

THE EFFECT OF DIABETES SELF-MANAGEMENT EDUCATION (DSME) PROGRAM ON QUALITY OF LIFE IN DIABETES MELLITUS PATIENTS

Tut Handayani¹, Nusdin²
^{1,2}Universitas Megarezky

*E-mail : iniemailnyaandha@yahoo.com

Abstract

People with diabetes mellitus, having changes in quality of life and risk of death due to complications, this is because diabetes mellitus cannot be cured, allowing complications of other diseases that aggravate the health conditions, but not all sufferers having it, if they can maintain or control their condition to live healthier. To reduce the risk, a diabetes mellitus management program is required, such as diet management, activity, control of blood sugar levels and exercise through a program called *Diabetes Self-Management Education*. (DSM). The purpose of this study was to analyze the effect of Diabetes Self-Management Education and Support (DSME) on the quality of life in patients with diabetes mellitus. The research method used pre-experimental with one group pre-test and post-test design. The number of samples was 23 respondents. The DSME intervention was delivered 3 times at Puskesmas Gentungan, the regency of Gowa. Data were analyzed using the Wilcoxon test with a significant level of 0.05. Wilcoxon results showed that there was a difference in the quality of life between the pre-test and post-test in the treatment group ($p=0.001$). The quality of life in DM patients was Improved after implementing DSME. The conclusion is that there is a significant effect of giving DSME on the quality of life of DM patients. DSME can improve patients' knowledge and self-care skills in controlling blood sugar and preventing complications that can affect their quality of life.

Keywords : Self Management, Education, Quality, life, Diabetes Mellitus

Introduction

Currently, Diabetes Mellitus (DM) is increasing in prevalence in the world's population. Diabetes Mellitus (DM) is a metabolic disease characterized by hyperglycemia due to abnormalities in insulin secretion, insulin action, or both (1). The incidence of Diabetes Mellitus (DM) continues to increase and spreads at all levels of society, regardless of social status, economy, and geographic area (2). According to the International Diabetes Federation, the first rank with the most Diabetes Mellitus (DM) sufferer is the United States, with 10.75% aged 20-79 years. Based on data, there are 30 million adults in America suffering from Diabetes Mellitus (DM), and it dominating two-thirds of the total number of Diabetes Mellitus (DM) cases in 37 developed countries. After America, followed by Singapore (10-53%) and Malta (9.92%). The top 10 highest prevalence are European countries (Portuguese, Cyprus, Andora, Slovenia, Slovakia, Spain, and Israel) (3). In Indonesia, the incidence of type 2 diabetes mellitus (DM) is high. The number of people with Type 2 Diabetes Mellitus (DM) in Indonesia in 2010 reached 8.4 million people and estimated that in 2030 will increase to 21.3 million people. The increasing number of people with Diabetes Mellitus (DM) has brought Indonesia to the fourth position in the world after India, China, and the United States. Meanwhile, in South Sulawesi, specifically in the working area of Puskesmas Antang, Perumnas, sub-district of Manggala stated that in 2018 the number of people with Diabetes Mellitus (DM) was 273 patients with an average age of 40 years.

To reducing the risk, a Diabetes Mellitus (DM) management program is required, such as diet management, activity, control of blood sugar levels and exercise through a program called Diabetes Self-Management Education (DSME). Diabetes Self-Management Education (DSME) is a health education process for individuals or families in managing Diabetes Mellitus (DM). Over the past 20 years, diabetes self-management education programs have proven to be efficacious and cost-effective in the promotion and facilitation of self-management, with increased patient knowledge, skills, and motivation (4). Effects of DSME significantly reducing mortality. Decreased risk of endocrine disorders was found in patients receiving DSME with a contact time of more than 10 hours, receiving repeated DSME, receiving DSME using a structured curriculum, and receiving direct communication (5). This process involves several methods, such as guidance, counseling, and behavioral interventions for people with Diabetes Mellitus (DM) in managing the disease, so that patients and their families become independent. Funnel, Brown, and Hosey (2012) said that one of the educations that can help Diabetes Mellitus (DM) patients is through Diabetes Self-Management Education (DSME) (6). Researchers consider about important to research "The Effect of Diabetes Self-Management Education (DSME) Program on Quality of Life in Diabetes Mellitus Patients in the

Work Area of Puskesmas Gentungan, the regency of Gowa." The purpose of this study was to analyze the effect of Diabetes Self-Management Education and Support (DSME) on the quality of life in diabetes mellitus patients

