

THE EFFECT OF SELF MANAGEMENT EDUCATION ON DISTRESS OF TYPE 2 DIABETES MELLITUS PATIENTS IN ULIN GENERAL HOSPITAL BANJARMASIN, SOUTH KALIMANTAN, INDONESIA

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Abstract: The purpose of this study was to analyze the effect of diabetes self management education (DSME) on distress of type 2 diabetes melitus patients which is hospitalized in Ulin General Hospital. This Study used Pre-Experiment with One Group Pretest-Posttest Design. The sample size was 32 patients. The results showed that the average of emotional burden before and after DSME was decrease, with difference number 0.325. The result of Distress among healthcare services before and after DSME was increase (0.211). The result of distress due to diabetes management before and after DSME was decrease (0.119). The result of distress interpersonal relationship before and after DSME was up (0,021). The analysis used Wilcoxon Sign Rank test with $p = 0,135$ ($p > 0,05$) for emotional distress, $p = 0,443$ ($p > 0,05$) for Distress healthcare worker, $p = 0.656$ ($p > 0.05$) for distress due to diabetes management. $P = 0,527$ ($p > 0,05$) for Distress interpersonal relationship. The conclusion was there is no significant difference of distress level before and after DSME. It is shown that there is no effect of DSME on distress among patients with diabetes mellitus.

Keywords: Diabetes Mellitus, Distress, Diabetes Self-Management Education (DSME)

INTRODUCTION

Diabetes mellitus is one of metabolic disease. It was characterized by increase of levels glucose in the blood. It happened because of the body's ability to produce insulin was decrease or impaired insulin secretion or due to both of those reasons. The number of patients with diabetes mellitus in the world was increased, this is related to population boom, life expectancy, urbanization that changes the traditional lifestyle to modern lifestyles, the prevalence of obesity was increase, and otherwise the prevalence of physical activity was decline. Indonesia was 7th position in the world with 10 million people suffered diabetes mellitus in 2015.¹ Basic health research in Indonesia (2013) data showed people with diabetes mellitus in Indonesia about 6.9% or 12 million people with diabetes mellitus, the number of people with diabetes mellitus in South Kalimantan was 1.4% or 38,113 people diagnosed with diabetes.

Diabetes mellitus is a chronic disease, and it could not be cured, therefore it can cause distress. The causes of diabetes distress was diabetes diagnosis, signs and symptoms of diabetes mellitus and diabetes management such as blood glucose monitoring, consuming oral insulin, using insulin injections, and adherence for treatment.²

One of important role in the management of diabetes mellitus is education. Education to patients with diabetes mellitus is important. It is first step in controlling diabetes mellitus. Education is given to patients with diabetes in order to improve patient knowledge and their management, so patients have preventive behaviors in their lifestyles to avoid diabetes complications.³ One of education technique that commonly used and has effective in clinical outcomes and quality of life of patients with diabetes mellitus is Diabetes Self Manage(DSME).⁴ The aim of DSME is to support in term of decision making, self-care behavior, problem solving and collaboration with health care services to

improve clinical outcomes, health status, and quality of life.⁵

Studies about Diabetes Self Management Education by Wicaksono (2010) showed that Diabetes Self Management Education provides significant effects against the independent management of type 2 diabetes mellitus patients who include an increase in knowledge, attitudes, and self management skill.⁶

Other studies result by Diani (2015) that mention still high distress in patients diabetic ulcer at Ulin General Hospital in Banjarmasin and based on the results of interviews conducted on health workers at Ulin General Hospital in Banjarmasin has never been implemented Diabetes Self Management Education to type 2 diabetes mellitus patients in hospital.⁷ Based on these reasons, we conducted study on the effect of self management education on distress among patients with diabetes mellitus at Ulin General Hospital in Banjarmasin.

RESEARCH METHODS

The population in this study was patients with type 2 diabetes mellitus in at Ulin General Hospital in Banjarmasin. This study used Pre experimental method, one Group Pretest-Posttest Design. Data was collected from pretest before intervention, and also posttest after intervention. This study used purposive sampling technique. The number of samples in this study was 32. The instrument in this study was an observation questionnaires, that was a Diabetes Distress Scale (DDS) modified⁸ consists of 17 items with four domains related to the management of diabetes mellitus. The data was analyzed by Wilcox on Sign Rank Test with significance level of 5%, data was not normally distributed.

RESULTS AND DISCUSSION

The result of this study is showed in these table.

Table 1 Age of Respondents

Variable	Mean	Median	Min-Maks	Std. Deviation
Age	6.91	5.00	1-76	1.906

The most respondents was ± 57 years, with range 41-76 years. This result was similar with previous study that mentioned about diabetes mellitus tends to arise in older age. The reason is due physiological conditions in human was decline, and it is called by aging process.

