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The Relationship Between Self-Efficacy and Self-Care Management in Diabetes Mellitus Patients at the Taman Sidoarjo Health Center

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ABSTRACT
Diabetes Mellitus is a chronic disease that requires good self-care management to prevent complications. One of the factors that influence the self-care management of Diabetes Mellitus patients is self-efficacy. This study aims to analyze the relationship between self-efficacy and self-care management in Diabetes Mellitus patients at Taman Sidoarjo Health Center. The type of research used is quantitative with analytic methods, using purposive sampling techniques. The sample size was 85 patients. Data were collected using a self-efficacy and self-care management questionnaire sheet, each of which amounted to 20 questions with data analysis using the Spearman Rank correlation test. The results showed that most respondents had high self-efficacy (64%) and also good self-care management (59%). There is a relationship between self-efficacy and self-care management in Diabetes Mellitus patients at the Taman Sidoarjo Health Center with a p value = 0.000 (<0.05), a correlation coefficient of 0.560 and a positive correlation direction. This means that the higher the self-efficacy, the better the self-care management. Education is needed to maintain adherence to taking diabetes medication, routinely carry out joint exercise every week, hold training to check blood sugar independently and provide education on foot care and diabetes mellitus diet so that patients' blood sugar can be controlled.

Keywords: Self-efficacy, Self-care management, Diabetes Melitus

INTRODUCTION

Diabetes mellitus is one of the non-communicable diseases with the highest prevalence in the world, including Indonesia. Field facts also show that Diabetes Mellitus is the biggest health problem in many regions in Indonesia, one of which is in the working area of the Taman Sidoarjo Health Center. Based on the results of the preliminary study, the patient's obstacle in dealing with DM is their attitude in managing their disease. There are still many DM patients at the Taman Sidoarjo Community Health Center who are known to be not fully confident and confident in their ability to carry out self-care management when blood sugar is too high, resulting in instability in blood sugar levels in the body.

The prevalence of diabetes patients worldwide is 537 million. Indonesia ranks fifth in the world as of 2021 with 19.47 million people [1]. In Indonesia, the prevalence of Diabetes Mellitus in East Java in 2021 reached 929,535 cases. One of the districts with the highest number of DM patients in East Java is Sidoarjo Regency, totaling 75,909 people [2]. In Sidoarjo Regency, the highest DM cases are in the Taman District area, which is 8,779 people and the Taman Health Center is the health center in the Taman District area that treats the most DM patients, namely 5,467 people [3].

The high incidence of Diabetes Mellitus is influenced by an unhealthy lifestyle and is exacerbated by the inability of patients to manage their disease

independently [4]. Diabetes Mellitus patients tend to have uncontrolled blood sugar levels. High blood sugar in the body can lead to various complications. Diabetes Mellitus complications are divided into microvascular complications that affect the kidneys (nephropathy) and eyes (retinopathy); macrovascular complications that generally affect the heart (coronary), brain (stroke) and blood vessels; and nervous system disorders (neuropathy) characterized by numbness, tingling, and dry skin [5].

Living with a diagnosis of chronic disease such as Diabetes Mellitus along with the many complications that haunt causes patients to experience changes or imbalances between biological, psychological and social. Changes in these conditions require empowerment, one of which can be achieved by increasing self-efficacy. Self-efficacy is a person's belief in their ability which plays an important role in changing behavior and the influence of that behavior [6]. Increased self-efficacy and patient motivation will affect the improvement of diabetes self-care management compliance which consists of the patient's ability to adhere to a diet program, physical exercise, control blood sugar levels, medication and foot care which aims to prevent further complications and control blood sugar [7].

RESEARCH METHOD

The research design used was quantitative with analytic method and used cross sectional research design. The population in this study were all type 2 DM patients who visited the Taman Sidoarjo Health Center, totaling 543 people. The sample taken was part of the population with the sample size calculated using the Slovin formula and obtained a sample size of 85 people. The sampling technique used purposive sampling technique with the criteria of type 2 diabetes mellitus patients without comorbidities or other complications; and aged 26-60 years. This study consists of 2 types of variables, namely the Independent variable (self-efficacy) and the Dependent variable (self-care management). Self-efficacy is a belief in the ability of self possessed in type 2 Diabetes Mellitus patients in carrying out self-care to achieve maximum health goals and outcomes. Meanwhile, self-care management is an independent action taken by type 2 Diabetes Mellitus patients in maintaining a lifestyle to manage their Diabetes Mellitus disease.

