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Peer Support for Dietary Compliance Patients with Diabetes Mellitus

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Abstract

Diabetes mellitus is one of chronic disease whose incidence increases. The success of diabetes mellitus treatment is strongly influenced by patient compliance to carry out treatment. The purpose of this study was to determine the effect of peer support on dietary compliance of diabetes mellitus sufferers at Randu Agung RW X. This study used pre-experiment one-group pre-post test design on sample of 28 diabetes mellitus sufferers in Randu Agung RW X, used purposive sampling technique. The instrument used Satuan Acara Kegiatan (SAK), attendance list, and compliance questionnaire of diabetes mellitus with 3J program. The analysis of the data used the Mc Nemar test. The statistical test results obtained P <0.05 (0.000), it meant H1 was accepted; there was an effect between peer support and dietary compliance in diabetes mellitus sufferers. Peer support is a new technique to control the blood sugar levels of people with diabetes by involving peers who have similar diseases to share experiences, provide support, and motivation so that enthusiasm in running their dietary increases. If someone sees other people successfully controlling their blood sugar levels through good dietary compliance, it will foster that person's enthusiasm to be able to comply with the diabetes mellitus dietary program. The implication of the study results is that providing education with peer support can help other people in similar situations to increase dietary compliance in diabetes mellitus sufferers.

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INTRODUCTION

As the times and population increases, the prevalence of degenerative diseases is increasing. Degenerative disease is a chronic disease that has a major effect on the quality of life and productivity of a person. Chronic disease is related to increasing age or disability with long-term management. One disease that is categorized as a chronic disease is Diabetes Mellitus (Teguh, 2013). The success of diabetes mellitus treatment is greatly influenced by patient compliance to maintain their health. Good compliance causes primary and secondary treatment to be carried out optimally and health quality to improve. Meanwhile, if diabetes mellitus sufferers who do not have self-awareness to comply, it can cause failure in treatment which will affect the decline in health, thereby increasing patient morbidity and mortality (Saifunurmazah, 2013).

The data from the *World Health Organization* (WHO) in 2011 found that the prevalence of diabetes mellitus sufferers in the world is around 200 million people and is predicted to increase to 366 million people in 2030.Data from the *International Diabetes Federation* (IDF) obtained a global prevalence rate of diabetes mellitus sufferers in 2012 amounting to 8.4% of the world's population and an increase of 382 cases in 2013 (Eva Rahayu, 2014). The prevalence of diabetes mellitus in Indonesia ranks fifth in the world in 2008, which is as much as 8.4 million (Bhustan, 2009). Data from the East Java Provincial Health Office (2011), diabetes mellitus is included in the top ten diseases, which is around 69,018 people from 37 million population. Surabaya City occupies the first rank of cities / districts with the highest number of diabetes mellitus sufferers, namely 14,377 people per year (Wulandari, 2013). The initial survey of the number of DM sufferers in Randu Agung RW X SidotopoWetan was 30 people.

Diabetes mellitus is a metabolic disorder characterized by chronic hyperglycemia and disorders of carbohydrate, fat and protein metabolism caused by abnormalities in insulin secretion (Rahmawati, 2016). The increase in sugar levels in diabetes mellitus sufferers caused by increased stress, obesity, food intake, the amount of physical exercise or exercise, and compliance with therapy. One of the measures to prevent an increase in sugar levels in diabetes mellitus sufferers is dietary regulation. Dietary regulation in diabetes mellitus patients according to the Indonesian Association of Endocrinologists (Perkeni) is to pay attention to the 3J guidelines, namely the right amount, schedule, and type. The right amount means that the patient needs to calculate the calorie and nutrient requirements according to their nutritional status, not from the value of sugar content. The right type by paying attention / controlling the glycemic index of each food ingredient consumed, controlling the glycemic index can help prevent other complications. Right on schedule, eat according to schedule, namely 3 main meals, 2-3 intervals of meals at more frequent intervals, and in moderate portions (Nany Suryani, 2016). This means that sufferers must have a balanced diet, are not overweight, and exercise regularly (Barbara, 2009).

The main obstacle in the management of diabetes mellitus is patient saturation in following the dietary for a long time. Obedient behavior in diabetes mellitus is influenced by 3 main factors, namely: 1)*predisposing factors*, which include trust, belief, education, perception, knowledge, 2)*enabling factors*including health facilities and facilities, and 3) factor of the amplifier*(renforcing factors)*include examples of the behavior of health workers (Notoatmodjo, 2010). Therefore, efforts are needed to carry out dietary compliance with diabetes mellitus sufferers, one of which is the method of education and providing support from peers (*peer support)* who also suffer from diabetes mellitus disease.

