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ORIGINAL RESEARCH

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## EFFECT OF FAMILY PSYCHOEDUCATION ON CAREGIVER SUPPORT IN THE TREATMENT OF PATIENTS WITH TYPE II DIABETES MELLITUS

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### Abstract

**Background:** Diabetes Mellitus is a chronic disease that requires treatment for long periods of time so it can cause physical and psychological problems for sufferers and families (caregiver). Caregiver's role is expected to provide support for people with diabetes mellitus. Family psychoeducation is a strategy that can be applied for caregiver in overcoming problems that arise during the treatment of patients with diabetes mellitus.

**Objective:** This study aims to determine the effect of family psychoeducation on caregiver support in the treatment of patients with type II diabetes mellitus.

**Methods:** This research used a quasi-experiment with pre-test post-test control group design. A total of 46 caregivers and patients with diabetes mellitus were recruited purposively, with 23 respondents assigned in the experiment and control group. Caregiver support scale was used to measure caregiver support, and Hensarling Diabetes Family Support Scale (HDFSS) for measuring perception of patients toward the treatment of caregiver. Data were analyzed using paired t-test and independent t-test.

**Results:** Findings showed there was an increase of caregiver knowledge from 5.39 to 9.09 and an improvement of caregiver treatment from 40.30 to 67.04 after given family psychoeducation. There was a significant difference of caregiver support in the experimental and control group with p-value <0.001 (<0.05).

**Conclusion:** Family psychoeducation can increase caregiver support in the treatment of diabetes mellitus patients. The intervention can be one of nurses' interventions in the empowerment of family in improving the treatment of chronic diseases, particularly in diabetes mellitus.

**Keywords:** caregiver support; family psychoeducation; diabetes mellitus

## INTRODUCTION

Family support is an aid given by other family members so it will provide physical and psychological comfort (Taylor, 1999). Family support is an important factor in the compliance of chronic disease management including diabetes mellitus. Family caregiver

support is the most powerful indicator to have a positive impact on self-care in patients with diabetes mellitus (Hensarling, 2009).

Diabetes Mellitus is one of the global problems because the prevalence of patients

from year to year is increasing. International Diabetes Federation (IDF) data in 2014 showed a total of 387 million (8.3%) of people suffering from diabetes mellitus worldwide. While the prevalence of diabetes mellitus in Indonesia has increased from 1.1% in 2007 to 2.1% in 2013 ([MOH, 2013](#)).

The increasing number of patients with diabetes mellitus is influenced by economic development, lifestyle changes such as dietary changes and lack of exercise activity, inefficient patient self-management, and ineffective family support ([Sujaya, 2009](#); [Tjokroprawiro, 2003](#); [Trisnawati & Setyorogo, 2013](#); [WHO, 2006](#)). However, these patients experience many problems, including psychological problems such as loss of welfare, independence, sense of comfort, loss of fiscal and mental function, self-concept and family or community role. These conditions cause anxiety in the patient and depression in the family (caregiver) ([Given, Sherwood, & Given, 2008](#)). It could be said that diabetes mellitus causes deep psychological changes in patients, families and social groups ([Punkkinen et al., 2008](#)).

The role of the family is an important factor in the treatment of diabetes mellitus ([Goldberg & Rickler, 2011](#)). Families as caregivers should be able to perform good and proper parenting tasks in the treatment of diabetes mellitus. The caregiver family acts as a coordinator by administering diabetes mellitus diet, drug management and dietary compliance; and act as a motivator in physical exercise and blood sugar monitoring, as well as the passive supervisors by early detection of signs of complications ([Allender, Rector, & Warner, 2013](#)). Duties and responsibilities as a caregiver family of diabetes sufferers provide the consequences of the amount of time consumed to provide care to people with diabetes. Routine family assistance includes taking medication (30%), blood tests (22%), insulin injections (11%), housework (82%), cooking or preparing food (66%) and transportation problems (56%) ([Sinclair, Armes, Randhawa, & Bayer, 2010](#)). This can last a lifetime if it is associated with the

characteristic of diabetes disease ([Cherny & Christakis, 2011](#)). Caregiver should be there at any time when diabetes mellitus sufferers need help. This process will take a lot of time to make the caregiver experience psychological stress arising from physical exhaustion, burnout, and thinking about the cost of living and treatment. However, behavior change in patients, financial problems, inadequate support, full tasks and sleeping difficulties become a source of distress for caregiver ([Pierce, Thompson, Govoni, & Steiner, 2012](#)).

