

Factors Related To Self-Care Activities In The Elderly With Diabetes Mellitus In Bener Meriah Regency

Lina Fati¹, Asniar Asniar^{2*}, Suryane Sulistiana Susanti³

¹Master Program of Nursing Science, Faculty of Nursing, Universitas Syiah Kuala

²Department of Community Health Nursing, Faculty of Nursing, Universitas Syiah Kuala

³Department of Family Health Nursing, Faculty of Nursing, Universitas Syiah Kuala

e-mail co-author: asniar@unsyiah.ac.id*

ABSTRACT

The number of Diabetes Mellitus (DM) survivor were continuously increasing, especially among the elder population. This study aims to identify any factors associated with self-care activities in the elder with DM, also the relationship between knowledge, self-efficacy, and family support to the self-care activities in such population. The data were collected using a questionnaire and analyzed using SPSS for univariate, bivariate (Pearson), and multivariate (logistic regression) techniques. The results indicate that there was a relationship between knowledge and self-care activities in the elder with DM ($0.000 < 0.05$), and there was no relationship between self-efficacy and self-care activities ($0.824 > 0.05$). Moreover, a significant relationship showed between knowledge and self-care activities ($0.000 < 0.05$), and based on the linear regression test results, this research concluded that family support ($0.000 < 0.05$) become the most decisive factor and influence on self-care activities in the elder with diabetes mellitus in Bener Meriah Regency. Further research is needed to identify any behavioral changes in self-care activities in the population.

Keywords: *Activities; diabetes mellitus; elderly; self-care*

ABSTRAK

Penderita diabetes melitus terus meningkat, termasuk para lansia. Penelitian ini bertujuan untuk mengidentifikasi faktor-faktor yang berhubungan dengan aktivitas perawatan diri pada lansia dengan diabetes melitus, hubungan antara faktor pengetahuan, efikasi diri, dan dukungan keluarga terhadap aktivitas perawatan diri pada lansia diabetes mellitus. Pengumpulan data menggunakan instrumen kuesioner dan data dianalisis dengan bantuan SPSS dengan teknik analisa univariat, bivariat (*pearson*), dan multivariat (uji regresi logistik). Hasil penelitian menunjukkan bahwa ada hubungan antara pengetahuan dengan *self-care activities* pada lansia dengan diabetes melitus ($0,000 < 0,05$), tidak ada hubungan antara *self-efficacy* dengan *self-care activities* pada lansia dengan diabetes melitus ($0,824 > 0,05$), dan ada hubungan antara pengetahuan dengan *self-care activities* pada lansia dengan diabetes melitus di Kabupaten Bener Meriah ($0,000 < 0,05$). Berdasarkan hasil uji regresi linier dapat disimpulkan bahwa dukungan keluarga ($0,000 < 0,05$) merupakan faktor yang paling kuat pengaruhnya terhadap *self-care activities* pada lansia dengan diabetes melitus di Kabupaten Bener Meriah. Penelitian lebih lanjut diperlukan untuk mengidentifikasi perubahan perilaku dalam *self-care activities* pada lansia dengan diabetes melitus.

Kata Kunci: *Diabetes melitus; Lansia; Self-Care Activities*

PENDAHULUAN

Diabetes mellitus (DM) is a chronic disease due to abnormalities in insulin and secretion, characterized by hyperglycemia. Diabetes mellitus increases glucose concentration in the blood and is a metabolic disorder (Marinda et al., 2016). One hundred seventy-one million people worldwide suffer from diabetes mellitus, estimated to increase to 366 million in 2030 (Atika, 2016). Furthermore, the International Diabetes Federation (IDF) noted that in 2017 there were 425 million people in the world aged 20 -75 years suffering from diabetes mellitus, and Indonesia is in the second position in the Southeast Asia region, amounting to 9.116,03 cases (IDF, 2017). Indonesia ranks seventh in the world in the number of diabetes mellitus patients. Currently, diabetes has become the number three killer disease in Indonesia, and it is estimated that around 20% of the elderly have diabetes mellitus. Diabetes mellitus decreases the quality of life of the elderly (Yitno & Riawan, 2017). For the context of Aceh, Dr. Zainoel Abidin Hospital noted that in 2014 there were 858 new cases of diabetes mellitus suffered by women and as many as 650 instances sustained by men. While in Bener Meriah Regency there were around 2.423 people with diabetes mellitus in 2019 (Dinas

Kesehatan Kabupaten Bener Meriah, 2019).

