63.4
Knowledge	High	48	51.6
	Low	45	48.4
Self-care management	Good	47	50.2
	Bad	46	59.5

The results of data analysis in table 1 show that the majority of respondents are in the adult age group (45-60 years) and most of the respondents are female. While the majority of respondents have low education (elementary/junior high school) and have a history of diabetes mellitus less than 5 years. For the knowledge of most of the high categories about diabetes, and doing self-care management of diabetes good.

Table 2: Relationship between respondent characteristics and knowledge with self care management in Type II Diabetes Mellitus Patients.

Variable	Self care management				Total		p-value	OR CI 95%
	Good		Bad					
	f	%	f	%	f	%		
Gender								
Male	11	47.8	12	52.2	23	100.0	0.764	1.155
Female	36	51.4	34	48.6	70	100.0		(0.450-2.966)
Age								
45-60years	23	40.4	34	59.6	57	100.0	0.013	0.338
>61years	24	66.7	12	33.3	36	100.0		(0.141-0.809)
Education								
Elementary and junior high)	14	34.1	27	65.9	41	100.0	0.003	-
Senior high school	21	55.3	17	44.7	38	100.0		
College	12	85.7	2	14.3	14	100.0		
Duration of diabetes mellitus								
>5years	23	67.6	11	32.4	34	100.0	0.012	3.049
≤ 5years	24	40.7	35	59.3	59	100.0		(1.256-7.400)
Knowledge								
High	31	64.6	17	35.4	48	100.0	0.005	3.305
Low	16	35.6	29	64.4	45	100.0		(1.413-7.733)

Table 2 shows that most of the adult group aged 45-60 years do self care management of diabetes poorly. The results showed that there was a relationship between age and diabetes self-care management (p=0.013 ; OR=0.338) and it can be said that the adult group aged 45-60 years had 0.338 times the chance to perform diabetes self-care management worse than the older group (>61 years). The gender of the majority of female respondents carried out diabetes self-care management well, and it was found that there was no relationship between gender and diabetes self-care management (p=0.764; OR=1.155) and female respondents had a chance of 1.155 times doing good diabetes self-care management. than male respondents. Respondents with low educational background mostly do self-care management of diabetes poorly. The results of this study showed that there was a relationship between education and diabetes self-care management (p=0.003). Respondents who have experienced type II diabetes mellitus for more than 6 years mostly do self-care management of diabetes well. It was found that there was a relationship between length of suffering from DM and diabetes self-care management (p=0.012; OR=3.049) and diabetics who had diabetes less than 5 years had a 3.049 times worse chance of doing diabetes self-care management than respondents who had DM more than > 5 years. The majority of people with type II diabetes mellitus who have good knowledge about diabetes do self-care management of diabetes well. Based on the results of the study, it was found

that there was a relationship between knowledge about diabetes and diabetes self-care management (p = 0.005 ; OR = 3.305) and it can be said that respondents who had high knowledge about diabetes had a 3.305 times better chance of doing diabetes self-care management than those with type II diabetes who have low knowledge about diabetes.

DISCUSSION

The results of this study indicate that most of the adult group are 45-60 years old and the p-value is 0.013 which can be concluded that there is a relationship between age and diabetes self-care management. Can be at risk of developing diabetes because as individuals age, they can reduce the number of pancreatic beta cells that produce insulin. Ages above 45 years are at risk for diabetes mellitus because the aging process results in a lack of insulin production in the pancreas and at that age tends to be less in exercising, and weight can increase with age.[16,17]

This study is in accordance with research conducted by Mustipah (2019) that there is a relationship between age and self-care in patients with type II diabetes mellitus (p = 0.0004) and suggests that elderly patients tend to be better at self-care than young people with type II diabetes mellitus.

This finding is not in line with research conducted by Akoit that there is no relationship between age and self-care behavior, and reveals that older respondents have sufficient

experience in self-care. Meanwhile, younger respondents can understand and are able to carry out self-care because they have sufficient understanding. Researchers believe that with increasing age the risk of developing diabetes and the results of the study show that the majority of respondents are in the adult age group (45-60 years).[18]

The results show that most of the respondents are women and have a p-value = 0.764 which means that there is no relationship between gender and diabetes self care management.

