Conference Paper

The Effectiveness of Family Peer Group Education Intervention on Family Support of Type II Diabetes Mellitus Patients

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Abstract

Background: The number of people with diabetes mellitus is increasing with the most cases being Type II Diabetes Mellitus which is a chronic condition and if not treated seriously can cause complications such as kidney disease, amputation and blindness. Families play an important role in prevention and help deal with patients' disease problems. One of the factors that influence the health of DM patients is family support. It has a significant influence on the success of diabetes management. The most influential factor for family support is health knowledge and education. Peer education intervention group is one type of health education that provides increased knowledge, psychosocial, and more effective expenditure, rather than personal counseling. Family education interventions make the family as a function of health that requires peers from their own family members. **Objective:** The purpose of this study was to identify the effectiveness of the peer group Education intervention family against the family support of type II DM patients. **Methods:** The design used in this study included the randomized pretest and -posttest control group design. Sampling was done by purposive sampling with family inclusion criteria in which one family member suffered from type II DM, stayed with the patient, and was willing to become a respondent. Data collection is using family support questionnaire. Data analysis used a t-test. **Results:** The results showed there were significant differences between pre and post intervention. The peer group education intervention increased the family support of type II DM patients after the post intervention (p = 0.00). the peer group education intervention family increases the family support of type II DM patients in the intervention group compared to controls (p =0.00). **Conclusion:** The results showed that peer group intervention education was more significant than health education usually in increasing the family support of diabetes mellitus patients, so that it could be used as an intervention choice for community nurses in increasing family support for DM patients.

Keywords: Family support; Education Intervention; Diabetes Mellitus

1. Introduction

The number of people with diabetes mellitus is increasing. According to the International Diabetes Federation (IDF), there were 382 million people with diabetes in 2013 and

increased to 1.5x in 2035 [1]. Indonesia is the seventh highest ranking for the prevalence of diabetes and ranks second for mortality due to diabetes in the world [2,3]. Diabetes prevalence increased by 5.7% (2007) to 6.9% (2013) [3]. Diabetes is one of the highest diseases in Bandung. Babakan Sari health center is one of the health centers that have non-communicable diseases in Bandung in which there is a program on Diabetes mellitus.

Diabetes mellitus (DM), a metabolic disorder caused by the pancreas unable to produce enough insulin (type I diabetes) or unable to use insulin produced effectively (type II diabetes) [4]. Type II DM is the most common form of diabetes, which is a chronic condition and if not treated seriously can cause complications such as kidney disease, amputation and blindness [5].

Families play an important role in prevention and help deal with patients' disease problems. One model of family intervention for sick patients is family support [6]. Family support has a significant influence on the success of diabetes management, adaptation to disease, quality of life, sugar diet, and medication adherence [7,8,9]. Factors that influence family support include the stages of development, knowledge, spiritual emotions, socio-economic, culture, age, gender, occupation, marital status, health education, health workers and other family members with diabetes [8,9,10,11]. The most influential factors on family support are knowledge and health professionals regarding diabetes mellitus [11]. Health education is very important given to families of type 2 DM patients. The results of the study show that health education is able to increase knowledge of patients with type II diabetes [12]. Peer education intervention group is one type of health education that provides increased knowledge, psychosocial, and more effective expenditure, rather than personal counseling [11]. Group Health Education (Health Education) can increase motivation, knowledge, reduce insulin resistance psychologically [13]. Health Education in family members can improve communication effectively in the management of type II DM [14]. Family education interventions make the family as a function of health that requires peers from their own family members [6].

From the initial interview with the Babakan Sari Community Health Center nursing department, the number of patients with type II DM was high, family involvement for type II DM patients was seen when delivering to Posbindu but a special group of families with patients with diabetes mellitus had not been made.

Based on the previous background, peer group education is one of the Community Health Center techniques that can improve quality of life, reduce the number of insulin-resistant psychologically resistant type II DM patients, and make the family a source

of health but no studies have focused on increasing family support so researchers are interested in the effectiveness of the peer group family education intervention on the family support of type II DM patients.