Data collection in this study using interviews and questionnaires was carried out at the Taman Sidoarjo Health Center located on Jl. Raya Ngelom No. 50, Taman Sidoarjo starting from the preparation of the research proposal to the preparation of research results in August 2023 - June 2024. Diabetes Mellitus patients who at the time of the interview did not have comorbidities and were willing to become respondents were asked to fill out informed consent first before giving answers in the form of a cross on the answer choices provided on the questionnaire sheet. There are 3 types of questionnaires provided, namely the Demographic Data Questionnaire which consists of introduction, name, age, gender, education, occupation and length of suffering; Self-Care Management Questionnaire, which consists of 20 questions with answers using a Likert scale of 1 to 4. The 20 items in this questionnaire include 5 indicators of self-care management in diabetic patients. The Likert scale of 1 to 4 used is (1) never, (2) rarely, (3) often and (4) always. After all the data were collected, the researchers conducted a data processing process which included editing, coding, entry, scoring and tabulating.

Data analysis used included univariate analysis and bivariate analysis. Univariate analysis analyzes demographic data including age, gender, education, occupation and length of suffering; self-efficacy and self-care management in Diabetes Mellitus patients. The data collected were then presented in the form of frequency distribution tables,

percentages and narratives. Bivariate analysis was performed on two variables that were suspected of having a relationship, namely the self-efficacy variable and the self-care management variable using the Spearman Rank statistical test. The results of the correlation test can be determined based on the significance value (Sig.) which is written with a p value. The hypothesis in this study is Ha, there is a relationship between self-efficacy and self-care management in Diabetes Mellitus patients at the Taman Sidoarjo Health Center, accepted if the p value ≤ 0.05.

RESULT AND DISCUSSION

Table 1. Characteristics of Type 2 Diabetes Mellitus Patients at the Taman Sidoarjo Health Center in May-June 2024

Characteristics	Frequency	Percentage (%)
Age (Years)		
Early Adult : 26 – 35	7	8
Late Adult : 36 – 45	22	26
Early Elderly : 46 – 55	30	35
Late Elderly : 56 – 65	26	31
Gender		
Male	34	40
Female	51	60
Education		
Not Graduated From Elementary School	7	8
Elementary School	21	25
Junior High School	14	16
Senior High School	31	36
University	12	14
Profession		
Unemployment	43	51
Self-employed	31	36
Farmer	1	1
Government Employees	5	6
Soldier/Police	2	2
Retired Civil Servant	3	4
Duration of Suffering		
< 5 Years	52	61
≥ 5 Years	33	39
Total	**85**	**100**

Based on Table 1, it is known that most patients with type 2 diabetes mellitus at the Taman Sidoarjo Health Center (35%) are 46-55 years old / early elderly, most (60%) are female, most (36%) have a high school education, most (51%) have not / do not work, and most (61%) are suffered by patients with <5 years of suffering.

Table 2. Distribution of Self-Efficacy of Type 2 Diabetes Mellitus Patients at the Taman Sidoarjo Health Center in May - June 2024

Self-Efficacy	Frequency	Percentage (%)
Low	31	36
High	54	64
Total	**85**	**100**

Based on Table 2, it was found that most patients with type 2 diabetes mellitus at the Taman Sidoarjo Health Center had high self-efficacy, namely 64% or 54 people.

Tabel 3. Distribution of Self-Care Management of Type 2 Diabetes Mellitus Patients at the Ta-man Sidoarjo Health Center in May - June 2024

Self-Care Management	Frequency	Percentage (%)
Less	35	41
Good	50	59
Total	**85**	**100**

Based on Table 3, it was found that most patients with type 2 diabetes mellitus at the Taman Sidoarjo Health Center had good self-care management, namely 59% or 50 people.

Table 3. Results of Analysis of the Relationship between Self-Efficacy and Self-Care Management of Diabetes Mellitus Patients at the Taman Sidoarjo Health Center in May - June 2024

Self-Efficacy	Self-Care Management				Total		*P value*	*R*
	Good		Less					
	N	%	N	%	N	%		
High	43	80	11	20	**54**	**100**		
Low	7	23	24	77	**31**	**100**	0,000	0,560
Total	**50**	**59**	**35**	**41**	**85**	**100**		

Based on Table 4, the results of the statistical test of the relationship between self-efficacy and self-care management of type 2 diabetes mellitus patients at the Taman Sidoarjo Health Center using the Spearman Rank test, the p value is 0.000, which means that there is a significant relationship between the two variables with a relationship strength level of 0.560, which means that it has a moderate relationship and has a positive correlation direction. Of the 54 patients who had high self-efficacy, most (80%) had good self-care management. While 31 patients who have low self-efficacy, most (77%) have poor self-care management. However, there is a small proportion (20%) of patients who have high self-efficacy but have poor self-care management. Vice versa, there is a small proportion (23%) of patients who have low self-efficacy but have good self-care management.