The problem of diabetes mellitus that occurs in the elderly can occur due to a decrease in one organ function, namely the pancreas (Khasanah, 2018). Older people with diabetes mellitus have earlier and higher mortality rates, functional disabilities, and comorbidities, such as hypertension, coronary heart disease, and stroke, compared to those without diabetes mellitus. Management of diabetes mellitus in the elderly by examining medical, mental, functional, and social aspects to develop a work plan to determine goals and therapeutic approaches (Prasetyo, 2019).

Several factors influence self-care activities among the elderly in rural areas, including insufficient knowledge about DM, lack of family support, and suboptimal utilization of health services (Luthfa, 2019). In addition, Chaidir et al. (2017) revealed that if self-care is applied optimally, it will improve DM patients' quality of life so they can live their daily lives normally. The elderly are at risk for diseases, including Diabetes Mellitus (Marcia Stanhope & Jeanette Lancaster,

2015; Maryatun, 2019). The emergence of various diseases, decreased body functions, disturbed body balance, and the risk of falling result from an older adult's age (Kiik et al., 2018).

Diabetes mellitus needs proper handling. Active participation of patients, families, related health workers, and the community concerned about managing diabetes mellitus (Suciana & Arifianto, 2019). Family support has a crucial role, especially in fulfilling daily needs, financial assistance, mental condition, and providing motivation and spiritual needs for the elderly. The elderly who get the most support from their family will make them happier and happier. Also, education can change the behavior of diabetes mellitus patients in following the treatment given to increase so to control of blood sugar levels (Faisal et al., 2018). Diabetes mellitus patients who do not receive health education have a four times higher risk of complications when compared to diabetes mellitus patients who receive health education. The basic principle of independent and massive treatment of hypoglycemia is increased knowledge (Santoso & Setyowati, 2020).

Apart from family support and knowledge, the elderly also need self-

efficacy. Self-efficacy is a belief or confidence to achieve the desired goals by performing specific tasks, organizing, and carrying out the required actions. Therapy provided by health workers and self-confidence must also be possessed by diabetes mellitus patients (Handayani et al., 2019). Increasing self-efficacy can increase the ability to control glycemic conditions in diabetes mellitus patients (Mawarda, 2018).

Diabetes mellitus that is not controlled correctly will cause adverse effects on the body and lead to death. Self-care activities are one way to prevent diabetes mellitus because the application of self-care seriously can positively impact the quality of life of Diabetes Mellitus patients to carry out their daily lives typically (Chaidir et al., 2017; Cita et al., 2019; Farida, 2018). Self-care is an effort to increase patients' independence to function optimally. It is one of the independent efforts made by diabetes mellitus patients to prevent and control their blood sugar levels so that complications do not occur.

In short, optimal self-care activities can improve the quality of life and health of patients with diabetes mellitus. Several studies have noted that knowledge, self-efficacy, and family support are related to

diabetes mellitus patient self-care activities (Azmiardi, 2020; Handayani et al., 2019; Mawarda, 2018; Mirza, 2017; Rahmi et al., 2020; Rofiah., 2019). Therefore, this study aims to determine the factors related to self-care activities in elderly patients with diabetes mellitus in Bener Meriah Regency, mainly the relationship between knowledge, self-efficacy, and family support for self-care activities in elderly patients with type 2 diabetes mellitus in Bener Meriah Regency.

RESEARCH METHODOLOGY

The research used a descriptive correlation model with a cross-sectional approach. The research population was all elderly with type 2 diabetes mellitus at Simpang Tiga Public Health Center, Bener Meriah Regency, 82 people, and 43 people at Pante Raya Public Health Center, Bener Meriah Regency. The sample was selected 97 people in this research. The variables used consisted of independent variables such as Knowledge, Self-Efficacy, and Family Support, and the dependent variable is Self-Care Activity.