Methods

This study used a pre-experimental with one-group pre-test and post-test design. The number of samples was 23 respondents. The DSME intervention was delivered three times at Puskesmas Gentungan, the regency of Gowa. The Respondents were delivered the program in discharge planning form with three sessions conducted at Puskesmas in 120 minutes. The research was conducted from May to August 2020. The instrument used in this study was the DQOL (Diabetes Quality of Life) questionnaire. This research took place at Puskesmas Gentungan, the regency of Gowa. Data analysis used univariate and bivariate analysis, the bivariate analysis was assessed through the parametric test, namely the Wilcoxon test with $\alpha = 0.05$. Researchers used a computer program for data processing and statistical analysis of SPSS.

Results

Characteristics of Respondents

Table 1. Distribution of Respondents by Age.

Gender	N	%
70-75	1	4.3
60-69	11	47.8
50-59	9	39.1
40-49	2	8.7
Total	23	100.0

Based on table 1, the respondents aged 70-75 years are 1 person (4.3%), aged 60-69 years are 11 people (47.8%), aged 50-59 years are 9 people (39.1%), while age 40- 49 years are 2 people (8.7%).

Table 2. Distribution of Respondents by Education.

Education	N	%
Bachelor (S1)	4	17.4
High School	8	34.8
middle school	8	34.8
Elementary	3	13.0
Total	23	100

Based on table 2, the respondents with bachelor degree (S1) are 4 people (17.4%), high school education are 8 people (34.8%), junior high school are 8 people (34.8%), and elementary school are 3 people (13, 0%)

Table 3. Distribution of Respondents by Occupation.

Profession	N	%
Civil servant	4	17.4
Entrepreneur	6	26.1
Farmer	5	21.7
Retiree	2	8.7
Unemployment	6	26.1
Total	23	100

Based on table 3 the most occupations of respondents are civil servant as many as 4 people (17.4%), Entrepreneurs are 6 people (26.1%), Farmers are 5 people (21.7%), retirees are 2 people (8.7 %) and Unemployment are 6 people (26.1%).

Quality of Life for Diabetes Mellitus Patients before and after DSME intervention

Table 4. Quality of Life of Diabetic Mellitus Patients Before and After DSME intervention

Quality	Pre-Test		Post Test	
	n	%	n	%
High	2	8.7	10	43.5
Medium	15	65.2	13	56.5
Low	6	26.1	-	-
Total	23	100	23	100

Based on table 4. Quality of Life of DM patients before DSME intervention is low quality as many as 6 people (26.1%), medium level are 15 people (65.2%) and high quality are 2 people (8.7%). While the quality of life after delivered DSME was low as many as 0, moderate as many as 13 people (56.5%) and high as many as 10 people (43.5%).

The Effect of DSME in improving the Quality of Life of Diabetes Mellitus Patients

Table 5. Effect of DSME in improving the Quality of Life for Diabetes Mellitus Patients

Quality	Pre-Post Test		P Value
	n	Mean Rank	
Negative	20	11.43	0.00
Positive	1	2.5	
Ties	2	-	
Total	23	-	

Based on table 5, it was found that the negative ranks or negative difference (decrease) between the results of the GDS in pre test and post test was 20 with a mean rank of 11.43. While the positive ranks or positive difference (increase) is 1 person with a mean of 2.5. While the ties rank or GDS pre and post test scores are the same as 2 people.

Meanwhile, the results of the Wilcoxon test for the effect of DSME in improving the Quality of Life for Diabetes Mellitus Patients were obtained with a p value of 0.00.

Discussion

In the results above, the respondents aged 70-75 years are one person (4.3%), aged 60-69 years are 11 people (47.8%), aged 50-59 years are nine people (39.1%), while the age of 40-49 years as many as two people (8.7%). Several factors are potential for the incidence of DM in the elderly, such as dietary, and activity. It is in line with the research conducted by Lubis et al. (2019), which stated that the condition in adulthood decreased gradually, and the evidence was 61.2% of adults with moderate activity and 24.5% with low activity (8). Another study that describes the incidence of DM is from the research of Sugiarti and Cahyaningrum (2020) stated that the incidence of diabetes mellitus occurs due to unhealthy eating patterns that cause obesity (9).