Self-Efficacy of Diabetes Mellitus Patients at the Taman Sidoarjo Health Center

Based on table 2, most patients with type 2 diabetes mellitus at the Taman Sidoarjo Health Center have high self-efficacy. This is influenced by several factors, namely gender and length of suffering.

Type 2 diabetes mellitus patients at Taman Sidoarjo Health Center who have high self-efficacy are mostly female (72%). Martono's theory (2010) in Abizar (2023) regarding women states that in terms of self-efficacy, public perception shows that women can perform better in terms of confidence than men in handling learning tasks. Women also have more success stories because they like to read [8]. The results of this study are in line with the research of Widianingtyas et al. (2020) which states that female respondents have higher self-efficacy than men [9]. Women have a higher level of motivation in terms of interest in paying attention and maintaining their involvement in learning than men [10]. Women are more confident in outlining strategies to solve problems but do tend to be slow than men [11].

Another factor is the length of suffering. Type 2 Diabetes Mellitus patients at the Taman Sidoarjo Health Center who have high self-efficacy mostly suffer from DM <5 years (78%). Long suffering affects a person's actions towards compliance in managing their disease so that sufferers will feel bored in undergoing treatment or disease management [12]. The results of this study are in line with Munir & Solissa's (2021) research which states that respondents who suffer from Diabetes Mellitus for < 5 years have better self-efficacy compared to respondents who suffer from Diabetes Mellitus> 5 years [13]. Long and even lifelong diabetes treatment can result in increases and decreases or fluctuations in the motivation of people with Diabetes Mellitus in carrying out treatment, thus affecting self-efficacy [14].

Most patients with type 2 diabetes mellitus at Taman Sidoarjo Health Center have low self-efficacy in the Physical Activity Indicator (39%) and Blood Sugar Checking Ability Indicator (36%). The lack of these indicators is partly due to the

patient's low education, namely only graduating from elementary school, junior high school or even not graduating from elementary school. Mubarak's theory (2007) in Sulisdiana (2011) states that education affects the development of a person's attitude in receiving information and values given. So that a low level of education will hinder the development of individual behavior towards all information received which can have an impact on self-efficacy [15]. Judging from these indicators, counseling and motivation efforts are needed to do physical activities such as jogging, gardening, or stretching exercises in the midst of various busy patients. In addition, it is also necessary to increase confidence in one's ability to control blood sugar by providing teaching to check blood sugar levels independently using a glucometer and the need to provide education regarding signs and symptoms if blood sugar levels in the body are too high or too low so that they can be quickly treated independently.

Increased self-confidence and motivation of Diabetes Mellitus patients will affect the improvement of diabetes self-care management compliance which consists of the patient's ability to adhere to a diet program, physical exercise, blood sugar control, medication and foot care which aims to prevent further complications and control blood sugar [7].

Self-Care Management of Diabetes Mellitus Patients at the Taman Sidoarjo Health Center

Based on table 3, most patients with type 2 diabetes mellitus at the Taman Sidoarjo Health Center have self-care management that is classified as good. This is influenced by age and gender.

Patients with type 2 diabetes mellitus at Taman Sidoarjo Health Center who have good self-care management are mostly aged 46-55 years or classified as early elderly (40%). According to the theory of Mubarak (2007) in Sulisdiana (2011) states that in psychological aspects, maturity of thinking will increase with increasing age [15]. The results of this study are in line with research conducted by Basir et al. (2022) which states that the majority of Diabetes Mellitus patients who have good self-care management are aged 46-55 years or classified as early elderly [16]. This is supported by research by Sousa (2011) in Ningrum et al. (2019) which states that the older a person is, the more his maturity level increases so that he is able to think rationally about the benefits that will be received if he does self-care management well [17]. However, being too old can also affect the implementation of self-care management. This is due to a decrease in health and cognitive function so that they tend not to be able to manage their disease independently [18]. So that the early elderly category is an age that is considered capable of carrying out self-care management well compared to other ages.