A caregiver feels burdened when caring for a patient. A total of 30 - 40% caregiver experience greater psychological stress than patients. Caregivers who are involved in treatment in patients with chronic conditions tend to feel tired, isolated and overwhelmed. Female caregivers have higher levels of stress and burden than male caregivers because females have more work hours and most of the time used for parenting ([Pinquart & Sörensen, 2006](#)).

Various interventions can be done to increase the knowledge and skills of patients with diabetes mellitus such as Diabetes Self-Management Education, CBT (Cognitive Behavior Therapy), Health education and etc. However, these interventions focus only on improving patient knowledge alone. Family Psychoeducation therapy is the provision of education and wider programs to families to reduce the manifestation of conflict and change the pattern of family communication in problem solving ([Townsend & Morgan, 2017](#)). The basic concept of its management is fast, logical, beneficial, and affordable by treating all family members in a relationship system rather than the individualized concentration. Family psychoeducation therapy gives benefits to families and patients, such as the ability to care for patients and overcome related problems, while patients indirectly get optimal care from the family ([Townsend & Morgan, 2017](#)).

Several studies have shown family psychoeducation therapy has proved effective

in providing a positive impact in the family. It can also improve family dynamics and decrease family conflicts ([McBroom & Enriquez, 2009](#)). Family-based therapy is essential for changes in diet-related adherence, glucose control, increased diabetes-related knowledge and glucose control.

The results of interviews conducted in September 2016 on 10 patients with type 2 diabetes mellitus and their families found that three patients said they rarely control to the health center because no one to deliver, five patients said less attention by family ranging from lack of control, diet and exercise, while two patients said they were bored with the illness suffered and felt the burden of the family. While the results of interviews with the family found as many as 5 families said that they did not understand about the correct treatment of diabetes, three families said that they rarely paid attention to the patient because of busy working such as preparing food, and two families said they were bored and tired of caring for patients in the long term.

Family caregiver support is a help given by other family members to provide comfort both physically and psychologically. Family caregiver support is one of the most powerful indicators in impacting the care of patients with diabetes mellitus. Family support is divided into four dimensions including emotional, reward, instrumental and participation ([Hensarling, 2009](#)). Numerous studies on the role of families in the treatment of diabetes have been done, but little is known about the research on understanding the psychological condition of caregiver family and their needs. Families are directly or indirectly required to be responsible for providing physical, social, emotional, and financial support. They often ignore their own needs, never get any intervention and recognition, lack the support of the environment, and rarely get the financial reimbursement of the cost of treatment of the family members ([Goldberg & Rickler, 2011](#)). The purpose of this study was to identify the

influence of family psychoeducation on caregiver support in the treatment of patients with diabetes mellitus type II.

## METHODS

### *Study design*

This research used a quasi-experiment with pre-test post-test control group design.

### *Sample*

A total of 46 caregivers and patients with diabetes mellitus were recruited purposively from the Prolanis program data at the Health Center of Bendo. The inclusion criteria of caregiver were (1) living together in one house with patient, (2) selected by patients, (3) female, (4) aged 34 - 50 years, (5) able to read, write and speak Indonesia, (6) willing to participate fully during therapy, (7) having at least elementary educational background and maximum high school or equivalent. The inclusion criteria of the patient were (1) long suffering from diabetes mellitus at least 1 year, (2) no complications of heart and kidney failure, (3) no blindness and hearing loss. The research was conducted in the working area of Bendo Public Health Center of Kediri Regency, Indonesia.

### *Instrument*

Caregiver support variable was assessed from the caregiver dimension consisting of 10 questions, and caregiver treatments consisting of 18 statements. The type of questionnaire used was a self-developed questionnaire with an interval scale. The validity of the scale used Pearson Product Moment correlation with the result that the result of r-value was greater than r -able ( $df = n-2 = 22-2 = 19$ ,  $r\text{-table} = 0.423$ ), while reliability test showed Cronbach's Coefficient-Alpha of 0.932.

The perception of patients on caregiver support was measured using the Hensarling Diabetes Family Support Scale (HDFSS) ([Hensarling, 2009](#)) that has been translated into Bahasa Indonesia ([Yusra, 2011](#)). This questionnaire consisted of 25 closed questions.

