Relationship between Family Support and Dietary Compliance in People with Type 2 Diabetes Mellitus

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ARTICLE INFORMATION	ABSTRACT
	Introduction: Dietary adherence to type 2 diabetes mellitus suffers is a behavior that must be obeyed. One of the factors that influence dietary adherence is family support because it can lead to patient motivation in implementing dietary adherence. Objectives: This study aimed to determine the relationship between family support and dietary adherence in patients with diabetes mellitus type 2. Methods: This study used a cross-sectional design with a purposive sampling and 72 respondents were taken as a sample. Collecting data using Hensarling Diabetes Family Supposrt Scale (HDFSS) and Perceived Dietary Adherence Questionnaire (PDAQ) then analyzed using the Spearman rank test. Results: Most of the patients (74%) were in the moderate family support category and some of them (57%) were in the moderate diet category. Based on the analysis results obtained P-value 0.014 (P <0.05), which means there is a relationship of 0.290 which indicating low strength relationship. Conclusions: Family support is very important to help sufferers of type 2 diabetes mellitus in carrying out a diet, so families must work together with health workers to increase understanding of the diet of type 2 diabetes sufferers.

Introduction

The globalization era which is increasingly sophisticated and easy to reach has made the people lifestyle in the world change into unhealthy and unbalanced eating patterns without us realizing it. The people habit of consuming fast food that is easily available by consuming various drinks ranging from sweet to fizzy and without being accompanied by adequate physical activity such as regular exercises has a bad impact on health because it can trigger various diseases. One of them is a metabolic disorder known as diabetes mellitus (Krystalia, 2017).

Diabetes mellitus is a disease with metabolic disorders involving insulin, characterized by high blood glucose levels in the body. This condition occurs due to an abnormality in insulin secretion, where insulin is a hormone that regulates the balance of blood sugar levels (Firdaus M, 2017). Hyperglycemia that occurs in DM sufferers can be controlled by carrying out a proper diet, in this case it is necessary to have family support to motivate DM sufferers to carry out dietary compliance so that blood glucose levels remain balanced (Tasia & Widianto, 2019).

Diabetes Mellitus Type 2 (T2DM) is the most frequent case found and accounts for about 90% of all DM cases in the world (Sugiarta & Darmita, 2020). *International Diabetes Federation*, (2019) reported the prevalence of DM in the world in 2019 DM sufferers were 463 million people, this number will continue to increase by 51% with an estimate that in 2030 as many as 578 million people and in 2045 as many as 700 million people who experience DM. Indonesia is listed as the

sixth ranked country in the world with 10.3 million people with diabetes mellitus aged 20-79 years. The cases of type 2 diabetes are 90-95%, most of which can be prevented due to an unhealthy lifestyle. If it is not handled properly, it is estimated that in 2030 the prevalence of DM in Indonesia will reach 21.3 million people (Kementrian Kesehatan RI, 2018).

East Java is one of the five provinces with the highest diabetes prevalence after DKI Jakarta, DI Yogyakarta, East Borneo and North Sulawesi. The proportion of diabetes mellitus prevalence data based on doctor's diagnosis in population aged ≥15 years in East Java 2013 was 2.1%, then increased in 2018 by 2.9% with 102,399 DM cases (Riskesdas, 2018). Data on diabetes mellitus sufferers from Banyuwangi District Health Office in 2018 were 9,867 people. In 2019 DM sufferers increased to 28,951 people, most DM sufferers were found in Kertosari Health Center work area as many as1,665 people (Banyuwangi Health Department, 2019).

Type 2 diabetes (non-insulin-dependent or adult-onset diabetes) is caused by the ineffective use of insulin in the body (Kementrian Kesehatan, 2014). The most common cases of type 2 diabetes mellitus are insulin resistance and pancreatic β-cell insufficiency in producing insulin. This type of disease is characterized by peripheral insulin resistance destroying hepatic glucose production (HGP) and reducing β cell function which will eventually lead to total β cell destruction (Perkeni, 2015). Normally the food we consume is converted into glucose and then distributed to whole body and used as energy with the help of insulin. In diabetics, it is difficult for glucose to enter the cells because of less or no insulin in the body, so glucose in the blood increases (Damayanti, 2015). Diabetics must go on carbohydrate diet, if the patient does not go on a diet, the blood sugar levels will be high after eating, and it will drop when fasting (Soeyono, S., Waspadji, S., Soegondo & Soewondo, Subeksti, I., Semiardji, G., 2013).