Aging process consists of changes in body composition, neuro-hormonal changes, especially decreased insulin-like growth factor-1 (IGF-1) and dehydroepandrosterone (DHEAS) plasma. Age has effect on a person's ability to do DM self care. Getting older has impact to ability in guiding and self-assessment.⁹ DM type 2 is the most common type of DM, about 90 - 95% people with DM and suffered by adults aged over 40 years.³ The reason was insulin resistance in type 2 diabetes tends to increase in the elderly (over 65 years), history of obesity and heredity.³

Table 2 Gender of Respondents

Gender	Total	Presentase (%)
Male	18	56.3
Female	14	43.8
Total	32	100

The table 2 showed that the number of male was 18 (56.3%) and the number of femaleas was 14 (43.8%). The number of

Table 5 Distress among respondents before and after DSME

Domain	Average Before DSME	Average After DSME
Emotional Burden	2,763	2,438
Physician related distress	2,203	2,414
Management related distress	2,638	2,519
Interpersonal distress	2,469	2,490

Table 5 showed the average level of respondent's distress before and after DSME

male and female with diabetes mellitus almost similar. Diabetes mellitus not only suffered on male but also in female.

Table 3 Time of suffering among respondents

Variable	Mean	Median	Min - Max	Std. Deviation
Time of suffering	130.21	84.00	1-720	149.749

The time of suffering among diabetes mellitus among respondents was ± 130 months, with a range 1-720 months. Patients with DM over 10 years, based on previous study that conducted by Al-Maskari and El-Sadiq (2007) in the United Arab Emirates mentioned that there was a significant relationship between the duration of illness and the incidence of peripheral vascular disease ($p = 0.000$) and with neuropathy ($p = 0,000$). So the longer of time suffered in DM is more likely risk of complications in foot.

Table 4 Occupation among Respondent

Occupation	Total	Presentase (%)
Having job	19	59,5
No job	13	40,6
Total	32	100

The table 4 showed that 19 respondents (59,5%) had job, and 13 respondents did not have job (40,6%).

on 4 domains, consists of the emotional distress (Emotional Burden) domain before

and after DSME showed a decline (0.325). In domain of healthcare services (Physician related distress) before and after DSME was increase (0.211). In domain diabetes management (Regimen related distress) before and after DSME showed decline in the level of distress of 0.119. In the domain of distress interpersonal relations (Interpersonal distress) before and after DSME showed there is a little of increasing (0.021). Based on the results of statistical analysis there was decreasing and increasing levels of distress among respondents before and after DSME The decrease in the level of respondent distress after DSME because the respondent understood about education in term of diabetes management. It was given

and had effect to increase knowledge of respondents about the disease, especially about self management. While in some respondents, there was an increasing in the level of distress after DSME because after getting helath education about diabetes self-management, respondents thought about disease, especially about diabetes diagnosis. In this case, it was very important for health care services to provide health counseling or education to the patients and it should use easy language that understood by the patient to avoid wrong perception of the patient, and another point to get feedback from the actions

Tabel 6 *Wilcoxon Signed Rank Test* , the effect of *Diabetes Self Management Education* on Distress among patient with Diabetes Mellitus at Ulin General Hospital in BAnjarmasin

Domain	<i>p</i> - value
Emotional Burden	0,135
Physician related distress	0,443
Management related distress	0,656
Interpersonal distress	0,527

Based on Wilcoxon Sign Rank test, the *p*-value of emotional distress domain (Emotional Burden) was $p = 0.135$ ($p > 0.05$). Domain of health care services (Physician related distress) was $p = 0.443$ ($p > 0.05$). Domain of distress due to diabetes management (Regimen related distress) was $p = 0.656$ ($p > 0.05$). Domain of distress interpersonal relations was ($p > 0,05$), it showed that there was no difference in the level of distress before and after DSME and also showed that there was no influence of diabetes self management education on distress among patients with diabetes mellitus at Ulin General Hospital. Statistical analysis was decreasing and increasing in levels of respondents before and after DSME however the number was low. Education can be provided through a health promotion. Health promotion is a process of empowerment to community in order to maintain and improve health.⁸ The process of empowerment to community to

change behaviors and attitudes, so it can improve cognitive, affective, and psychomotor abilities.¹⁰

In this study there is no significance difference in term of effect of diabetes self-management education because the duration of time for changes on diabetes distress is not clearly defined and there is no literature related to this issue. It also caused by the ability of each person to receive and respond to different stimuli. And based on age of respondents showed that The most respondents were elderly. The cognitive abilities of person decrease during the half-life, while the cognitive abilities of inductive reasoning, spatial orientation, vocabulary, and verbal memory was increasing.¹¹ Problem-solving skills and integrative thinking also tend to increase when someone getting older. Crisalized intelligence is derived from past experience. Crisalized intelligence will change due to new information and has effect to improve

knowledge.¹² The similar characteristics of this respondent could assist to approach the DSME intervention.

This study also had some limitations, such as long time in conducted data, and all the process of diabetes self-management education activities only conducted in 1 day. In addition, the existence of confounding variables were factors that affect distress such as culture and stressors other than the disease. The place to collect the data was not supported, the most patients in this hospital was outpatient, so the patient could not focus on health education but focused on the line for consultation with the physician.

CONCLUSIONS

There is no difference significance of diabetes self management education on distress in patients with diabetes mellitus at Ulin General Hospital in Banjarmasin.

The suggestions for further study was needed by controlling the confounding variables that influence distress like culture and stressors.

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