### Intervention

The psychoeducation module used was a module developed by a nursing specialist association. Content expert validity was done to ensure that the content in the module was appropriate and fit with the cultural context of patients with diabetes mellitus in Indonesia. Family psychoeducation consisted of 5 sessions, which each session took 30 - 45 minutes. Prior to the program, the researchers first divided the group that each group consisted of 4 - 5 caregivers. The first session was a review of the problems that often arise during the treatment of diabetes mellitus patients. The second session was the treatment of people with diabetes mellitus at home. The third session was the stress management experienced by caregiver during the treatment. The fourth session was the management of family burden during the treatment, and the last was the empowerment of community facilities in the health sectors (e.g. community health center or hospital). Family psychoeducation interventions were conducted every 1 session on a weekly basis by a method of discussion between researchers and caregivers. While control group was given an intervention based on the standard from the community health center, which was health education about diabetes mellitus patient's care at home. The media used were psychoeducation module and DM patient care booklet at home.

### Data analysis

Paired t-test was used to examine the effect of psychoeducation therapy on caregiver support, and Independent t-test was used to examine the difference of caregiver family support after given intervention between the experiment and control group.

### Ethical consideration

All respondents both caregivers and patients have obtained an explanation of the purpose and benefits of the study and signed informed consent. This study has been approved by the Medical Research Ethics Commission of Faculty of Medicine of Diponegoro University and the General Hospital of Dr Kariadi Hospital Semarang.

## RESULTS

Table 1 shows that most caregiver's educational levels in the experiment and control group was senior high schools, which was 52.17% of respondents in the control group and 65.22% in the experiment group. The majority of respondents in both groups had income lower than 1,540,000,61 IDR based on the calculation of family income each month. Most of them worked as housewives, and more than 80% of them have been exposed with DM-related information.

**Table 1** Characteristics of respondents based on age, level of education, income of caregivers, caregiver job, and exposure to DM-related information

Variable	Experiment (n= 23)		Control (n = 23)	
	f	%	f	%
<b>Level of Education</b>				
Elementary school	4	17.39	6	26.09
Junior high school	5	21.74	5	21.74
Senior high school	15	65.22	12	52.17
<b>Income of Caregiver</b>				
≥ 1,540,000,61 IDR	11	47.83	10	43.48
< 1,540,000,61 IDR	12	52.17	13	56.52
<b>Caregiver Job</b>				
Private	3	13.04	4	17.39
Entrepreneur	5	21.74	7	30.43
Farmer	2	8.70	5	21.74
Housewife	13	56.52	11	47.82
<b>Exposure to DM-related information</b>				
Yes	21	91.30	19	82.60
No	2	8.30	4	17.40

**Table 2** Caregiver age and length of time caring for diabetes mellitus

Variable	Experiment				Control			
	Mean	SD	Min-Max	CI 95%	Mean	SD	Min-Max	CI 95%
Caregiver age	45.56	5.194	34-50	43.32-47.81	44.52	4.077	38-50	42.76-46.28
Length of time caring for DB	4.61	1.839	1-8	3.47-5.06	4.26	2.190	1-9	3.06-5.66

Based on Table 2, it was found that the mean age of caregiver in the experimental group was 45.56 years with a standard deviation of 5.194 years, with the youngest age in the experimental group was 34 years old and the oldest age was 50 years. While the mean age of caregiver in the control group was 44.52

years with a standard deviation of 4.077 years, with the youngest age in the control group was 38 years old and the oldest age was 50 years. The average length of care for DM patients in the experimental group was 4.61 years and in the control group was 4.26 years.

