International Journal of Multidisciplinary Sciences and Arts

E-ISSN : 2962-1658
Volume 2, Nomor 2, December 2023
https://doi.org/10.47709/ijmdsa.v2i2.2962

Description of Self Management of Type 2 Diabetes Mellitus Patients in the Samadua Health Center Working Area, South Aceh Regency

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Sejarah Artikel:
Dikirim: 16-10-2023
Diterima: 17-10-2023
Diterbitkan: 23-10-2023

Kata kunci:
Diabetes Mellitus, Self Care

ABSTRACT

Diabetes mellitus is one of the threats to human health. Diabetes mellitus causes various complications. These complications can be minimized if the patient has the ability and knowledge to manage diabetes (self-management diabetes mellitus). Self-management of diabetes mellitus in this case includes glucose management, dietary control, physical activity, and health care. Objective: to determine the description of self-management in patients with diabetes mellitus in the Samadua Health Center working area, South Aceh Regency. Methods: This research is a quantitative study that uses descriptive methods. The number of samples in this study was 112, using the purposive sampling technique. Data collection instruments were used using the Diabetes Mellitus Management Questionnaire (DMSQ), with a total of 16 question items. Results: The description of self-management of type 2 DM patients in the Samadua Health Center working area is in the good category. Conclusions and Suggestions: The picture of self-management of DM respondents based on the total score of each of the five components is in the good category. More than half of the respondents have a good diet, most have good physical exercise, more respondents do foot care, the majority of respondents have good diabetes medication-taking behavior, and more respondents regularly monitor blood sugar.

INTRODUCTION

Poorly controlled diabetes mellitus can cause various complications that even cause death. Reducing the risk of complications can be done through the self-management of DM sufferers, and every DM sufferer must be able to do it well. In patients with DM, it is very necessary to monitor their understanding of lifestyle behavior when carrying out self-management, which consists of taking routine medication, monitoring blood sugar, their behavior about diet, and physical activity. (Windani et al., 2019).

Self-management in DM patients includes following a healthy diet, increasing physical activity, using diabetes drugs and special drugs safely and regularly, monitoring blood sugar levels, and performing regular foot care (PERKENI, 2011). In order to achieve successful changes in healthy behavior, comprehensive education and efforts to increase motivation are needed. Knowledge about self-monitoring of blood glucose, signs and symptoms of hypoglycemia, and how to overcome them must be given to patients. For this reason, self-management is very important for people with diabetes mellitus. According to the ADA (2014) and several studies, there are five pillars of DM management: education, medical nutrition therapy, physical exercise, pharmacological intervention, and self-monitoring of blood glucose. In order to achieve successful changes in healthy behavior, comprehensive education and efforts to increase motivation are needed. Compliance in performing self-management is needed to improve the quality of life of patients.

Self-management is an individual activity undertaken to control diabetes mellitus and prevent complications. This can be achieved by regulating and maintaining healthy living behaviors in terms of physical activity, nutrition, medication, etc. Diabetes mellitus is a chronic disease that requires daily monitoring and multiple treatments. Diabetes self-management can reflect the patient's conscious behavior and desire to control diabetes mellitus (Funnel et al., 2008).

Many patients rarely make regular visits to health facilities. For physical activity training, gymnastics is usually held once a month. It was once done every week with a system of alternating per 10 patients but is no longer running. Of the total patients in the working area of the Samadua Health Center, South Aceh District, 80% have carried out routine controls, and 20% still do not have awareness of routine controls.

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LITERATURE REVIEW

Diabetes mellitus is a group of metabolic diseases with hyperglycemia characteristics that occur due to abnormalities in insulin secretion, insulin action, or both (Perkeni, 2015). Diabetes mellitus (DM) is a condition characterized by an increase in blood glucose levels (hyperglycemia), accompanied by metabolic abnormalities due to hormonal disorders, which can cause various chronic complications in the eyes, kidneys, nerves, and blood vessels (Mansjoer et al., 2005). According to the American Diabetes Association (2010), diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia that occurs due to impaired insulin secretion, insulin action, or both. In conclusion, diabetes mellitus is a condition characterized by increased blood glucose levels (hyperglycemia) and is caused by insulin resistance, impaired insulin secretion, or both.