Support from peers *(peersupport)*is a system of giving and receiving help with the principles of respect, shared responsibility, and mutual agreement about the things that help. Smith *et al* (2011) define *peer support* as the provision of support from an individual with similar experiences. *peer support* According to WHO,is a promising approach for treating diabetes mellitus sufferers because it takes advantage of the ability of diabetes mellitus sufferers to support each other in managing daily life. Therefore, *peer support* will change the behavior of diabetes mellitus sufferers to better comply with their therapy program, especially in obeying the dietary. Based on the facts above, researchers are interested in conducting study to identify the influence of *peer support* on dietary compliance in diabetes mellitus sufferers.

METHODS

The study was conducted on February 25-March 18, 2020. The design of the study used *pre-*

experimental with a pre-post test design in one group (*one-group pre-post test design*). The sample was 28 respondents with diabetes mellitus in Randu Agung RW X Sidotopo Wetan Surabaya.

The independent variable was *peer support*, and the dependent variable was dietary compliance of diabetes mellitus. The instruments were Satuan Acara Kegiatan (SAK), attendance list, and the diabetes mellitus with 3J program of dietary compliance questionnaire. The data analysis used the SPSS application with the Mc Nemar statistical test.

RESULTS

General Data

Table 1 Age

No	Characteristics	Frequency	Percentage (%)
1.	26 - 35 years	0	0
2.	36 - 45 years	3	10.7
3.	46 - 55 years	9	32.2
4.	56 - 65 years	16	57, 1
	Total	28	100

Table 1 shows that the age of most respondents is 56 - 65 years old as many as 16 people (57.1%).

Table 2 Gender

No	Characteristics	Frequency	Percentage (%)
1.	Male	4	14.3
2.	Female	24	85.7
	Total	28	100

Table 2 shows the sex of the most respondents is female, as many as 24 people (85.7%).

Table 3 Education Level

No	Characteristics	Frequency	Percentage (%)
1.	SD	14	50
2.	Junior	12	42.8
3.	High School	2	7.2
4.	Degree	0	0
	Total	28	100

Table 3 shows the level of primary education is the most respondents as many as 14 people (50%).

Table 4 Family History with DM

No	Characteristics	Frequency	Percentage (%)
1.	Yes	26	92.8
2.	No	2	7.2
	Total	28	100

Table 4 shows that 26 respondents had a family history of DM (92.8%).

Table 5 Years of Suffering from Diabetes Mellitus

No	Characteristics	Frequency	Percentage (%)
1.	< 1 year	1	3.5
2.	1 - 10 years	23	82.3
3.	11 - 20 years	3	10.7
4.	> 20 years	1	3.5
	Total	28	100

Table 5 shows the respondents with the most length of suffering from diabetes were 1 - 10 years as many as 23 people (82.3%).

Special Data

Table 6 Frequency of *Peer Support*

No	Characteristics	Frequency	Percentage (%)
1.	Meetings 2x	8	28.5
2.	Meetings 3x	20	71.5
	Total	28	100

Table 6 shows the number of attendance when given the most respondent intervention is 3x meetings as many as 20 people (71.5%).

Table 7 Test Results of Compliance Statistics Dietary Diabetes Mellitus

No.	Dietary Compliance			
	Before	Freq%	After	Freq%
1. Comply	11	39,	23	82.2
2. No Comply	17	60.8	5	17.8
Total	**28**	**100**	**28**	**100**

Test Statistics Mc Nemar = 0.000

Table 7 shows the highest proportion of dietary compliance beforeintervention *peer support* (*pre*) was disobedient as many as 17 people(60.8%) and after intervention *peer support* (*post*) was obedient as many as 23 people (82.2%). The results of the Mc Nemar statistical test showed p <0.05 (0.000) meaning H1 was accepted, it meant there was an effect between *peer support* on dietary compliance of diabetes mellitus sufferers at Randu Agung RW X SidotopoWetan, Kenjeran District, Surabaya on February 25-March 18, 2019.

DISCUSSION

Dietary Compliance Before Intervention *Peer Support*

Table 7 shows respondents' diet compliance before intervention *peer support* that the majority of was disobedient as many as 17 people (60.8%), with the characteristics of respondents based on the highest gender were 24 women (85.7 %) and most respondents had a family history of diabetes mellitus as many as 26 people (92.8%). Respondents in this study did not comply with the rules of the DM diet because they felt very saturated with the recommended diabetes mellitus dietary settings and were eager to try various foods they wanted.