According to Fajriani and Muflihatin that the amount of fat in women is 20-25% of the total weight, while adult men are 15-20%. This causes the level of fat in the blood to increase so that the risk factor for diabetes is higher in women than men. But on the other hand, women have many risk factors for diabetes because the hormonal process, namely the menstrual cycle, which becomes the circulation of fat in the body easily gathers.[19]

The findings of this study are in accordance with research conducted by Mustipah which showed that most of the 18 men (56.5%) had adequate self-care and 36 (67.9%) had adequate self-care. good. There was no relationship between sex and self-care (p=0.901) in type II diabetes mellitus patients at Depok III Public Health Center, Sleman Yogyakarta.[20]

In line with research conducted by Handayani et al. that it was not found that gender could influence a person in self-management of diabetes mellitus and the number of female respondents was more than male, so it is natural that self-management of diabetes mellitus with a good category was found in female respondents. In accordance with the results obtained that the majority of respondents are female because women are at a higher risk of developing diabetes than men.[21]

The results of this study showed that there was a relationship between education and diabetes self-care management (p=0.003). The findings of this study are in accordance with Mustipah's researchthat there is a relationship between the level of education and self-care for people with type II diabetes mellitus at the Depok III Health Center, Sleman Yogyakarta in 2018. Respondents with higher education can have a good understanding of self-management behavior because it is easier to receive information about diabetes through various media compared to respondents who have low education.[17,20]

This study is not in line with research conducted by Fajriani and Muflihatin that respondents with low education are not affected in knowing, maintaining and maintaining the perceived type II diabetes mellitus because all respondents can obtain information about type II diabetes mellitus from technology or counseling conducted. by health services. The higher education obtained by respondents is formal education, not special education about diabetes mellitus.[19,22]

The results showed that respondents with high school education and higher education mostly performed self-care management well. So that the researchers argue that respondents with higher education can carry out self-care management of diabetes well because it is easy to receive information related to diabetes compared to respondents with low education.

The results of this study indicate that there is a relationship between duration of diabetes mellitus and diabetes self-care management (p=0.012). This study is in line with research which states that there is a long-standing relationship with diabetes mellitus and self-care in respondents with type II diabetes. This happens because people with diabetes mellitus who have suffered for a long time have experience dealing with their disease and can take care of themselves.The findings of this study are in accordance with Mustipah's research which suggests that there is a long-standing relationship with diabetes mellitus with self-care in patients with type II diabetes mellitus with a p value of <0.05. The researcher argues that respondents who have had type II diabetes mellitus for a long time tend to be more adequate in performing self-care than those who have recently suffered from type II diabetes.Long suffering from diabetes mellitus is one of the factors that affect self-care, because people with diabetes mellitus who have suffered for a long time have more self-care activities than new sufferers.[20,23]

The results of this study indicate that the majority of respondents who have suffered from diabetes mellitus for more than 6 years carry out self-care management of diabetes well. So that respondents who have a history of diabetes mellitus for more than 6 years have more experience and activities than respondents who have type II diabetes mellitus for less than 5 years.

This study resulted in a relationship between knowledge about diabetes and diabetes self care management (p = 0.005). According to Azmiardi's research there is a relationship between knowledge and self-care of diabetes in type II DM respondents and the statistical test results p = <0.001 and the presence of high knowledge in type II diabetes mellitus patients has a 5.58 times better chance of practicing self-care than type II diabetes mellitus patients who have low knowledge.[24]

This study is also in line with that conducted by Herkolin which shows that there is a relationship between self-care knowledge and self-care implementation in respondents with type II diabetes mellitus at the Banyuanyar Health Center with (p=0.002).[25]

Knowledge is obtained when an individual knows a certain object through the five senses of hearing, sight, smell, touch and taste. Individuals do not have a basis for making decisions and taking action on the problems they face without knowledge.[26,27] From the results of the analysis, it was found that respondents who had good knowledge about diabetes mostly carried out self-care management of diabetes well. So the researcher assumes that the knowledge about diabetes obtained by people with type II diabetes mellitus is the basis for self-care management of diabetes

CONCLUSIONS

Based on the results of the study, it can be concluded that there is a significant relationship between age, education, duration of suffering from diabetes mellitus and knowledge with self-care management of type II diabetes mellitus patients.

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CONFLICT OF INTEREST

The authors declare that they have no conflict interests.

ETHICAL CLEARANCE

This research has received ethical approval from the Research Ethics Committee, Health Polytechnic of Jakarta IIINo.LB.02.02/KEPK/034/2022

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