Another factor is gender. Diabetes Mellitus patients at the Taman Sidoarjo Health Center who have good self-care management are mostly female (72%). Martono's theory (2010) in Abizar (2023) regarding women states that women are relatively more diligent and have high motivation than men [8]. The results of this study are in line with research conducted by Munir and Solisa (2021) which states that Diabetes Mellitus self-care management is carried out more by women than men [13]. Diabetes Mellitus self-care management can be done by anyone, both men and women, but in fact women seem to care more about their health so that they will try to be optimal in carrying out self-care management of the disease they suffer. Women tend to be more sensitive, painstaking, patient and thorough in carrying out daily tasks and caring for the health of themselves and sick family members [19].

Most patients with type 2 diabetes in Taman Sidoarjo Health Center have low self-care management in Physical Activity Indicator (38%) and Blood Sugar Monitoring Indicator (33%). The lack of these indicators is partly due to work

factors. DM patients who work have a low level of self-care management, especially in terms of physical activity compared to DM patients who do not work [20]. Judging from these indicators, it is necessary to increase efforts by holding gymnastics together every week and counseling so that residents, especially Diabetes Mellitus patients, can take the time to do regular exercise independently 3-5 times a week. It is also necessary to provide training in checking blood sugar independently using a glucometer and providing education to always routinely check blood sugar levels, and record every measurement of blood sugar levels taken.

Diabetes Mellitus Self-Care Management is an action taken by individuals to manage DM disease, in the form of treatment and prevention of complications. The better the self-care management, the blood sugar levels will be controlled and ultimately complications can be prevented, so as to improve the quality of life of people with DM [21].

Analyzes the Relationship Between Self-Efficacy and Self-Care Management in Patients with type 2 Diabetes Mellitus at the Taman Sidoarjo Health Center

Based on table 4, it is known that the results of the correlation test show a significant relationship between self-efficacy and self-care management in patients with type 2 diabetes mellitus at the Taman Sidoarjo Health Center with a p value of 0.000 (<0.05), with moderate relationship strength, and positive correlation direction. The results of this study are in line with Khunafa'ati's research (2023). In his research, it is known that there is a significant relationship between self-efficacy and self-care management with a p value of 0.002 and a correlation coefficient value of 0.488 which shows the strength of moderate correlation [22]. Self-efficacy can provide a better understanding of the process of changing healthy behavior, this is very important to help improve one's knowledge, behavior and skills [23]. The impact of self-efficacy on DM patients can be seen from behavioral changes by influencing how a person thinks, motivates themselves, and acts in self-care [14].

Out of the 85 patients, it is known that patients who have high self-efficacy with good self-care management are 80%. With high self-efficacy, it will help someone to try and be diligent in undergoing self-care management [7]. These results are in line with research conducted by Mustarim (2019) which states that someone who has high confidence or trust will carry out self-care management well [24]. Assumptions in this study, patients with high self-efficacy and good self-care management, are associated with gender factors and length of suffering.

The most common gender that has high self-efficacy with good self-care management is female. Martono's (2010) theory in Abizar (2023) regarding women states that in terms of self-efficacy, public perception shows that women can perform better in terms of confidence than men in handling learning tasks. Women also have more success stories because they like to read [8]. This is in line with research conducted by Fathimatuzzuhra et al. (2024) who said that women tend to have higher self-efficacy compared to men. Women have a deeper interest in something than men, women also understand more about a role and are more capable and confident in undergoing something including management and control of Diabetes Mellitus [25]. In addition, perhaps in this study more respondents were female because women have a greater risk of suffering from diabetes than men. This is supported by Robiatun (2021) in Fathimatuzzuhra et al. (2024) which states that women have higher self-efficacy than men because women are more likely to experience an increase in body mass index (BMI) which can be at risk of obesity so that they are more at risk of suffering from Diabetes Mellitus [25].

Another factor is the length of suffering. In this study, patients who had

high self-efficacy with good self-care management mostly suffered from DM for ≤ 5 years. Long and even lifelong diabetes care can result in increases and decreases or fluctuations in the patient's motivation to take care, thus affecting self-efficacy [14]. This study is in line with research conducted by Nellisa et al. (2021) which states that length of suffering is one of the factors that can affect self-efficacy, the majority of respondents who suffer from DM with a span of ≤ 5 years have better self-efficacy [26].

