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Motivational interviewing empowerment program on self management in type 2 diabetes mellitus patients

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Abstract---Diabetes is a disease whose main factors are related to lifestyle, such as activity habits and eating patterns. This risk will increase in individuals with unrestrained hypertension. The purpose of this study was analyzing the motivational interviewing empowerment program for self-management in patients with type 2 diabetes mellitus. The kind this study used is Quasi Experiment with the form of Non-Randomized Control Group Pretest Posttest Design. The results of the examine in the intervention group showed that self-management of patients after being given Motivational Interviewing from all 30 respondents experienced an increase in self-management, with self-management scores before Motivational Interviewing ranging from 37-50 and after being given Motivational Interviewing ranging from 38-53. The results of further analysis obtained a Significance P-value of 0.000 ($p < 0.05$). And the results of the study in the control group showed that the patient's self-management after being given leaflets from all respondents did not experience an increase in self-management. This is evidenced by the score of self-management before being given leaflets ranging from 32-50 and after being given leaflets ranging from 37-50. The results of further analysis obtained a Significance P-value of 0.126 ($p < 0.05$). The motivational interviewing empowerment program can effectively improve self-management in diabetes management.

Keywords---motivational interviewing, self-management, type 2 diabetes mellitus.

Introduction

There has been a large increase in the prevalence of Diabetes in the last few decades. Diabetes is a disease with the main factor, namely Lifestyle (lifestyle) such as activity habits and eating patterns. This can lead to an increased risk of individuals with uncontrolled hypertension (Mobasser et al., 2020). Diabetes mellitus has become the 6th leading cause of death in the world. In 2015, there were 1.58 million deaths caused by diabetes (2.8% of the whole deaths within the world), and every year there were 1.6 million deaths straight inferable to diabetes (WHO, 2017).

Indonesia is ranked 6th in the world as a country with a prevalence of people with diabetes mellitus, this disease is in almost all Asian countries with a high level of burden related to non-communicable diseases (NCD) (C. Zheng et al., 2017). Diabetes Mellitus type 2 is one of the chronic diseases that cannot be completely cured and is the most worrying disease because of its social and economic impact, a disease with a cost of over 11.6% of the cost of health care worldwide in 2010 (Silva et al., 2018). In addition, if left unchecked, the common psychosocial problems in diabetic patients often have a damaging effect on the well being then societal life of patients. Addressing psychosocial aspects such as emotional, cognitive, social, and behavioral factors in providing treatment interventions will help in overcoming psychological barriers, which are related to compliance and self-care of patients which is the ultimate goal in the management of patients with diabetes mellitus (Kalra et al., 2018).

In a new precise assessment of Motivational Interviewing (MI), it was established that readily available was a important improvement inside a number of patients results such like fasting blood glucose, entirety cholesterol, blood pressure, body mass index (BMI), and physical activity (Wang et al., 2010). In another study, HbA1c testing was reduced by 1% with an educational intervention ((Thepwoongsa et al., 2017). Several studies have shown that MI can contribute to promoting a healthy diet, increasing physical activity, and controlling body weight (Ekong & Kavookjian, 2016; Lundahl et al., 2013).

MI can be given up individually or in groups which results in a good level of glycemic control (Berhe et al., 2020), so that there are behavioral changes obtained from self-management that can be applied in motivating each patient, not only handling the physiological side. only, but also the psychological treatment of the patient. For this reason, the authors are interested in conducting research related to motivational interviewing empowerment programs for self-management in patients with type 2 diabetes mellitus. Descriptive research is a case study. That is by monitoring the patient's progress during pregnancy until the puerperium and ensuring and early detection of various things or complications that may occur in the patient (Washudi., 2016).

Method

This research was conducted at Public health center Bulango Selatan and Bulango Timur Gorontalo Province. The sort of study used in this research, namely Quasi Experiment in the form of Non-Randomized Control Group Pretest Posttest Design. The research instrument to measure patient self-management used the diabetes self-management questionnaire (DSMQ) (Schmitt et al., 2016)

Results and Discussions

The results of the study on respondents obtained data on the characteristics of respondents based on age and duration of suffering from DM in table 4.1 and the characteristics of respondents based on gender and education can be seen in table 4.2.

Table 4.1 Distribution of Characteristics of Respondents by Age and Length of Suffering from DM in the Intervention Group and Control Group

Variable	Group	N	Min-Max	Mean $\pm$ SD
Age	Intervention	30	33-71	49,66 $\pm$ 1,15
	Control	30	30-82	51,93 $\pm$ 1,24
Long Suffering DM	Intervention	30	0-10	3,93 $\pm$ 3,37
	Control	30	0-10	2,96 $\pm$ 2,61

Based on table 4.1, it can be seen that the age of the youngest respondents in the intervention group and control group is 30 years and the oldest age is 82 years. The duration of suffering from DM is at least 0 years and a maximum of 10 years.

Table 4.2 Distribution of Respondents Gender and Education in the Intervention Group and Control Group in 2021

Variable	Group	Kategori	N	Percentage (%)
Gender	Intervention	Male	4	13,3%
		Female	26	86,7%
	Control	Male	7	23,3%
		Female	23	76,7%
Education	Intervention	Elementary	14	46,7%
		Middle School	8	26,7%
		High School	4	13,3%
		College	4	13,3%
	Control	Elementary	19	63,4%
		Middle School	7	23,3%
		High School	4	13,3%
		College	0	0%

Based on table 4.2, it can be seen that the gender in the intervention group and the second control group were mostly female (86.7% and 76.7%). Characteristics of respondents based on education in the treatment group and the second control group the most, namely elementary school education (46.7% and 63.4%).