The management of type 2 DM in general aims to improve the quality of life of patients. Type 2 DM management consists of short-term DM management and long-term management. The goals of short-term management are to eliminate the signs and symptoms of type 2 DM, maintain a sense of comfort, and achieve blood glucose control targets. The goal of long-term management is to prevent and inhibit the progression of macrovascular, microvascular, and diabetic neuropathy complications. The ultimate goal of type 2 DM management is to reduce the morbidity and mortality of type 2 DM (Smeltzer & Are, 2001; Perkeniki, 2011). Controlling blood glucose, blood pressure, body weight, and lipid profile is necessary to achieve this goal through holistic patient management by teaching self-care and behavior change (Mansjoer et al., 2005).

According to PERKENI (2011), there are 4 pillars of DM implementation, namely education, medical nutrition therapy, physical exercise, and pharmacological intervention. Education plays a very important role in the management of type 2 DM because providing education to patients can change patient behavior in managing DM independently. Medical nutrition therapy ("MNT") or diet is part of the management of type 2 DM. The key to successful TNM is the comprehensive involvement of health workers (doctors, nutritionists, other health workers as well as patients and their families). Physical exercise is done regularly 3-4 times a week for approximately 30 minutes which is CRIPE (Continous, Rhytmical, Interval, Progressive, Endurance training). The CRIPE principle is the basis for making DSME material which means that physical exercise is carried out continuously without stopping, muscles contract and relax regularly, fast and slow movements alternately, gradually from light exercise to heavier exercise gradually and last for a certain time. Physical exercise aims to maintain fitness, lose weight, and improve insulin sensitivity. Pharmacological interventions Pharmacological interventions include the administration of drugs to patients with type 2 DM. Medicines given can be in the form of oral medications and injections. Drugs in the form of injections include insulin and GLP-1 agonists/incretin mimetics (PERKENI, 2011).

Self-management is an individual ability that can be used by people with diabetes mellitus to control diabetes, which includes actions such as prevention of complications and treatment. There are several aspects that include self-management, such as physical exercise, physical activity, exercise, dietary management, drug compliance, and blood sugar monitoring. (Huang et al., 2014).

Self-management can be applied to various fields. One of the fields that applies self-management is the health sector. This is because self-management is a core component of all chronic diseases (Levich, 2007), which is used as a strategy for handling self-management so as to provide better results.

Self-management is made to help individuals with diabetes by facilitating knowledge, skills, and abilities to carry out self-care. Self-management behavior influences individuals with diabetes on how to make decisions, perform self-care, solve problems related to their disease, and synergize treatment with health care providers. Ultimately, self-management can improve the clinical outcomes, health status, and quality of life of individuals with diabetes (Funell et al., 2008).

METHODOLOGY

This research is a type of quantitative research with a descriptive survey method. The research design used is non-experimental, using a cross-sectional approach. The population used in this study were people with DM who were in the Samadua Health Center work area, South Aceh Regency, with a total of 156 people. The sampling technique used was purposive sampling, with a sample size of 112 respondents. The dependent variable in this study is self-care management for diabetes mellitus (DM), including dietary regulation, physical exercise, foot care, and blood glucose monitoring, while independent variables include age, gender, level of education, and duration of DM. The research tool used in this study was a questionnaire. This questionnaire was designed by Schmitt et al. (2013) and consists of 16 question items to assess self-care related to blood sugar control. Data collection was carried out through several bureaucratic processes to facilitate the continuity of the research process. Some of the research stages include preliminary studies, compiling research proposals, conducting proposal seminars, obtaining permission letters from academics submitted to the Samadua Health Center, finding respondents who fit the inclusion and exclusion criteria, and data collection assisted by enumerators. Data processing is done through the processes of editing, coding, data entry, cleaning, and tabulation.

