Education of Type 2 DM Patients on Dietary Adherence in The Working Area of The Public Health Center in Solok City

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ABSTRACT

The prevalence of diabetes mellitus increased significantly from 6.9% in 2013 to 8.5% in 2018. Adherence to DM management can maintain blood glucose stability which is very important for the survival of patients with type 2 DM. Patients with DM are at risk of microvascular damage such as retinopathy and nephropathy which reduce the quality of life of patients. The purpose of this study was to determine the effect of coaching education using the P3DM module on the compliance of Type II DM patients in dietary management. This research design was quasi-experimental with a pre-post test control group design. The study population was type 2 DM patients who lived in the Solok city health center work area, with a sample of 41 respondents. intervention and 41 control respondents. The intervention was provided in the form of coaching education using the P3DM module for six meetings for two months. The results showed an increase in dietary compliance in the intervention and control groups with a value of p = 0.00., coaching education using the P3DM module has an effect on compliance with dietary management. The t value in the intervention group obtained was greater than the control group. Coaching education using the P3DM module provides an advantage as a complement to the educational program in improving compliance with the management of DM patients.

Keywords: Adherence C*oaching,* DM Education, patients

INTRODUCTION

The International Diabetes Federation (IDF) organization estimates that there are at least 283 million people aged 20 - 79 years in the world suffering from diabetes in 2019, equivalent to a prevalence rate of 9.3% of the total population of the same age. The prevalence of diabetes is 9% female and 9.65% male. This number is predicted to increase to 587 million by 2030.[1]

Diabetes not only causes premature death worldwide. It is also the leading cause of blindness, heart disease, and kidney failure. The IDF organization estimates that at least 463 million people aged 20-79 years in the world had diabetes in 2019, equivalent to a prevalence rate of 9.3% of the total population of the same age. Based on gender, 1DF estimates the prevalence of diabetes in 2019 to be 9% in women and 9.85% in men. The prevalence of diabetes is expected to increase as the population ages to 19.9% or 111.2 million people aged 65-79 years. [2]

Diabetes mellitus (DM) is a disease caused by metabolic disorders characterized by an increase in blood sugar called hyperglycemia.[3] DM is a disease that is hidden before visible

symptoms appear such as easy hunger, thirst and frequent urination. The symptoms are often realized when the patient already feels complaints, so it is called the silent killer.[4]

DM can be serious and lead to dangerous chronic conditions if left untreated. According to WHO, people with diabetes are at risk of microvascular damage such as retinopathy and nephropathy. This will have an effect on the patient's quality of life. Decreased quality of life has a significant relationship with morbidity and mortality, and affects the life expectancy of DM patients.[5]

Considering that the therapy carried out and DM treatment requires a long time, it certainly can cause boredom and monotony for DM patients. The participation of family members in guiding medication, diet, physical exercise and filling leisure time that is positive for family health is a form of active participation for the success of DM management. Coaching other family members to work together to solve the problem of Diabetes mellitus in their family can only be done if a close relationship has been established between health workers and the patients and their families. [6]

Nurses as one of the health workers have a role in the management of DM patients, through providing information and health education in DM management and prevention of complications. Among the actions and interventions in controlling DM disease is diet control. The implementation of comprehensive nursing care for DM patients is expected to overcome and avoid complications and a good quality of life can be achieved.[6]

Coaching is one of the nursing interventions with a strategy in the form of assistance to patients and providing opportunities to determine what they want to achieve and determine solutions to achieve the goals of the treatment program being carried out[7]. In this study, education was provided by coaching on dietary adherence of patients with type 2 diabetes. Education is given directly to individuals by involving the family, visiting the patient's home. One way to improve dietary adherence is to provide coaching support through inherent training (coaching) through several-step guidance for individual targets to adopt by practicing a given technique.[2] In this way, it can increase individual understanding of the material that has been learned so that it can increase self-care activities.[8]

Based on the analysis of previous research, there has been no specific research examining education in a direct way individuals involve families. Therefore, researchers are interested in examining the effect of coaching education so that the information found can be

used as a reference in diabetes management, especially on dietary adherence of type 2 DM patients. The purpose of this study was to determine the effect of coaching education on dietary adherence of patients with type 2 diabetes.

