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Abstract

Diabetes Mellitus type 2 is a chronic disease that is influenced by every aspect of lifestyle that requires vigilance and attention in determining diet. The death rate for people with Diabetes Mellitus in Indonesia is estimated to be 21.3 million people in 2030, with prevalence rates of 1.5 percent and 0.4 percent in Indonesia. The purpose of this study is to

identify the effect of family support on dietary adherence of type 2 Diabetes Mellitus patients based on human caring theory.

The design of this study used a *quasi-experimental*. The population in this study amounted to 43 respondents, the sampling technique used simple random sampling. The sample of this study was 39 respondents. The independent variable was *family support* and the dependent variable was dietary compliance with type 2 Diabetes Mellitus patients. Data were collected by distributing questionnaires to type 2 Diabetes Mellitus patients. Research analysis test using " *Spearman Ranks's* Test ".

The results showed that most of the Diabetes Mellitus patients received good *family support* 29 respondents (74.4%) and almost half of the 21 respondents (53.8%) adhered to their diet. Based on the results of the analysis through Spearman Rank's obtained 0.032 = 0.000 < = 0.05)

This study concludes that there is an effect of *family support* on dietary adherence of type 2 Diabetes Mellitus patients based on *a human caring* theory

Keywords: family support, diet compliance, type 2 diabetes mellitus, human caring

Introduction

Type 2 diabetes mellitus is a chronic disease that is influenced by various aspects such as lifestyle, including diet and other physical activities. Disease II can be controlled by taking medication, Diabetes Mellitus requires constant vigilance and attention in terms of timing and calories in food, as well as physical activity, blood sugar monitoring, insulin injection schedules, and self-care. Type 2 Diabetes Mellitus patients experience relapse due to non-adherence to diet with a lack of *family support*. The *human caring* approach requires *family support to* provide and receive care or assistance to improve, protect, and control the dietary adherence of type 2 Diabetes Mellitus patients to achieve the expected health (Alligod, 2016).

Patients with Diabetes Mellitus according to the World Health Organization (WHO), Indonesia ranks 4th in the world in terms of the number of Diabetes Mellitus patients, with a population of 230 million people being the 4th largest country with patients after the United States, India and China. Based on data from the Indonesian Central Statistics Agency in 2003, it was estimated that there were 133 million people aged 20 years, an increase from 8.4 million predicted in 2030 to 21.3 (Perkeni, 2017). In Indonesia, based on interviews, doctors diagnosed 1.5 percent and 0.4 percent, respectively. Diabetes Mellitus diagnosed by a doctor or symptoms by 2.1 percent. The highest prevalence of Diabetes Mellitus diagnosed by doctors was in Yogyakarta (2.6%), DKI Jakarta (2.5%), North Sulawesi (2.4%), and East Kalimantan (2.3%). The highest prevalence of diabetes diagnosed by a doctor or symptoms was in Central Sulawesi (3.7%), North Sulawesi (3.6%), South Sulawesi (3.4%), and East Nusa Tenggara (3.3%). (RISKESDAS, 2018).

In East Java, the number of Diabetes Mellitus reached 102,399 cases, data obtained from the results of the annual report of the East Java Provincial Hospital on inpatients at the Government General Hospital for Class A 45,489 cases, the Government Hospital for Class B 8,370 cases, the Government Hospital for Class C 9,620 and the Government General Hospital for Type D. 1,673 cases (East Java Health Profile 2012). From the results of the

preliminary study, Diabetes Mellitus was included in 5 most cases of the disease in the inpatient room from January to December 2013. For the inpatient room, there were 661 people and the number in the Diabetes Mellitus room was in 3 inpatient rooms. Caruban Hospital in January, February, and March 2014 an average of 43 patients with type 2 Diabetes Mellitus per month.

Based on the results of a preliminary study on March 17, 2014, in the inpatient room of the Caruban Hospital. By interviewing 10 patients with type 2 diabetes mellitus, it was found that 7 patients with type 2 diabetes mellitus did not adhere to the diet due to lack of *family support,* and 3 patients with type 2 diabetes mellitus were obedient because there was *family support*.