**Table 3** Perception of DM patients in receiving caregiver treatment before and after given psychoeducation

Perception of DM patients	Mean		SD	
	Pre	Post	Pre	Post
Experimental group	69.4	82.8	6.991	4.488
Control group	65.2	69.7	5.250	5.536

**Table 4** Caregiver support in caring DM patients before and after intervention (n=46)

Variable	Experiment		Control	
	Pre	Pre	Pre	Post
<b>Caregiver Knowledge</b>				
Mean	5.67	5.39	5.39	7.17
SD	2.424	1.305	1.305	0.668
Min-Max	3-9	3-10	3-10	5-9
<b>Caregiver treatment</b>				
Mean	35.96	40.30	40.30	36.04
SD	5.121	3.296	3.296	5.253
Min-Max	34-50	38-60	38-60	35-52

Table 3 shows that the mean value of the perception of DM patients in the experiment group before the intervention was 69.4, and increased to 82.8 after the caregivers received psychoeducation intervention. While the mean value of perception of DM patients in the control group before the intervention was 65.2, and increased slightly to 69.7 after the caregivers received health education intervention. While Table 4 shows that in the control group the mean value of caregiver

knowledge before intervention was 5.67 and the mean value of caregiver treatment was 35.96; and after intervention there was an increase of knowledge to 7.17 and caregiver treatment to 36.06. While in the experiment group, before intervention, the caregiver knowledge was 5.39 and caregiver treatment was 40.30, and increased significantly after given psychoeducation intervention, with the mean knowledge of caregiver was 9.09 and caregiver treatment was 67.04.

**Table 5** Analysis of difference in caregiver support (knowledge and treatment)

Variable	Group	N	Mean	SD	P-value
Caregiver knowledge (Pre – Post)	Experiment	23	1.913	2.234	0.000
	Control	23	1.174	1.072	0.000
Caregiver treatment (Pre – Post)	Experiment	23	31.087	4.078	0.000
	Control	23	1.173	5.268	0.128

Table 5 shows that there was a statistically significant difference in caregiver knowledge before and after given intervention between the experiment and control group with p-value .000 (<.05). While for caregiver treatment variable, there was a statistically significant difference in the experiment group before and after given psychoeducation with p-value .000 (<.05). There was no significant

difference in caregiver treatment in the control group.

Table 6 shows that there was a significant effect of psychoeducation on caregiver knowledge (p=.000) and treatment (p=.001) in the experiment group. However, there was no significant difference in caregiver treatment (p=.262) in the control group, but there was a significant difference in the caregiver knowledge (p=.001).

**Table 6** Effect of psychoeducation on caregiver support in caring DM patients

Variable	Group	P-value
Caregiver knowledge	Experiment ( <i>pre-post</i> )	0.000
	Control ( <i>pre-post</i> )	0.000
Caregiver treatment	Experiment ( <i>pre-post</i> )	0.001
	Control ( <i>pre-post</i> )	0.262

## DISCUSSION

The results of this study indicated that there were significant differences in caregiver support in the dimension of caregiver knowledge and treatment before and after given psychoeducation. This is in line with previous research revealed that psychoeducation was able to improve cognitive and psychomotor ability significantly ([Putri, Harmayetty, & Utomo, 2016](#); [Wiyati, Wahyuningsih, & Widayanti, 2010](#)).

Psychoeducation in the experiment group was expected to be able to increase the ability of caregiver in providing care support for DM patients, because each caregiver was given the opportunity to tell the problems faced during the care of DM patients and taught how to overcome the problem as well as to provide optimal support ([Shives, 2008](#)).

This study provided the evidence that psychoeducation as the provision of education and wider programs could increase the knowledge and treatment of caregivers (family) in caring patients with diabetes mellitus. There was an increase of knowledge from 5.39 to 9.09 and increase of treatment from 40.30 to 67.04.

The effect of psychoeducation in this study is also strengthened by the perception of the patients during the treatment by caregivers. The results showed that the mean value of the perception of DM patients was increased from 69.4 to 82.8. This tells that the patients received benefits from the treatment.

This study provides the knowledge that to deal with patients with diabetes mellitus is not only focusing on health education for caregivers, but also the stress management for caregivers because they may feel stressful, bored, tired, anxiety and etc. Psychoeducation is effective in providing health education,

managing stress and understanding in utilizing health facilities ([McBroom & Enriquez, 2009](#)).

The limitation of this study might include the times for the study was too short, which might not good enough to see the effect of intervention. Further study with long time observation is needed to examine the effect of psychoeducation on caregiver supports.

## CONCLUSION

It is concluded that there was a significant effect of family psychoeducation on caregiver support in caring patients with diabetes mellitus. Psychoeducation can be applied as one of nurses' interventions in empowering family members as an effort to improve the treatment in patients with chronic diseases, especially in DM patients.

### Declaration of Conflicting Interest

None declared.

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### Author Contribution

All authors contributed equally in this study.

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