The most appropriate solution at this time is to innovate in providing education to DM patients. The results of this study indicate that the Diabetes Self Management Education (DSME) intervention effectively improves the quality of life in DM patients. It is in line with research conducted by Julingrum et al. (2018), which providing interventions using the DSME model are effectively improves the quality of life of people with diabetes (10,11,12,13,14).

Conclusion

This study concludes that Diabetes Self Management Education Intervention is effective in improving the quality of life in patients with Diabetes Mellitus.

References

- Girsang, D. (2012). Manajemen strategis terkini dalam upaya pengendalian diabetes di indonesia. Jakarta Diabetes Meeting: Bandung Atrial Fibrillation Symposium (BAFS).
- Intenasional Diabetes Federation. 2011. Diabetes evidence demands real action from the un summit on non-communicable diseases. Retrieved Juni 24, 2014
- Heinrich, E. (2011). Diabetes self- management, strategies to support patiens and health care profesional. Patient Education and Counseling. 86(2): 172-178.
- Chatterjee S, Davies MJ, Heller S, Speight J, Snoek FJ, Khunti K. Diabetes structured selfmanagement education programmes: a narrative review and current innovations. The Lancet Diabetes & Endocrinology [Internet]. Elsevier BV; 2018 Feb;6(2):130–42. Available from: [http://dx.doi.org/10.1016/S2213-8587\(17\)30239-5](http://dx.doi.org/10.1016/S2213-8587(17)30239-5)
- He X, Li J, Wang B, Yao Q, Li L, Song R, et al. Diabetes self-management education reduces risk of all-cause mortality in type 2 diabetes patients: a systematic review and metaanalysis. Endocrine [Internet]. Springer Science and Business Media LLC; 2016 Nov 12;55(3):712–31. Available from: <http://dx.doi.org/10.1007/s12020-016-1168-2>
- Funnel, M., Brown T., Childs, B., Hass, L., Hoseney, G., Jessen, B., et al. (2010). National standarts for diabetes self-management education. Diabetes Care, 34: 89-96. doi: 10.2337/dc11- S089
- Sutandi, A. (2012). Self-management education (DSME) sebagai metode alternatif dalam Perawatan mandiri pasien diabetes mellitus di dalam keluarga.
- Utami, G. T., Woferst, R., & Lubis, S. L. (2019). An overview of physical activities among family members with risk of type 2 diabetes mellitus in Pekanbaru. *Enfermeria clinica*, 29, 26-29.
- Cahyaningrum, E. D., & Sugiharti, R. K. (2020, February). The Relationship Between Obesity and Physical Activity to the Incidence of Diabetes Mellitus in Ledug, Kembaran, Banyumas, Central Java. In *1st International Conference on Community Health (ICCH 2019)* (pp. 137-143). Atlantis Press.
- Anggraeni, A. F. N., Rondhianto, R., & Juliningrum, P. P. (2018). Pengaruh Diabetes Self-Management Education and Support (DSME/S) Terhadap Kualitas Hidup pada Pasien Diabetes Melitus Tipe 2 (The Effect of Diabetes Self Management Education and Support (DSME/S) on Quality of Life in Patients with Type 2 Diabetes Mellitu. *Pustaka Kesehatan*, 6(3), 453-460.
- Indrayana, S. (2016). Pengaruh Diabetes Self Management Education And Support (Dsme/S) Terhadap Efikasi Diri Klien Diabetes Melitus (DM) Tipe 2 Di Wilayah Kerja Puskesmas Patrang Kabupaten Jember.
- Paz-Pacheco, E., Sandoval, M. A., Ardena, G. J., Paterno, E., Juban, N., Lantion-Ang, F. L., ... & Bongon, J. (2017). Effectiveness of a community-based diabetes self-management education (DSME) program in a rural agricultural setting. *Primary health care research & development*, 18(1), 35-49.
- Ridwan, A., Barri, P., & Nizami, N. H. (2018). Efektivitas Diabetes Self Management Education Melalui Sms Terhadap Pengetahuan Penderita Diabetes Mellitus: A Pilot Study. *Idea Nursing Journal*, 9(1).
- Yeary, K. H. C. K., Long, C. R., Bursac, Z., & McElfish, P. A. (2017). Design of a randomized, controlled, comparative-effectiveness trial testing a Family Model of Diabetes Self-Management Education (DSME) vs. standard DSME for Marshallese in the United States. *Contemporary clinical trials communications*, 6, 97-104.