Diabetes Mellitus is a non-communicable degenerative disease which is a serious problem for public health in Indonesia and in the world (Susanti, 2018). Management that can be done in diabetes mellitus include education, nutrition therapy, physical exercise, and pharmacotherapy (Hotma, 2014). Dietary patterns in irregular nutritional therapy in today's society have led to an increase in the number of diabetes mellitus (Suiraoka, 2012). The success of diabetes mellitus treatment is greatly influenced by patient compliance to maintain their health. Good adherence causes primary and secondary treatment to be carried out optimally and health quality to improve. Meanwhile, if diabetes mellitus sufferers do not have self-awareness to obey, it can cause failure in treatment (Saifunurmazah, 2013).

Compliance is a person's behavior related to health recovery (*health rehabilitation behavior*), namely a person's behavior related to health recovery efforts, for example obeying dietary rules and doctor's recommendations for health recovery. Dietary compliance is very important to develop routines (habits) that can help sufferers follow the dietary schedule. The main obstacle in handling diabetes diabetes is patient saturation in following the diet for a long time. The factors that support success for compliance are support, knowledge, and motivation (Dita, 2017).

The results of study conducted by Suci (2015) show that the most sexes who have sufficient dietary compliance are women. The obedience attitude between men and women has differences, namely male patients are less able to comply with the recommended diet. Ignorance of dietary recommendations makes many patients not adhere to dietary control.

Anif's study (2016) at PuskesmasNgadiluwih Kediri states that a family history of illness can be a detector for people who have a family with diabetes mellitus. People who have a family history of suffering from diabetes mellitus are more at risk than people who do not have a family history of suffering from diabetes mellitus. The occurrence of diabetes mellitus will increase two to six times if a parent or sibling experiences this disease (AnifNurma, 2016).

In line with the above theory, the researcher argued that diabetes mellitus could not be cured, but could be controlled by paying attention to the dietary which includes the schedule, amount, and type of food consumed. Compliance is needed for diabetes mellitus sufferers to improve their health status. One of the compliance required by diabetes mellitus sufferers is to control the dietary according to the 3J program (type, amount, schedule). Even so, the self-awareness of diabetes mellitus sufferers to obey is still lacking, because they feel very bored in running diet in the long term and want to feel free to try various foods.

Female diabetes mellitus sufferers had high compliance compared to male sufferers. This is because women pay more attention and care about their health. Women are more worried and afraid if complications arise from diabetes mellitus disease,

so that female diabetes mellitus sufferers are more careful in maintaining their health and really maintaining their diet. Even so, in reality there are still female diabetes mellitus sufferers who violate the treatment program such as dietary rules so that their blood sugar levels are not well controlled. This is often due to the saturation factor.

Diabetes mellitus sufferers who have a family history of diabetes mellitus also have experiences that can be obtained from their families, and have the motivation and support to jointly live a healthy way to control their blood sugar levels. The experience given by the family does not rule out the possibility that it can lead to negative things, such as how to lower blood sugar levels by consuming non-medical herbal medicines.

Dietary Compliance After Intervention *Peer Support*

Table 7 shows the compliance of respondents' diet after intervention *peer support* was mostly obedient, namely 23 people (82.2%). The characteristics of respondents based on the most age were 56 - 65 years as many as 16 people (57.1%), the education level of the most respondents was Primary school as many as 14 people (50%), the most respondents suffering from diabetes was 1 - 10 years as many as 23 people (82 , 3%).

The results of the Mc Nemar statistical test showed $p < 0.05$ (0.000) meaning H1 was accepted, it meant there was an effect between *peer support* on dietary compliance patients withdiabetes mellitus at Randu Agung RW X SidotopoWetan, Kenjeran District, Surabaya.

The results of Chandra's (2017) study obtained a p value = 0.001 ($p < 0.05$) indicating that there is a significant relationship between age and medication compliance in hypertensive patients. A person who experiences increasing age starting from early adulthood, middle adulthood and late adulthood will experience frustration or rejection of his illness so that he will experience an attitude of disobedience to doctor's recommendations or medication / therapy given by the doctor / medical team.

Dita's study (2017) shows that respondents with low education are more than those with higher education. So it can be concluded that the proportion of diet management compliance in respondents with low education is higher than respondents who have a high educational background. The level of education is closely related to one's knowledge, because education is a learning process that is able to change one's behavior to achieve quality of life. The higher a person's education, the higher the self-awareness in managing the diet.