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RESULT

Table 1. Frequency Distribution of Respondent Characteristics in the Samadua Health Center Working Area, South Aceh Regency, November 2022 (n = 112)

Characteristics of Respondents	Frequensi	percentage (%)
Age		
Early Adult (26-35 Years)	10	8,9 %
Late Adult (36-45 Years)	14	12.%
Early Elderly (46-55 Years)	33	29,4 %
Late Elderly (56-65 Years)	41	36,7 %
Elderly (> 65 Years))	14	12,5 %
Gender		
Male	49	43,7 %
Female	63	56,3 %
Education		
Not graduated from elementary school	16	14,2 %
Graduated from elementary school	18	16,1%
SECONDARY SCHOOL	35	31,2 %
HIGH SCHOOL	40	35,8 %
College/Academy	3	2,7 %

The table above shows that out of 112 respondents, more were in the late elderly with an age range of 56–65 years, namely 41 respondents (36.7%). The majority of respondents were female, as many as 63 respondents (56.3%). A total of 40 respondents (35.8%) had a high school education level.

Table 2. Frequency Distribution of the length of time suffering from DM in Respondents in the Samadua Health Center Working Area, South Aceh Regency in November 2022 (n = 112)

Characteristics	Frequensi	Percentage (%)
Duration of DM		
3-3-12 Months	13	11,6 %
1-5 Years	60	53,6 %
> 5 Years	39	34,8 %

The table above shows that respondents who suffered from DM in the range of 1-5 years were 60 respondents (53.6%). In addition, 60 respondents had disease complications, namely cataracts as many as 10 respondents (8.9%), stroke as many as 5 respondents (4.4%), heart disease as many as 7 respondents (6.2%), and hypertension disease as many as 38 respondents (33.9%). Most respondents, namely 98 respondents (87.5%), did not smoke, but there were still some respondents who smoked, namely 14 respondents (12.5%).

Table 3. Frequency Distribution of Self-management of Diabetes Mellitus (DM) Patients in the Samadua Health Center Working Area, South Aceh Regency, November 2022 (n = 112)

Category of Behavior	Frequensi	Percentage (%)
Self management poor	50	44,6%
Self management better	62	55,4 %
Total	112	100%

The table above shows that more respondents in the Samadua Health Center working area in South Aceh district have good self-management behavior, namely 62 respondents (55.4%). This result is almost the same as the number of respondents who have poor self-management behavior, namely 50 respondents (44.6%).

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Table 4. Frequency Distribution of Diet in the Samadua Health Center Working Area, South Aceh Regency, November 2022 (n=112)

Category of Behavior	Frequensi	Percentage (%)
Poor	52	46,4 %
Better	60	53,6 %
Total	112	100%

The table above shows that more respondents who do self-care on the good diet component are 60 (53.6%). Meanwhile, respondents with poor self-care in the dietary component were 52 (46.4%).

Table 5. Frequency Distribution of Physical Exercise (Sports) in the Samadua Health Center Working Area, South Aceh Regency, November 2022 (n = 112)

Category of Behavior	Frequensi	Percentage (%)
Poor	46	41,0 %
Better	66	59,0 %
Total	112	100%

Based on the data in Table 9, it can be seen that most DM respondents carry out self-care in the physical exercise component, as well as as many as 66 respondents (59.0%). While as many as 46 respondents (41.0%) were included in the category of physical exercise,

Table 6. Frequency Distribution of Foot Health Care in the Samadua Health Center Working Area, South Aceh Regency, November 2022 (n=135)

Category of Behavior	Frequensi	Percentage (%)
Poor	54	48.2 %
Better	58	51,8 %
Total	112	100%

Based on the data in Table 11, it can be seen that more respondents do self-care in the good foot care component, namely 58 respondents (51.8%). However, 54 respondents (48.2%) were categorized as having poor foot care.