Several ways of handling Diabetes Mellitus in preventing complications, namely by diet, physical activity, and medication both injection and oral (Management of Type 2 Diabetes Mellitus can be controlled, on of which is a balanced diet. Providing a balanced diet is attempted to meet the needs of Type 2 Diabetes Mellitus patients so that the implementation of the Diabetes Mellitus diet should be followed by the 3 J guidelines (amount, schedule, and type) (Perkeni, 2017).

The effect of patient compliance includes compliance in implementing a diet program in type 2 Diabetes Mellitus patients, namely understanding of instructions, quality of interaction, family support, as well as beliefs, attitudes, and personality of the patient. Of these four factors, *family support* is one factor that cannot be ignored, because *family support* is one of the factors that, has a significant contribution and as a reinforcing factor that affects the dietary compliance of type 2 Diabetes Mellitus patients (Niven, 2017).

Based on this phenomenon, there are many patients with type 2 Diabetes Mellitus, this is caused by several factors including lifestyle, diet, heredity, and age. *Family support* is one factor that cannot be ignored, with *family support* for Diabetes Mellitus patients through *human caring* given and receiving care or assistance to improve, protect, control diet compliance that affects patients so that it affects the process of treating type 2 Diabetes Mellitus patients to achieve good health condition.

Research Materials and Methods

This study uses a quasi-experimental design to identify the effect of family support on dietary adherence in type 2 diabetes mellitus patients based on human caring theory. In this study, the population was all type 2 Diabetes Mellitus patients in the inpatient room at the Caruban Hospital a total of 43, the sampling technique used was simple random sampling, a sample of 39 respondents with criteria aged 40-60 years, gender male and female, at the time of the study, willing to be a respondent, living with family, the independent variable in this study was *family support and the* dependent variable in this study was the dietary compliance of patients with type 2 Diabetes Mellitus. Data collection using a questionnaire instrument about family support with parameters of information support, support rewards, instrumental support, and emotional support and dietary compliance instruments with the parameters of the accuracy of the amount of food, the type of food, and the eating schedule. Data processing using the stages of *Editing, Coding, Scoring,* and *Tabulating*. Analysis of the data used in *univariate* analysis, *which is* looking at the *magnitude of the* problem in each variable that is observed through descriptive statistical procedures to see the tendency of concentration

of each variable. All variables are dichotomous in scale, the tendency of data concentration is analyzed by determining the proportion (percentage) of each category of observations on each variable. *Bivariate* analysis. s

This study aims to examine the significance of the correlation between *family support* and dietary compliance of patients with type 2 Diabetes Mellitus, this means testing the significance of the correlation between the independent variable with discontinuous symptoms (ordinal data) and one dependent variable with discontinuous symptoms (ordinal data). appropriate for this non-parametric research is the correlation analysis of the *spearman rank's* test with the help of SPSS 21.0. The decision making is as follows < / 0.05: H1 is accepted which means there is a relationship of *family support* t in diet compliance of type 2 Diabetes Mellitus patients based on *human caring* > / 0.05: H0 is rejected which means that there is no relationship of *family support* t in diet compliance of Diabetes patients Mellitus type 2 based on *human caring*.

Result

General data

Table 1 Characteristics of respondents by age

No.	Age	Frequency	%
1.	40 – 45	13	33.33
2.	46 – 50	6	15.38
3.	51 – 60	10	25.64
4.	60	10	25.64
	Amount	39	100

Based on the table above, it can be seen that 33.3% of patients with type 2 Diabetes Mellitus are 40-45 years old.

Table 2 Characteristics of respondents by gender

No.	Gender	Frequency	%
1.	Man	21	54
2.	Woman	18	46
	Amount	39	100

Based on the table above, it can be seen that 54% of patients with type 2 Diabetes Mellitus are male.

Table 3 Characteristics of respondents based on education

No.	Education	Frequency	%
1.	SD	11	28.21
2.	junior high school	10	25.64
3.	senior High School	7	17.95
4.	Diploma	6	15.38
5.	Bachelor	5	12.82
	Amount	39	100

Based on the table above, it can be seen that 28.21% of patients with type 2 Diabetes Mellitus have elementary school education.

Table 4 Characteristics of respondents by occupation

No.	Work	Frequency	%
1.	civil servant	4	10.26
2.	Private	15	38.46
3.	farmer	10	25.64
4.	Not working/ IRT	10	25.64
	Amount	39	100

Based on the table above, it can be seen that 38.4% of patients with type 2 Diabetes Mellitus have private jobs.