Patients who have suffered from diabetes for a long time have a better adaptability in carrying out dietary compliance than patients who have just been diagnosed with diabetes mellitus (Gitawati, 2007). The duration of diabetes mellitus illness experienced by a person is related to an increase in the person's knowledge and experience in carrying out the disease they suffer. The longer people suffer from disease, the better in terms of knowledge and compliance with disease management (Isna, 2018). Diabetes mellitus management requires active participation from health workers, families, and communities to assist sufferers in an effort to increase compliance with diabetes mellitus disease management in an orderly and controlled manner (Tjokroprawiro, 2011).

In line with the above theory, the researcher argues that controlling diabetes mellitus requires good and correct management of diabetes mellitus dietary. One of the management of diabetes mellitus can be done by providing nutritional education through planning a good dietary. A person's compliance can be influenced by the level of education and the length of suffering from diabetes mellitusThe lower a person's education, the more open the person is to receive new information from people he trusts without seeking comparative information. Meanwhile, the higher a person's education level, the higher the level of analysis and understanding.

A person with a higher level of education will be more critical and seek as much information as possible to get comparative information if he gets new knowledge from other people. Patients with long-suffering diabetes mellitus with a long duration are able to control diabetes mellitus compliance, because they have enough experience to avoid diabetes mellitus complications. This motivates them to be more careful and obedient in carrying out therapy.

Effect of *Peer Support* on Dietary Compliance in Patients with Diabetes Mellitus

Table 7 shows that compliance with the respondents' diet afterintervention *peer support* (*post*)was 23 people (82.2%) obedient and 5 (17.8%) non-compliant. The highest number of

respondent attendance in the implementation of education using technique *peer support* was 3x meetings, namely as many as 20 people (71.5%). Respondents were very enthusiastic about participating in the intervention because they considered *peer support* as a new science in adding to the experience of dealing with diabetes mellitus. The results of the Mc Nemar statistical test showed P<0.05 (0.000), which means H1 is accepted, it means there was an influence between *peer support* on dietary compliance in diabetes mellitus sufferers.

This is in accordance with the theory of behavior change which states that the formation of a person's actions (dietary compliance) is influenced by knowledge or cognitive (Notoatmodjo, 2007). Dietary management that is not carried out properly can be caused by the lack of knowledge of respondents on the importance of maintaining a dietary to avoid complications from diabetes mellitus (Dita, 2017).

Peer support is a *support system* for people who suffer from the same disease.*Peer support* is a system of giving and receiving assistance with the principles of respect, mutual responsibility, and mutual agreement about things that help. Study conducted by Yuyun (2012) found that *peer group support* can reduce health behavior problems, reduce depression and have a contribution to improve compliance with diabetes mellitus disease management. The right intervention to increase compliance is to provide information and support from peer groups (*peer group support*). According to Randall (2010) *peer group support* is a practical place for a group of people, namely diabetes mellitus type 2 sufferers to provide and receive emotional support and exchange information. The peer group*(peergroup*support)to meet the individual needs of patients of type 2 with respect, provide information, increase self-esteem, and provide an identity for people with type 2 diabetes mellitus. Patients will be publicly revealed the problem in *peer group support* this(Yuyun, 2012). Therefore, *peer support* will change the behavior of diabetes mellitus sufferers to better comply with their therapy program, especially in obeying diet (Inez Khoirunnisa, 2015).

In line with the theory above, the researcher argues that *peer support* is the support of peers who use their experiences to help others who are in similar situations. This study was conducted once a week for 3 weeks. The thing that causes differences in the presence of respondents is because several respondents have their respective activities. *Peer support* is a new technique to control the blood sugar levels of diabetes mellitus sufferers by involving peers who have similar diseases to provide support so that the enthusiasm of diabetes mellitus sufferers in running their diet increases. However, in this study there were still respondents who did not comply after being givenintervention *peer support* because respondents only attended 2 meetings, while this intervention was scheduled for 3 meetings. This causes the respondent to be unable to receive the material provided by the resource person optimally.

Peer support can be done through sharing experiences, providing support, motivation, and enthusiasm among diabetes mellitus sufferers because of a sense of the same fate of a struggle. If someone sees other people successfully lead a healthy life and their blood sugar levels are always controlled, it will foster a sense of enthusiasm for that person to be able to comply with the diabetes mellitus treatment program, and lead a healthy life in him too.

CONCLUSION

The results of statistical test showed $p<0.05$ (0.000) meant H1 was accepted, it meant there was an effect between *peer support* and dietary compliance in diabetes mellitus sufferers at Randu Agung RW X SidotopoWetan, Kenjeran District, Surabaya.

SUGGESTION

Further study should be able to direct respondents to obey the rules that have been determined by researchers and use a control group so that the study results are more accurate.

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