METHOD

The design used in this study was a quasy experiment with a pre-post test control group design, the population of this study was type 2 DM patients in the working area of the Public health center in Solok city who visited Posbindu PTM in the last three months, the sample amounted to 82 people, 41 people for the intervention group and 41 people for the control group. In this study, coaching education using the P3DM module was the independent variable and compliance was the dependent variable. Data were collected using an adherence questionnaire, coaching education was given to the intervention group six times a meeting for two months. The statistical test used was Paired t-test, followed by independent t-test with a significance of $p<0.05$.

RESULT AND DISCUSSION

Characteristics of Respondents

The following are descriptive characteristics of respondents based on age, gender, education, occupation, and duration of DM.

Table 1. Frequency Distribution of Respondents based on Demographic Characteristics

Demographic Characteristics	Category	Intervention		Control	
		F	%	F	%
Age	18-25 years	1	2,5	-	-
	26-50 years	16	39	17	58,5
	> 50 years	24	58,5	24	41,5
Gender	Male	7	17	12	29,3
	Female	34	83	29	70,7
Education	Elementary/Junior High School	25	61	14	34,1
	High School	15	36,6	24	58,6
	Diploma / Higher Education	1	2,5	3	7,3
Pekerjaan	Unemployed	26	63,4	14	34,1
	Self-employed	14	34,1	25	61
	Civil Servants	1	2,5	2	4,9
DM history	<5 years	26	63,4	27	65,9
	≥5 years	15	36,6	14	34,1

Table 1 shows that based on demographic characteristics, more than half (58.5%) of the intervention and control respondents were over 50 years old, most (83%) and (70.7%) of the intervention and control respondents were female, more than half (61%) of the intervention respondents had elementary/junior high school education and more than half (58, 6) of control respondents had a high school education, more than half (63.4%) of control respondents did not work and more than half (61%) of control respondents were self-employed, more than half (63.3%) and (65.9) of intervention and control respondents had a history of diabetes <5 years.

Table 2. Changes in Respondents' Adherence to Diet Before and After Being Given Coaching Education with P3DM Module

Respondent	Adherence		95% CI	t	p
	Before Mean± SD	After Mean ± SD			
Control Group	47.83, 4.254	50.17, 4.816	-0.020 0.118	1.432	0.16
	49.44, 5.505	62.37, 3.441	0.678 0.932	12.845	0.00

Table 2 shows a change in the dietary adherence variable both before and after the intervention with a value of p=0.00. The t value showed a result of 12,8 which means that there was a greater increase in dietary adherence in the intervention group compared to the control group.

Tabel 3. Difference Score of Respondents' Adherence to Diet before and after Coaching Education with P3DM module

Diet Adherence	Control Group (Mean± SD)	Intervention Group (Mean± SD)	Mean Difference	95% CI	p
Difference Value	2.34± 1.811	12.93± 5.442	10.5	-12.8 -8.803	0.00

In table 3, the independent t-tests showed that p = 0.00, which means that there was a significant difference in changes in compliance between the control group and the intervention group. The mean difference value was 10.5 indicating a difference in the average change in compliance before and after being given coaching education using the P3DM module in the control group and intervention group.

The results of measuring adherence variables in type 2 DM patients showed that the intervention group experienced an increase in adherence after being given coaching education using the P3DM module. The paired t-test results showed a change in the dietary adherence

variable both before and after being given the intervention with a value of p=0.00. The calculated t value showed a result of 12,8 which means that there was a greater increase in adherence to taking medication in the intervention group compared to the control group.

According to Rieger, to effectively manage diabetes mellitus, patients must adhere to medication recommendations and healthy lifestyle behaviors, but research shows many patients do not do this. Education is effective when combined with self-management support but peer support programs do not bring about lasting change. Health coaching, or professional support, can be very effective if it focuses on developing self-efficacy and skills such as goal setting, problem solving, and management of cognitive and emotional barriers. This overview discusses the benefits of patient self-management for chronic conditions such as diabetes, core competencies for health coaching the theoretical basis and principles of health coaching interventions, delivery methods and evidence that health coaching works for diabetes self-management.[9]

This study was supported by Permana's research on the effect of a combination of education and health coaching compared to education alone in changes in dietary discipline, physical exercise, and achievement of DM control goals in patients with type 2 DM. It was found that health coaching provides additional benefits as a complement to educational programs in improving glycemic control and triglyceride levels in uncontrolled type 2 DM patients. This approach can be used by educators and other trained professionals to improve DM control in patients with type 2 diabetes.[10]