Special Data

Table 1 Distribution of family support in type 2 Diabetes Mellitus patients based on human caring theory in the inpatient room of the Caruban Hospital.

No.	Family Support	Frequency	%
1.	Well	29	74.4
2.	Enough	6	15.4
3.	Not enough	4	10.2
	Amount	39	100

Table 2 Distribution of dietary adherence of type 2 Diabetes Mellitus patients based on the human caring theory

No.	Diet Compliance	Frequency	%
1.	Obey	21	53.8
2.	Obedient Enough	14	35.9
3.	Less Obedient	4	10.3
	Amount	39	100

Table 3. Cross-tabulation distribution of the relationship between family support and diet compliance with type 2 diabetes mellitus patients based on the human caring theory

Family Support	Dietary Compliance of Type 2 Diabetes Mellitus Patients							
	Obey		Obedient Enough		Less Obedient		Total	
	F	%	F	%	F	%	F	%
Well	21	53.8	8	20.5	0	0	29	100
Enough	0	0	6	15.4	0	0	6	100
Not enough	0	0	0	0	4	10.3	4	100
Total	21	53.8	14	35.9	4	10.3	39	100

Based on the test results of Spearman's rho 0,032 Statistics with figures significantly or a probability value (0.000) is a significantly lower standard of 0.05 or (ρ□< α□), Means rejected H0 and H1 accepted. it means there is the effect of family support on dietary compliance of patients with diabetes mellitus type 2.

Discussion

***Family Support* for Type 2 Diabetes Mellitus patients**

From the research results obtained, it is known (74.4%) respondents have *family support* with good criteria, (15.4%) have sufficient *family support*, and (10.3%) respondents have *family support* with fewer criteria.

Family support is all forms of positive behavior and attitudes given by family members to a sick family member or family member who has health problems. By using *family support* which consists of informational support, assessment support, instrumental support, and emotional support to meet the 4 human needs in *human caring* to be given to patients, it is hoped that it will improve the health that is expected in life (Friedman, 1998).

Families who provide support with good criteria can affect the health of respondents. If the family has provided less than optimal *support* to the respondent, this is due to educational factors, attitudes, and personality of the patient.

Age is a factor that may affect *family support* (33.33%) of respondents aged 40-45 years. In the age range of 40-60 years, it shows at the stage of late adult development who has begun to age or the stage of development of the elderly. In this condition, it greatly affects the decrease in body function so that the family becomes worried about the patient's condition. Therefore, they feel very giving family *support* well to ill family members both support the informational, appraisal support, instrumental support and emotional support.

Judging from the work obtained from the respondent's research where (38.46%) the respondent's work is private or self-employed, (25.64%) the respondent's job is the same as farmer and IRT (housewife) or not working and (10,3%) of respondents as civil servants.

Work is a series of tasks or obligations that must be carried out or completed by someone following their respective positions or professions (Notoatmodjo, 2010). Very busy work status or busy work times often affect the level of *family support* given to family members.

Families can provide good family support, one of which is frequent meetings between patients and family members, namely being able to provide informational support, namely, the family can provide the information needed by patients, family assessment support can provide feedback, guide and mediate problem-solving and as a source and validator. when patients have problems with their health, family instrumental support can provide direct assistance such as preparing all the necessary facilities and infrastructure needed by patients and emotional support in this case the family can give full attention to family members who experience health problems.

Therefore, family support is very much needed for someone who is facing mild to severe problems, if someone especially family members experience health problems, the family must pay attention and provide support and provide care for sick family members. Because family support will reduce the mortality rate of illness and the patient will recover more easily and achieve good health.

Dietary compliance of type 2 Diabetes Mellitus patients

Based on the results of the research conducted in table 5.6 above, it is known that (53.8%) of respondents are obedient, (35.9%) of respondents are quite obedient and (10.3%) of respondents are less compliant in their diet.

Several factors influence patient compliance, including patient compliance in carrying out the diet of type 2 Diabetes Mellitus patients, namely understanding of instructions, quality of interaction, family support, and beliefs, attitudes, and personality of the patient. Of the four factors, family support is one of the main factors that cannot be ignored, because family support has a significant contribution and is a reinforcing factor that affects the compliance of type 2 Diabetes Mellitus patients (Niven, 2002).