DM therapy and treatment takes a long time so it can cause flatness for DM sufferers. Therefore, beside physical problems, it is also necessary to pay attention to the psychological of sufferers in resolving diabetes mellitus problems so that family support is needed in guiding dietary adherence. Apart from health workers, family members play an important role in the nursing process. A good family is a family that can motivate, provide full support, and give attention to sufferers; so that they are more enthusiastic and motivated to recover from their illness (Hisni et al., 2017). Family support is defined as assistance provided by family members to increase physical and psychological comfort for people with stressful situations (Amelia et al., 2018). This support can be in the form of family members' attitudes or behavior to remind patients to be consistent on their diet by Number, Schedule, and Type recommended by health workers during the treatment period. So, it can increase patient motivation to carry out dietary compliance so that blood sugar levels can be controlled properly (Anjani, D. B., & Gayatri, 2018). This study aimed to determine the relationship between family support and dietary adherence in patients with diabetes mellitus type 2.

Methods

The type of research proposal used was correlational. This study uses a cross sectional approach. In this study, the population is people with type diabetes mellitus in the working area of Kertosari Public Health Center as many as 77 people. The inclusion criteria in this study were Patients with type 2 diabetes who are in the working area of Kertosari Community Health Center, they can read and write, cooperative and willing to be a respondent and respondents who live with their families. This sampling method used purposive sampling technique so that the sample was found as many as 75 people. The instrument used in data collection was a questionnaire to measure family support and dietary adherence. The measuring tool for family support uses the Hensarling

Diabetes Family Support Scale (HDFSS) questionnaire and Dietary compliance using the instrument Perceived dietary adherence questionnaire (PDAQ) which consists of 9 questions. The results obtained from this analysis use the help management software SPPS (Statistic Program for Social Scient) version 25.0 for windows. The analysis uses the Spearman rank test, with a significance level of α = 0.05.

Results

The results of the data had been collected and processed after conducting research showed that the specific characteristics of respondents were family support and dietary compliance.

Table 1 Distribution of Specific Characteristics of Respondents Based on Family Support Variables.

Variable	Frequency	Percentage
Family support:		
Good	16	22%
Enough	53	74%
Less	3	4%
Total	72	100%

Based on table 1, it was found that most type 2 diabetes mellitus sufferers in Kertosari Health Center area received family support with a sufficient category of 53 respondents (74%). Emotional support is support which involves feelings of empathy, attention and care that a family gives to someone so as to make him feel more comfortable and regain his confidence. Thus this support will make type 2 DM sufferers always be careful and control their emotions about the complications that exist and can reduce feelings of inferiority to the physical limitations experienced (Damayanti & Kurniawan, 2014). family support provided to sufferers of type 2 diabetes will increase motivation, enthusiasm, and love to carry out management of their disease in the form of a good diet.

Table 2. **Distribution of specific characteristics of respondents based on dietary compliance variables.**

Variable	Frequency	Percentage
Diet compliance :		
High compliance	2	3%
Moderate compliance	41	57%
Low compliance	29	40%
Total	72	100%

Based on table 2, it could be seen that patients with type 2 diabetes at Kertosari Health Center were mostly in the moderate compliance category as many as 41 respondents (57%). Dietary compliance of people with diabetes mellitus should be in the high category because type

2 diabetes mellitus is a disease that is strongly influenced by diet. According to Notoatmodjo (2003) in (Indah D, 2011), the failure to achieve dietary adherence in the high category is due to the lack of compliance with the type 2 DM diet management, this depends on how high the level of education someone has in addressing the problem.