The purpose of study is to identify the effectiveness of the peer group family education intervention on the family support of type II DM patients in Babakan Sari Health Center, Bandung City

2. Method

2.1. Study design

The design used in this study was randomized pretest and posttest with control group). In all groups starting with the pretest and after the intervention the posttest was measured. The intervention given to the intervention group was peers group health education, whereas in the control group only general health education.

2.2. Sample

This study used purposive sampling to select the respondents. Respondents were selected based on inclusion and exclusion criteria

　　a. Families with one member suffer from type II DM

　　b. Family members living together with type II DM patients

　　c. Family members who are willing to become respondents

　　Exclusion Criteria are Family members who both suffer from type II DM

2.3. Instrument

The family support questionnaire consists of 4 domains, namely emotional, informational, and instrumental and award support with a total of 29 questions. The scale used is a Likert scale of values 0-4. If the value> 40, then the criteria is declared support. If the value is <40, then the criteria is declared not supportive.

2.3.1. Data Collection Procedure

1. The study was conducted for 40 days

2. First session, Socialization of research and selection of two peers and giving questionnaire.

3. The second session, two peers were given health education about Diabetes Mellitus, Steps to teach other respondents and family support. One session lasts for 2 hours and the number of sessions is 3 sessions

4. The third session, two peers gave a Health Education to group members and discussion.

5. The fourth session, discussion of problem solving among peers and respondents.

6. The fifth session, Respondents returned the completed questionnaire

2.4. Data analysis

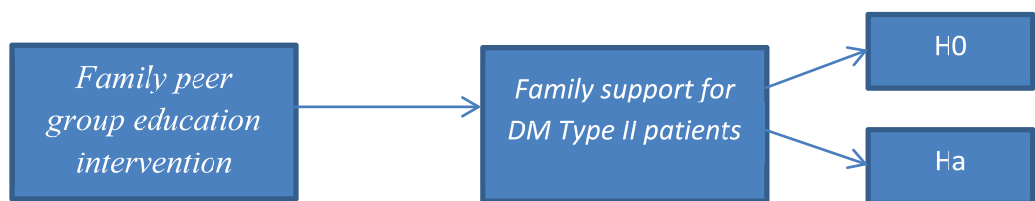Data analysis used a t-test with a significance level determined by (α) 0.05.

Figure 1: Thought Framework Pre and Post Interventions.

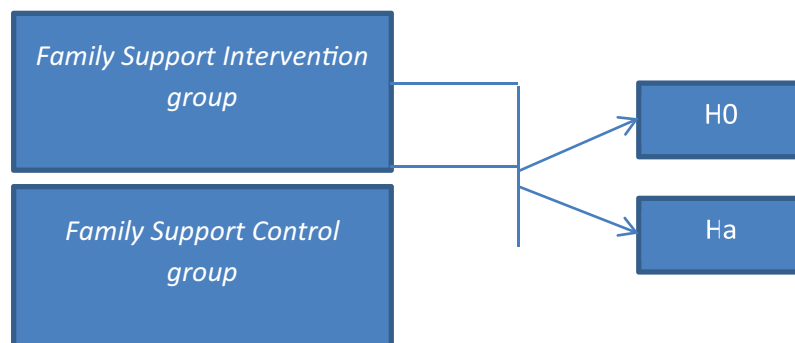**Figure** 2: Comparative Thinking Framework Intervention and control groups.

3. Result

TABLE 1: The age characteristics of the intervention and control group respondents.

Character	Group	Mean	Median	SD	Min-Max	95% CI
Age	Intervention	48,2	50	5,08	40-55	46,3-49,9
	Control	48,6	48	4,08	38-55	46,5-50,6

The result of analysis shows that mean 48,2 for intervention and 48,6 for control group.

TABLE 2: The gender and education level characteristic of intervention and control group respondent.