The data was collected using an instrument in the form of a standardized questionnaire and translated into Indonesian, namely the Diabetes Knowledge Questionnaire 24 (DKQ24)

questionnaire, the Diabetes Self-Efficacy Scale (DSES), the Hensarling Diabetes Family Support Scale (HDFSS), and the Summary of Diabetes Self-Care Activities (SDSAC). Data collection was carried out at the Simpang Tiga Public Health Center and the Pante Raya Public Health Center in Bener Meriah Regency from 22-24 March 2021. Analysis data using SPSS assistance, namely univariate, bivariate (Pearson), and multivariate (logistic regression) analysis.

RESULTS

Univariate Analysis

The study involved 97 elderly respondents with diabetes mellitus in the working area of the Simpang Tiga Public Health Center and the Pante Raya Public Health Center, Bener Meriah Regency. This analysis describes respondents' demographic characteristics: age, gender, tribe, religion, education, job status, income, marital status, the number of children, duration of suffering from diabetes mellitus, and the story of taking medication. The analysis results showed in Table 1 below.

The data in Table 1 above found that most respondents aged between 60 to 74 years are 90%, and only 10% of respondents are between 75 to 90 years. Furthermore, most respondents were women, as much

as 70%, and the rest, 30%, were men. All respondents are Muslim or as much as 100%. Respondent's education varies from not attending school 10% to completing elementary school 21%,

completing junior high school 17%, graduating from high school 24%, graduating from Academy 5%, and graduating from College 23%.

Table 1 The Distribution of Respondent Demographic Characteristics.

Variables	Category	n	Percentage (%)
Age	60 years - 74 years	88	91
	75 years - 90 Tahun	9	9
Gender	Man	29	30
	Women	68	70
Tribe	Gayo	45	46
	Aceh	16	17
	Padang	14	14
	Java	22	23
Religion	Islam	97	100
Education	Not attending school	10	10
	Graduated from elementary school	20	21
	Graduated from Junior high school	17	17
	Graduated from Senior high school	23	24
	Academy	5	5
Job-status	College	22	23
	Work	59	61
Income	Doesn't work	38	39
	Above 2 Million	65	67
Marital status	Under 2 Million	32	33
	Marry	57	59
Number of children	Not Married/Widowed/Widower	40	41
	> 2 children	83	86
	< 2 children	13	13
The duration of suffering from Diabetes Mellitus	Have no children	1	1
	Under one year	5	5
The story of taking medication	Above one year	92	95
	Under one year	5	5
	Above one year	92	95

For work, as many as 61% of respondents have a job, and 39% do not work anymore. As many as 67% of the respondents had an income above 2 million rupiahs, and the remaining 33%

were under 2 million rupiahs. As much as 59% of respondents were married, and 41% were not married, a widow or widower marital status. As many as 86% of respondents have more than two

children, 13% have children less than two people, and the remaining 1% do not have children.

For the old variable suffering from diabetes mellitus, most respondents, 95%, had suffered from diabetes mellitus for more than one year, and only a tiny proportion or as much as 5% of respondents had suffered for less than one year. Furthermore, for the story of taking medication, most of the respondents, or as many as 95%, had taken drugs for more

than the last year, and only a tiny proportion or as much as 5% of respondents had just taken diabetes mellitus medication for less than the previous one year.

Bivariate Analysis

The Pearson correlation test with $\alpha = 0.05$ is used to determine the factors associated with the self-care activities of elderly patients with diabetes mellitus.

Table 2 Analysis Correlation of the Relationship between Knowledge, Self-Efficacy, Family Support, and Respondents' Self-Care Activity

		Knowledge	Self-Efficacy	Family Support	Self-Care Activity
Knowledge	Pearson Correlation	1	.179	.370**	.485**
	Sig. (2-tailed)		.080	.000	.000
	N	97	97	97	97
Self-Efficacy	Pearson Correlation	.179	1	-.141	-.023
	Sig. (2-tailed)	.080		.169	.824
	N	97	97	97	97
Family support	Pearson Correlation	.370**	-.141	1	.677**
	Sig. (2-tailed)	.000	.169		.000
	N	97	97	97	97
Self-Care Activity	Pearson Correlation	.485**	-.023	.677**	1
	Sig. (2-tailed)	.000	.824	.000	
	N	97	97	97	97