Table 7. Frequency Distribution of Blood Sugar Monitoring in the Samadua Health Center Working Area, South Aceh Regency, November 2022 (n = 112)

Category of Behavior	Frequensi	Percentage (%)
Poor	45	40,1 %
Better	67	59,9 %
Total	112	100%

Based on the table above, it can be seen that more respondents have good blood sugar self-management behavior, namely 67 respondents (59.9%). A total of 45 respondents (40.1%) had poor blood sugar monitoring and self-management behaviors.

DISCUSSION

The results of this study indicate that the majority of DM respondents in the Samadua Health Center working area of South Aceh district are in the late elderly group with a range of 56–65 years, namely 41 respondents (36.7%). After that, it was followed by respondents in the early elderly age group with an age range of 46–55 years, namely 33 respondents (29.4%). The results of this study are in accordance with research conducted by Linda in the Sorondol Semarang Health Center work area, which states that as many as 38.5% of respondents suffering from DM are in the late elderly age range. The results of another study conducted by Irma in the Purbalingga Health Center working area showed similar results: as many as 54.3% of respondents with DM were aged 56–65 years. The results of this study are in accordance with the theory that at the age of 45 years and older, the risk of developing diabetes mellitus increases

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because, at that age, the body begins to experience sugar intolerance (Betteng et al., 2014). One of the organ declines that occurs due to the aging process is the reduced ability of pancreatic beta cells to produce the hormone insulin. As a result, there is an increase in glucose intolerance due to impaired secretion of the hormone insulin or inadequate glucose utilization at the cellular level, which will result in an increase in blood glucose.

The results of this study showed that most of the respondents were female, as many as 63 respondents (56.3%). Meanwhile, respondents of the male gender were 49 (43.7%). These results are in accordance with the research of Eva and R (2022), which shows that the number of diabetes mellitus respondents is higher than that of men.

The results of this study indicate that most of the high school education levels and the equivalent are 40 respondents (35.8%). The results of this study are in accordance with research conducted by Milda (2019), which states that most of the respondents who had DM were high school graduates as many as 40.5%. Diabetes management will be good if individuals have a high level of education, where information about diabetes management is more easily accepted than that of low education individuals.

The distribution of respondents who experienced DM in the range of 1–5 years was 60 respondents (53.6%). After that, it was followed by a range of >5 years and as many as 39 respondents (34.8%). Then the least was 13 respondents with a duration of 3–12 months (11.6%). The results of this study are in accordance with research conducted by Linda, which states that as many as 50.4% of respondents suffer from DM in the range of 1–5 years. Someone who has suffered from DM for a long time will have the ability to treat their disease. Patients who have had diabetes mellitus for a long time tend to do better self-care, which leads to an increase in the patient's quality of life (D'Souza et al., 2016). The length of time spent suffering from DM indicates that people with DM who are obedient to treatment regimens, carry out a healthy lifestyle, and are able to adapt well.

Respondents have self-management in a good category. As many as 50 respondents to self-management in the less category (44.6%) and as many as 62 respondents in the good category (55.4%) This is in line with Irma's research (2022), which states that in her research, most diabetics have good self-management. In theory, DM self-management is an action taken by DM patients to manage and control DM, which includes activity, diet, exercise, blood sugar monitoring, drug control, and foot care.

CONCLUSIONS

Respondents with DM in the working area of the Samadua Health Center, South Aceh Regency, were mostly in the late elderly, with a range of 56–65 years. More than half of the respondents were female. The education level of most respondents is high school or equivalent, and the majority of respondents do not work.

The picture of self-management of DM respondents based on the total score of the five components of self-management is almost the same between good self-management and less self-management. More respondents fall into the good self-management category. More than half of the respondents have a good diet, most have good physical exercise, more respondents do foot care, the majority of respondents have good diabetes medication behavior, and more respondents regularly monitor blood sugar..

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E-ISSN : 2962-1658
Volume 2, Nomor 2, December 2023
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