Bivariate Analysis

The results of the bivariate analysis of self-management of Type 2 Diabetes Mellitus patients between treatment groups who were given Motivational Interviewing and the control group who were given leaflets containing guidelines on the treatment of diabetes mellitus, can be seen in the explanation below.

Table 4.3 Self-Management of Type 2 Diabetes Mellitus Patients Before and After Giving Motivational Interviewing Counseling

Intervention Group	Median	Min-Max	<i>P Value</i>
Patient self-management scores before giving Motivational Interviewing	42	37-50	0,000
Score patient self-management after giving Motivational Interviewing	47	38-53	

Based on the list 4.3, it can be seen here the patient's onself-management since granted of Motivational Interviewing from all 30. Respondents experienced an increase in self-management scores. Categorically, there were 7 respondents who experienced an increase from moderate to good self-management. This was evidenced by the self-management score before Motivational Interviewing ranging from 37-50 and after being given a Motivational Interviewing ranging from 38-53. The results of further analysis obtained a Significance P-value of 0.000 ($p < 0.05$).

Table 4.4 Self-Management of Type 2 Diabetes Mellitus Patients Before and After being given leaflets containing guidelines for the treatment of diabetes mellitus

Intervention Group	Median	Min-Max	<i>P Value</i>
Patient self-management score before being given the leaflet	42	32-50	0,126
Patient self-management score after being given the leaflet	42	37-50	

Based on the list 4.4, it can be seen that the patient's onself-management since granted of leaflets from all respondents did not experience an increase in self-management. This is evidenced by the score of self-management before being given leaflets ranging from 32-50 and after being given leaflets ranging from 37-50. The results of further analysis obtained a Significance P-value of 0.126 ($p < 0.05$).

Discussion

In the results of this study, it was found that the age of the youngest respondents, both in the control group and the intervention group, was 30 years and the oldest age was 82 years. This is in accordance with previous research data, conducted by (Kharroubi, Darwish, 2015), it was found that the prevalence

of diabetes was highest in adults (10.9%) while in other areas the prevalence of diabetes in adults was 37.5%.

In addition, the results of the study showed that the length of time the respondent had suffered from DM was at least 0 years and a maximum of 10 years. This, according to research by (Kuniss, Freyer, Muller, Kielstein, Muller, 2019) it was found that the length of time people with diabetes can last more than 10 years can reach 55% and are at risk of complications with a percentage of 46.0%. The risk of diabetes-related complications with the highest scores were lower extremity circulation disorders (62.1%), eye complications (57.3%) and kidney complications (54.7%). The explanation regarding the self-management analysis of diabetes mellitus patients inside the intervention category who was granted Motivational Interviewing counseling and the manage group who was granted leaflet can be seen in the explanation below.

The results showed that the self-management of patients after being given Motivational Interviewing from all 30 respondents experienced an increase in self-management, with self-management scores before Motivational Interviewing ranging from 37-50 and After being given Motivational Interviewing ranging from 38- 53. The results of further analysis obtained a Significance P-value of 0.000 ($p < 0.05$). Counseling has a positive impact on the quality of life of people with type 2 diabetes through improving self-management. The results showed that the intervention through motivational interviews in improving adherence to the advice given in the management of diabetes, continuously carrying out blood sugar level checks needed to determine blood sugar control in patients with type 2 diabetes mellitus.

The results of the study are in line with Heinrich et al., (2010) found that the control group had a higher fat intake than the intervention group. This was due to the control group being only given a questionnaire and the intervention group being treated through motivational interviews. The researcher argues that the need for adequate knowledge is very influential on the actions or behavior of patients, because having adequate knowledge about the disease they are suffering from will further increase awareness to carry out a healthy lifestyle and avoid things that can increase blood sugar levels. This can be obtained through counseling with health workers in order to gain additional knowledge about the illness.

The results of the study are also in line with research by Huang, et.al (2016), it was found that the group of people with category 2 diabetes mellitus in Taiwan found that the experimentation unit who was granted motivational interviewing with motivational and cognitive enhancement therapy significantly improve the physical and mental quality of life of diabetic patients. This is also in line with research by Rosenbek Minet et al., (2011) with the results that patients in the intervention group showed significantly higher levels of perceived competence in treating diabetic patients in dealing with diabetes compared to the control group (change in average score = -0.387, with p value=0.002) after 1 year of intervention. The study was conducted over a period of 1 year with the main objective of being that patients with diabetes who participated in the MI program did not improve

their glycemic control or self-management competence in the intervention group compared to the control group.

The results showed that the patient's self-management after being given leaflets from all respondents did not experience an increase in self-management. This is evidenced by the score of self-management before being given leaflets ranging from 32-50 and after being given leaflets ranging from 37-50. The results of further analysis obtained a Significance P-value of 0.126 ($p < 0.05$). Education given to patients regarding treatment can provide knowledge to patients and have an impact on improving self-management. The results of the study showed that after being given leaflets, several respondents experienced an increase in self-management through the attitude of preventing food which could facilitate the increase in blood sugar levels, but this was only temporary.

Research results such as research by (Abaza&Marschollek, 2017) found that education was an acceptable method to improve glycemic control and self-management behavior of diabetes, but it was found that the group that was given education, after 3 months, showed a decrease in motivation and self-management on average 0.69% and 1.05%. By providing education to patients, it can improve good self-management behavior. The implementation of the education provided is also very necessary in the daily life of patients in order to achieve a good level of health and the need for patient care and self-awareness has a major influence on the self-management of diabetic patients. mellitus.

Conclusion

Effective motivational interview empowerment program can improve self-management in diabetes management. The action was carried out for 4 weeks, every week for 2 times with a duration of ± 40 minutes / meeting. Through 4 basic approaches in Motivational interviewing, which is abbreviated as OARS (Open ended question, Affirmation, Reflection and Summaries)

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