Characteristic	Intervention		Control	
	N	%	N	%
Gender				
Male	4	20	3	15
Female	16	80	17	85
Level of education				
No School	0	0	0	0
Primary school	7	35	8	40
Junior high school	5	25	4	20
Senior high school	8	40	8	40
College	0	0	0	0
Total	20	100	20	100

In the intervention group almost all were women, 16 people (80%), as well as in the control group, almost all women were 17 people (85%). Whereas for education in the intervention group, most of the high schools were 8 people (40%), then the control group was mostly high school and elementary school, both 8 people (40%).

TABLE 3: Results Analysis of family support scores in the intervention and control groups, before and after the intervention.

Criteria				
Variable	Group	Condition	Not Supported	Supported
Family Support	Intervention	Before	15 (75%)	5 (25%)
		After	2 (10%)	18 (90%)

The results of the analysis in the intervention group obtained the mean value of family support before the intervention was 35.2 and after the intervention became 47, the median before the intervention 38 and after the intervention became 48. At the standard deviation before the intervention 4.4 and after the intervention 4.6, whereas before the intervention lowest 28 and highest 44 and after intervention lowest 36 and highest 54 with estimated interval values it can be concluded that before the intervention 95% that the average was between 33.1 to 37.2 and after the intervention 95% that the average was between 44.8 to 49.1. Based on the t-test, the p value is 0.00 <0.05 so that Ho is rejected and Ha is accepted. The level of family support based on the mean value, before the intervention that did not support 15 (75%) decreased to 2 (10%) after the intervention and those that supported 5 (15%) increased to 18 (90%) after the intervention.

TABLE 4: Calculation results and t-test in the intervention group and the control group.

Variable	Group		Not Support	Support	Mean	Median	SD	Min-Max	95% CI	P value
Criteria										
Family Support	Intervention	Before	15 (75%)	5 (25%)	35,2	38	4,4	28-44	33,1-37,2	0,00
		After	2 (10%)	18 (90%)	47	48	4,6	36-54	44,8-49,1	
	Control	Before	17 (85%)	3 (15%)	35,1	34	3,5	30-42	33,4-36,7	0,00
		After	5 (25%)	15 (75%)	41,9	41	5,3	32-50	39,4-44,3	

Analysis with t-test shows that p-value 0,00 for intervention and control group

TABLE 5: Results of the analysis of family support in the intervention group and the control group after the intervention.

Variable	Group	Mean	SD	P value
Family Support	Intervention	47	4,6	0,00
	Control	41,9	5,3	
	Difference	5,1		

Table 5 shows the difference in the average family support in the control and intervention groups of 5.1 with a p-value of 0,000.

4. Discussion

T-test results for pretest and posttest with p value 0.00 <0.05 so that Ho is rejected and Ha is accepted. The increase that occurs because the intervention has several stages of implementation so that each stage itself has a discussion time that allows families of DM patients to exchange ideas in providing support to their families. Each respondent was given the opportunity to express his opinions and experiences so that the process of providing health education based on the reality in the field were not only based on theory. This result is in accordance with Johnson's (2003) study. Judging from the characteristics of the respondents, this study has similarities with the Johnson study, which most of them are women? Women have a desire to take care of a sick family more painfully than men because of their motherly nature. Even this research is supported by the results of the study [13].

The difference in average family support in the control and intervention groups was 5.1 with p-value 0,000. The researchers 'assumption is that this is because in the peer group intervention process, all respondents, including peers, have similar emotions, mutual openness, and discussion about DM patients' problems. The delivery was carried out by exchanging information from both peers and respondents so that their family support

would be better. Whereas in the control group, Health Education were carried out by researchers and research assistants who did not have the experience of caring for the DM family directly so that it did increase family support but was not as high as the family peers group intervention. These results are consistent with the research [11]. which states that Peer education intervention group is one type of health education that provides increased knowledge, psychosocial, and more effective expenditure, rather than personal counseling.

5. Conclusion

The results showed that peer group intervention education was more significant than health education usually in increasing the family support of diabetes mellitus patients, so that it could be used as an intervention choice for community nurses in increasing family support for DM patients.

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Conflict of Interest

The authors have no conflict of interest to declare

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