In addition to the above factors, other factors influence the level of compliance, namely education, accommodation, modification of environmental and social factors, changes in therapeutic models, increasing interaction of health professionals with patients, knowledge, age, and finally family support (Niven, 2002).

Type 2 Diabetes Mellitus sufferers need support from their closest people, namely family support that can be addressed through attitudes, namely by paying attention, for example, maintaining food including portions, types, frequency in daily and nutritional adequacy. Remind, for example, when the patient has to take medicine, when to rest and when to control and prepare the medicine that the patient must take. This could be due to the respondent's age, gender, education, and occupation.

One of the factors of dietary compliance, among others, the gender of respondents with type 2 Diabetes Mellitus (54%) are male and seen from their work (38.46%) work in private or self-employed, judging by their education (28.21%) have an elementary school education, while seen from the age (33.33%) aged 40-45 years. The background of such respondents is likely to affect the patient's activity patterns.

Someone who does not work tends to be quiet and does little moderate activity. In fact, according to one of the risk factors that cause type 2 Diabetes Mellitus, age causes insulin resistance to tend to increase at the age of 65 years and over and obesity, usually the habits of people who are too busy who don't care about eating patterns or people who don't work have the habit of tasting food. snacking). The habit of snacking on food will affect adherence to the patient's diet, seen from the number of calories that are not obedient or the eating schedule is irregular and if the habit cannot be controlled this can affect the patient's blood glucose level (Smeltzer, 2001).

Active education such as the use of books and tapes by patients independently and can increase compliance (Niven, 2002). The elder enough, the level of maturity and strength of a person will be more mature in thinking and working. In terms of trust, more mature people will be more trusted than people who are not mature enough. This is as a result of the experience and maturity of the soul, the more mature a person is, the more mature and obedient his way of thinking is in implementing the diet (Notoatmodjo, 2009).

As a person gets older, there will be a process of decline in functions such as hearing, vision, and memory of the patient. So that it makes it difficult for the patient to receive information, no one can obey the instructions if they misunderstand the instructions given and the higher the level of education a person will have more insight and get new information and the education is low. Get used to exercise and other physical activities to maintain health. The higher the level of knowledge of a patient, the better in carrying out an appropriate diet recommended by health workers and families providing *support* to patients so that they are always obedient in carrying out their diet.

Effects of family support on diet compliance of type 2 Diabetes Mellitus patients based on the human caring theory

From the test results, Statistics Spearman's rho 0,032 with the numbers significantly or a probability value (0.000) is a significantly lower standard of 0.05 or (ρ□< α□), by comparing rs_{count} with $rs_{table,}$ then the result rs_{count} (0.732)> rs_{tables} (0.317) because rs_{count} > $rs_{table.\ It}$ means that H1 is accepted and H0 is rejected, which means that there is a relationship between family support and diet adherence in type 2 diabetes mellitus patients.

The above results are following the statement of Feuer Stein et al (1998) in Niven (2012) that several factors influence patient compliance, including adherence to a diet program in patients with type 2 Diabetes Mellitus, namely: understanding of instructions, quality of instructions, attitudes, and personality of the patient. and family support.

The effect of family support on health and well-being of functioning together. More specifically, adequate family support is associated with reduced mortality, easier recovery from illness, cognitive function, physical and emotional health. In addition, the positive influence of family support is an adjustment to events in life that are full of problems (Friedman, 2006).

The results of this study further strengthen the opinion that family support is one of the factors that have a very close relationship with patient compliance in implementing a diet program. This family support cannot be ignored, because family support is one of the reinforcing factors that have an important contribution and as a reinforcing factor that affects the dietary compliance of type 2 Diabetes Mellitus patients. at any time if the patient does not comply with the program that has been set by the health worker. And the treatment is not enough for just a few months but takes a very long and long time, the patient in this case cannot do it alone but requires family members to fulfill the basic needs in human caring so that the patient's health is as expected.

Conclusion

1. Family support for patients with type 2 Diabetes Mellitus in the inpatient room at the Caruban Hospital is mostly good.
2. The dietary compliance of type 2 Diabetes Mellitus patients in the inpatient ward of the Caruban Hospital is almost obedient.
3. There is a relationship between family support and dietary compliance of type 2 Diabetes Mellitus patients based on human caring theory in the inpatient room of the Caruban Hospital.

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