Other data show that out of 85 patients, 77% have low self-efficacy with poor self-care management. With a lack of self-efficacy, a person will have low confidence in their ability to carry out diabetes care independently [7]. These results are supported by Sa'pang et al. (2022) who said that when self-efficacy is low, patients do not have the confidence to be able to do a task well so that it has an impact on lack of motivation to maintain or improve their health, as a result patients have low self-care management [23].

The assumption in this study is that patients with low self-efficacy and poor self-care management are due to age and education. The age of patients who have low self-efficacy with poor self-care management is mostly aged 56-65 years or classified as late elderly because the older a person's age will be able to reduce his self-efficacy because he often feels anxious and unprepared for various physical changes that commonly occur in the elderly. Stress, anxiety, anxiety and worry can have a negative impact on a person's self-efficacy and can cause a person to be more confident that he will fail and the inability to do something [27]. In addition, the higher a person's age, the more physical activity decreases. Elderly people are often characterized by a deterioration in health conditions, especially physical health status. This is due to structural and physiological declines in the elderly such as vision, hearing, pulmonary system and bone joints [28]. So that the older a person is, it will affect their ability to carry out self-care management which makes them tend to be assisted in carrying out self-care. This is in line with Wahyuningsih & Priscila (2016) who state that the older a person is, they will experience a decline, especially in the field of physical abilities, which can result in a decrease in their social role so that it can increase dependence that requires the help of others [29].

Another factor is education, patients who have low self-efficacy with poor self-care management are mostly patients with low education such as not graduating from elementary school, or only graduating from elementary school. Mubarak's theory (2007) in Sulisdiana (2011) states that education affects the development of a person's attitude in receiving information and values given. So that a low level of education will hinder the development of individual behavior towards all information received which can have an impact on self-efficacy [15]. Patients' low knowledge of diabetes can affect patients' perceptions of disease, motivation, coping management and behavior change. Low knowledge can lead to low self-efficacy in Diabetes Mellitus care [30].

The existence of a significant relationship between self-efficacy and self-care management, shows that self-efficacy is one of the important aspects in carrying out self-care management in Diabetes Mellitus patients. Patients who have high self-efficacy tend to have good self-care management. Meanwhile, patients who have low self-efficacy tend to have poor self-care management.

Another result found was that there were patients who had high self-efficacy but had poor self-care management, as many as 20%. This is of course slightly different from the results of the initial research which states that if self-efficacy is high then self-care management is also good. The possible cause is the work factor. Many of these patients work, one of them is self-employed, so they do not have time to carry out self-care management properly.

They are busy working so there is no time to exercise and do physical activities other than work, rarely do foot care and rarely make dietary arrangements especially when outside the home while working. This can make some DM patients at the Taman Sidoarjo Health Center have poor self-care management even though their self-efficacy is high. Diabetic patients who work have a low level of self-care management, especially in terms of physical activity compared to diabetic patients who do not work [20].

Another result found was that there were patients who had low self-efficacy but had good self-care management, as many as 23%. This can be caused by family support factors. From the results of interviews with several patients, most of them said that they felt bored with the treatment process and various self-care that they had to undergo every day for more than 5 years, thus reducing their confidence in their ability to carry out self-care management. Fortunately, there is family support that always supports and helps carry out self-care such as reminding to take medicine, preparing good food for DM sufferers and always accompanying during blood sugar control at the puskesmas so that self-care management can be carried out properly. According to Maslow in Laili et al (2013) human needs include biological needs and psychological needs such as security, self-esteem and affection. These needs must be met so as to reach the highest level of basic human needs. Family support is a way that can be provided by families in achieving Maslow's highest basic needs. Family support can be provided in the form of information, emotional, instrumental and research support [31]. This is in line with research conducted by Munir & Solissa (2021), in their research it was found that 33.3% of patients who had poor self-efficacy but had good self-care. This can occur due to the influence of the family or social environment where the patient lives [13]. With the support of the family, self-care in Diabetes Mellitus patients can be better. Patients will be able to fulfill all needs in self-care as a result of the support provided by the family [32].

CONCLUSION AND RECOMMENDATION

Based on the results of research obtained from 85 respondents about the relationship between self-efficacy and self-care management of Diabetes Mellitus patients at Taman Sidoarjo Health Center in May - June 2024, conclusions that can be drawn include Diabetes Mellitus patients at Taman Sidoarjo Health Center the majority have self-efficacy which is classified as high, Diabetes Mellitus patients at Taman Sidoarjo Health Center the majority have self-care management which is classified as good, and the higher the self-efficacy in Diabetes Mellitus patients at Taman Sidorjo Health Center, the better their self-care management.

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