** . Correlation is significant at the 0.01 level (2-tailed).

The Table above explains the relationship between knowledge and self-care activities obtained a Sig. (2-tailed) value of $0.000 < 0.05$ indicates a correlation between knowledge and self-care activities in the elderly with diabetes mellitus in the Bener Meriah Regency. Then the variable of the

relationship between self-efficacy and self-care activities obtained a Sig. (2-tailed) value of $0.824 > 0.05$ means no relationship between self-efficacy and self-care activities in the elderly with diabetes mellitus in Bener Meriah Regency. Meanwhile, for the correlation value of

family support and self-care activities, Sig. (2-tailed) value is $0.000 < 0.05$, which means that the relationship between knowledge and self-care activities in the elderly with diabetes mellitus in Bener Meriah Regency is significant.

Multivariate Analysis

The analysis results showed in Table 3. Statistical tests found that the significance value of the self-efficacy variable was

$0.889 > 0.05$, showing no correlation between self-efficacy and self-care activities. For the knowledge variable, a significance value was obtained of $0.001 < 0.05$, and it can be concluded that there is a relationship between knowledge and self-care activities. The family support variable received a significance value of $0.000 < 0.05$, and it can be supposed that knowledge and self-care activities are correlated.

Table 3 Analysis Correlation of dominant factors related to self-care activities in elderly with Diabetes Mellitus in Bener Meriah Regency

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	(Constant)	-119.033	26.607		
1	Knowledge	1.384	.409	.269	3.381 .001
	Self-Efficacy	.035	.252	.010	.139 .889
	Family Support	2.183	.299	.579	7.306 .000

a. Dependent Variable: Self-Care Efficacy

DISCUSSION

The Relationship between Knowledge Factors and Self-Care Activities in the Elderly with Diabetes Mellitus in Bener Meriah Regency

Knowledge of a patient about diabetes mellitus is one way that can be used to help in dealing with diabetes mellitus during his life (Trisnadewi., 2018). Good patient knowledge about diabetes mellitus is an effective way to help patients manage diabetes to live longer and with a better quality of life (Rofiah et al., 2019). Based on the statistical test, it found that the Sig. (2-tailed) value was $0.000 < 0.05$, which

means a relationship between the knowledge factor and self-care activities in the elderly with diabetes mellitus in Bener Meriah Regency. In other words, the knowledge of an elderly diabetic patient about diabetes at two health centers in the Bener Meriah Regency affects the self-care activities of the elderly patient. This result is in line with the findings of Prasetyani & Sodikin (2016) revealed that there is a significant correlation between knowledge (p-value 0.019 with self-care ability of patients with type 2 diabetes mellitus at Puskesmas Cilacap Tengah 1 and 2. Sari

(2017) explains that maximizing knowledge owned by a diabetes mellitus patient can improve self-care activities and obedience. People with diabetes mellitus can overcome their problems with sufficient knowledge and abilities. People with diabetes mellitus can control and treat their disease by applying self-care (Widayati & Siswoariwibowo, 2014). Type 2 diabetes mellitus patients with a higher knowledge also have a better self-care measures compared to patients with low knowledge (Azmiardi, 2020).

The Relationship between Self-Efficacy Factors and Self-Care Activities in the Elderly with Diabetes Mellitus in Bener Meriah Regency

Self-efficacy describes how a diabetes mellitus patient can feel, think, motivate, and behave over time. Self-efficacy is a significant part of diabetes care in self-care management because it is decisive in a diabetes mellitus patient's success (Silolonga, 2018). Putra & Suari (2018) stated that self-efficacy is an attempt by a person to assess himself in doing good or evil deeds, right or wrong, being able or unable to do something properly.

Based on the statistical test found that the Sig. (2-tailed) value was $0.824 > 0.05$. It means that self-efficacy and self-care activities in the elderly with diabetes

mellitus in Bener Meriah Regency were unrelated. It is consistent with what Sabil (2018) found in his research that self-efficacy has an indirect relationship of $p = 0.009$. Based on the data analysis results, this condition occurs because as many as 58% of respondents have a poor category of self-efficacy. The test results do not show a significant correlation between self-efficacy and self-care activities.