Table 3. Cross Tabulation: Relationship between Family Support and Diet Compliance in Type 2 Diabetus Mellitus Patients

Family Support	Diet compliance				P-value	r
	Low	Moderate	High	Total		
	n (%)	n (%)	n (%)	n (%)		
Less	3 100	0 0	0 0	3 100	0.014	0,29
Enough	21 39.6	31 58.5	1 1.9	53 100		
Good	5 31.3	10 62.5	1 6.3	16 100		
Total	29 40.3	41 56.9	2 2.8	72 100		

The results of this research is known that from 72 respondents, most of the family support categories are sufficient with moderate diet compliance as many as 31 respondents (58.5%). The results of the rank Spearman test analysis (Appendix 21) obtained a P-value of 0.014 (P <0.05), then the alternative hypothesis was accepted and H0 was rejected, meaning that there was a relationship between family support and dietary compliance with people type 2 diabetes mellitus in the work area of Kertosari Public Health Center. The level of closeness between the two variables shows a low relationship (0.290).

Discussion
The relationship between family support and dietary compliance for sufferers of type 2 diabetes.

Based on the results of the Spearman rank test analysis using SPSS version 25, with a significance level of 0.05 (5%), the p value was 0.014 <0.05, so the alternative hypothesis was accepted and H_0 was rejected, meaning that there was a relationship between family support and dietary compliance in sufferers. Diabetes mellitus type 2 in the working area of Kertosari Health Center with a close correlation of 0.290 which indicated a low correlation with strength.

The results of the cross tabulation in table.3 showed that family support was sufficient with moderate dietary adherence as many as 31 respondents (58.5%). Diabetes mellitus dietary compliance was a form of adherence that must be followed every day, the diet given, based on the amount, type and schedule. One of the external factors of dietary adherence was family support. The family provides preventive health care and jointly cares for sick family members because the family is the smallest unit of society that is closest to the sufferer. This study is in line with the research findings (Hisni, Widowati, & Wahidin, 2017; Tasia & Widianto, 2019) In their study, it was found that the results of family support in the moderate category. Family support for people with chronic disease (DM type 2) were generally in the sufficient category, where this was because when filling out the questionnaire most respondents gave good responses to several questions, especially on question points.

Patients who have good family support tend to have good dietary compliance because of the motivation given by the family to the respondents so that they feel cared for, loved, and has the confidence to recover and obey or follow the management of the diet recommended by health workers. However, it does not rule out the existence of sufficient family support but low dietary adherence as described in the cross tabulation of table 3, there were 21 respondents

whose dietary adherence was low. This is usually caused by the length of treatment that causes boredom in doing it, especially in chronic diseases that cannot be cured, but can be controlled with good dietary adherence to it.

The effectiveness of diabetes management ultimately depends on adherence. It is important for DM sufferers to understand the principles of compliance with a healthy diet, adequate physical activity, medication adherence, proper foot and foot hygiene, and the need for periodic metabolic control checks to avoid disease complications (WHO, 2016). This is where the role of the family is needed to maintain the effectiveness of dietary compliance, because family is the main source of DM patients in carrying out adherence in the form of diet at home. One of the functions of the family is family care, the ability of the family to provide nursing care or health care affects the health status of families and individuals (Friedman, M.M., Bowden, V.B. & E.G, 2010).

The results of this study are in line with the research conducted by Bangun et al., (2020), which shows a significant relationship between family support and dietary adherence with a p value of 0.038. Based on the results of the analysis of the data obtained using the Chi square test, it was obtained a significant value of ρ value 0.000 (α <0.05). This shows that the Ha hypothesis is accepted, meaning that there is a significant relationship between family support and diabetes mellitus dietary adherence. The direction of the relationship is positive, meaning that the better the family support, the better the diabetes mellitus dietary compliance.

Conclusion

This study can be concluded that there was a relationship between family support and dietary compliance in people with type 2 diabetes mellitus. Hopefully with the results of this study, respondent and family can be more active in participating in every activity carried out by the Health Centerrelated to dietary compliance and families are expected to always remind sufferers to adhere to the diet recommended by health workers.

Ethics approval and consent to participate

The research has received ethics approval and consent from Health Research Ethics Committee Institute of Health Science Banyuwangi No: 461/KEPK/STIKES-BWI.

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