Health coaching is best implemented when the patient is treated as a health care partner rather than a learner, the patient is allowed to identify their own needs to make lifestyle changes, being a "cheerleader" for the patient while understanding that the patient will sometimes fail and staying focused on the positive, allowing the patient to guide the learning experience based on their needs, utilizing multiple teaching tools and techniques as everyone learns in different ways, rewarding positive behavior change.[11]

Dietary arrangements adjust to the calorie needs needed by people with diabetes mellitus, combined with physical activity so that it is well fulfilled. The arrangement includes the content, quantity and time of food intake (3 J - Type, Amount, Schedule) so that people with diabetes mellitus have an ideal body weight and blood sugar can be controlled properly[12.]

The essence of coaching is to help a person change in the direction they want to go, supporting a person at every level to become who they want to be, building awareness to empower choice and cause change. Coaching unlocks a person's potential to maximize their performance. Coaching helps them to learn rather than teaching them.[13]

The Health Promotion Model departs from social assessment which is the first stage of social diagnosis. The second stage of the Health Promotion Model includes epidemiological diagnosis which examines the health status to then proceed to the stage of behavioral and environmental assessment related to health which is part of the third stage or behavioral and environmental diagnosis. The next stage leads to educational and organizational diagnosis which continues in the fifth stage, namely diagnosing the formation of health-related policies to be implemented and continued with further assessment and assessment of the effects of policies to achieve outcome assessment in the form of improved quality of life.[14]

Health education based on the Nursing Interventions Classification (NIC) is developing and providing instructions and is a learning experience to facilitate controlled adaptation to behaviors conducive to healthy living in individuals, families, groups, or communities.[15] While the word structured according to the large Indonesian dictionary is already in a state of being arranged and neatly arranged.[16] From the above understanding, it can be concluded that structured health education is an interactive process in providing health information where the information to be provided has been well organized in order to increase patient understanding to achieve optimal health status. Patient education is closely related to disease prevention.

For nursing professionals, patient education focuses on promoting patient self-management.[17] Patient education is not only about informing patients about all their health problem, but also about the relationship between health problems and patient behavior.17 Inpatient education and self-management improvement, the patient's needs are always the main point. First, nursing professionals should always determine the patient's problems and needs. Patients need information and education that is appropriate to their health.[18]

Fauziah's research explains that family support is the most dominant factor associated with dietary adherence of patients with type 2 diabetes mellitus by 5 times (4.872). Increasing efforts to manage diabetes mellitus by optimizing counseling activities regarding diabetes

mellitus management, the importance of DM diet compliance to blood glucose levels and providing nutritional counseling to patients with type 2 DM when taking medication. Provide socialization to families of patients with type 2 diabetes regarding diet for patients so that they can provide positive attention and support to patients with type 2 diabetes.[19]

According to Santi, setting a diabetes mellitus diet schedule is very important for people with diabetes mellitus because by dividing meals into small but frequent portions, carbohydrates are digested and absorbed more slowly and steadily. In addition, insulin requirements become lower and insulin sensitivity increases so that the body's metabolism can run better. Dividing meals into smaller, more frequent portions at large meals and snacks is more effective at keeping blood sugar within normal limits. The longer the gap between the first meal and the second meal or between meals, the larger the food required, making it difficult to implement the 3 main meals and 3 snacks schedule.[20]

CONCLUSIONS AND SUGGESTIONS

There is an effect of providing coaching education interventions applying the P3DM module on carrying out the diet of type 2 DM patients. This intervention is one of the interventions that can improve the behavior of DM patients, namely increasing compliance in carrying out DM management, namely carrying out a diet, setting a diabetes mellitus diet schedule is very important for people with diabetes mellitus will reduce blood glucose.

From the various scientific evidence and the description above, it is expected that health workers, especially those working in first-level health facilities, can provide structured health education in a language that is easy for patients to understand in order to increase compliance, even though the average patient's education level is low. Health workers are also expected to follow up on chronic disease patient care to maintain and increase patient awareness of their illness.

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RESEARCH ETHICS

This study received ethical approval from the Ethics Committee, Faculty of Medicine, Andalas University No.840/UN.16.2-KEP/2022. Before the research we had to follow the rules that treating respondents must have received permission and approval from the ethics committee in writing then just intervene with the respondents.

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