By the results of the data analysis, 58% of respondents are in the unfavorable category regarding self-efficacy. In self-care management, self-efficacy is a significant part of diabetes care because it determines the success of a person with type 2 diabetes mellitus. Self-efficacy describes how a person with diabetes mellitus can feel, think, motivate, and behave from time to time (Silolonga, 2018). Self-efficacy can be defined as the actions needed to achieve the desired results with confidence or confidence in carrying out specific tasks, organizing, and carrying out activities. Meanwhile, Putra & Suari (2018) revealed that self-efficacy is about how a person evaluates himself in doing good or evil deeds, right or wrong, able or not able to do something as it should.

The Relationship between Family Support Factors and Self-Care Activities in the Elderly with Diabetes Mellitus in Bener Meriah Regency

Based on the results of data analysis, it can be explained that most respondents, or as many as 60% of respondents, have high family support. Family support is a form of active participation in maintaining a positive diet, physical exercise, medication, and free time to successfully manage diabetes mellitus (Prasetyani & Sodikin, 2016). The family has a significant influence on the patient's health status. Patients with diabetes mellitus need family support to optimize their treatment management. By regulating and facilitating behavior change, family support can improve the quality of life for diabetes mellitus patients (Retnowati & Satyabakti, 2015). Family support is also needed to overcome the feelings of worry and the emotional burden of diabetes mellitus patients (Rahmi et al., 2020).

It is under what was found Adimuntja (2020) in his research that the result of bivariate analysis (chi-square) showed that significant factor was correlated with self-care activity of DM type 2 patients with p-value $< 0,05$ is education ($p = 0,000$), long-suffering diabetes ($p = 0,022$) family support ($p = 0,000$). In line with that,

Hensarling (2009) revealed that in the management and management of disease, and needs family support for a patient with diabetes mellitus. Family support provided to a sick family member is all forms of positive behavior and attitudes in dealing with health problems (Freedman, 2010). Family support is a form of active participation in maintaining a positive diet, physical exercise, medication, and free time to successfully manage diabetes mellitus (Prasetyani & Sodikin, 2016). In diabetes management, the elderly with type 2 diabetes need family support, especially in health care actions that can enhance self-efficacy. Good family support will increase self-efficacy so that the elderly can manage their diabetes mellitus (Ramadhani et al., 2016).

Factors related to elderly diabetes mellitus patient self-care activities in Bener Meriah Regency

Based on the data analysis results, as many as 60% of the respondents were in the poor category in implementing self-care activities. It can be understood because, from the statistical data test that has been carried out, it is found that the respondent's self-efficacy is also relatively low. High self-efficacy significantly affects self-care activities. Handayani et al. (2019), in their research, concluded that high self-

efficacy has a necessary impact on the higher level of self-management compliance and vice versa.

Furthermore, the linear regression statistical test indicated that the significance value of the self-efficacy variable is $0.889 > 0.05$, which means no dominant relationship exists between self-efficacy and self-care activities. The knowledge variable shows a significance value of $0.001 < 0.05$, indicating a dominant correlation between knowledge and self-care activities. The family support variable shows a significance value of $0.000 < 0.05$, indicating a dominant relationship between family support and self-care activities. This study's results are similar to Adimuntja's (2020) research, which revealed that the factors significantly related to diabetes self-care activities in type 2 diabetes mellitus patients were knowledge factors (OR = 7.900; 95% CI: 2.497-24.998) and family support factors. (OR = 95.716; 95% CI: 11.105-825.003). Also, family support is significantly related to type 2 diabetes mellitus patients (OR = 42.760; 95% CI: 3.797-481.503) with a probability value of 95%. Thus, this study concludes that family support is one of the most decisive factors for diabetes mellitus patients implementing self-care activities. It also

means that the assistance and treatment provided by type 2 diabetes mellitus patients need their families' support.

CONCLUSION

This study shows a relationship between knowledge and self-care activities in the elderly with diabetes mellitus. Yet there is no correlation between self-efficacy and self-care activities in it. Meanwhile, family support and self-care activities are correlated with knowledge and self-care activities in the elderly with diabetes mellitus.

The linear regression statistical test results are associated with factors related to self-care activities. Thus, this study concludes that family support is one of the most decisive factors for diabetes mellitus patients implementing self-care activities. Furthermore, the identification of behavioral changes in self-care activities in the elderly with diabetic Mellitus is needed.

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