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Comparison Of Self-Care Behavior through Diabetes Self-Care Management Education in Type 2 DM Patients in Urban And Rural

Rohani [1], Sri Handayani[2], Yusnaini[3]

[1,2,3] Aceh Ministry of Health Polytechnic, Nurul Hasanah Kutacane University,Indonesia; Correspondent Author: rohani19i@gmail.com

ABSTRACT

Background: Type 2 diabetes presents a significant global health challenge, with a key focus on patients' self-care behavior as integral to disease management. Empowering individuals through self-care management education is crucial for effective daily health management in Type 2 diabetes. This study aims to analyze the comparison of self-care practices through diabetes self-care management education in Type 2 DM sufferers in urban and rural areas. **Methods:** This study employs a quantitative approach with a cross-sectional design, involving 156 individuals with Type 2 diabetes. The participants are divided into 92 from Kutacane City and 64 from PuloKemiri Village, Babussalam District, Southeast Aceh Regency. Total sampling is utilized, encompassing the entire population based on specified inclusion criteria. The research utilizes the Summary of Diabetes Self-Care Activities (SDSCA) and diabetes self-care management educational material (DSME) as instruments, with data analysis conducted through the Independent Sample T-Test. **Results:** The research results showed that there were significant differences in self-care practices for Type 2 DM between individuals in urban and rural areas with a t-test value = 2.415 and a p-value of 0.013. **Conclusion:** Therefore, it is recommended that health workers adjust educational programs based on differences in needs and access to resources between the two groups.

Introduction

Type 2 Diabetes Mellitus (Type 2 DM) is a serious challenge in the global health context. The alarming reality of over 1 million deaths annually linked to diabetes is coupled with the anticipation that the prevalence of Type 2 diabetes will climb to 7,079 individuals per 100,000 by 2023[1]. It is disconcerting that 40% of adults are unaware that they have Type 2 diabetes, and its prevalence exhibits a significant upswing with advancing age and increased body weight [2]. The incidence of Type 2 DM is more common in the elderly and is related to obesity [3]. The prevalence of Type 2 DM tends to increase with age.

Type 2 DM has an impact on health status, both physical and psychological. Type 2 DM sufferers are at risk of experiencing psychological stress such as stress and have two comorbidities (hypertension and kidney failure) [4]. Type 2 DM can cause depression, anxiety and lack of focus/concentration [5]. The most common comorbidities with Type 2 DM are hypertension 84.9 % and hyperlipidaemia (65.6%), coronary heart disease 22.8%, retinopathy 18.5% and stroke 4.8% [6]. So, Type 2 DM has a serious impact on quality of life and requires special attention.

Type 2 DM patients pay special attention to self-care behaviour as an integral part of disease management [7]. Proactive self-care behaviours lead to effective glycaemic control in diabetes by promoting optimal blood glucose levels through activities like balanced diet, regular exercise, medication adherence, and blood glucose monitoring [8]. Self-care behaviour in Type 2 DM includes a number of daily practices and decisions in managing healthy eating patterns, physical activity, blood sugar monitoring, medication management, and stress management [9]. Therefore, a deeper understanding of the important role of selfcare behaviour can help Type 2 DM patients manage their condition more effectively.

Implementation of self-care for Type 2 DM patients is not optimal. The self-care behaviour of diabetes patients is still low, in the aspect of foot care 6.48% and blood glucose checks 12.04% [10]. A notable 45.4% of Type 2 diabetes patients exhibiting inadequate self-care habits seldom engage in foot hygiene, while a significant 66.9% neglect to perform essential blood glucose tests [11]. The lowest level of self-care behaviour for Type DM patients was exercise (27.1 %) [12]. This condition shows that Type 1 DM patients have not carried out proper self-care. Low self-care behaviour in Type 2 DM patients can be caused by several factors. The suboptimal self-care practices among Type 2 diabetes patients stem from a lack of knowledge regarding glucometer usage and challenges in altering dietary habits [13]. Understanding selfcare practices among Type 2 diabetes patients is crucial for minimizing complications.[14]. Therefore, increasing the knowledge of Type 2 DM patients through education is very important in realizing optimal self-care behaviour. Self-care management education in Type 2 DM is a very important approach to empower individuals living with this condition to effectively manage their daily health [15]. Self-care management education helps Type 2 DM patients achieve and maintain optimal glycaemic control, reducing the risk of long-term complications, such as nerve damage, heart disease, and eye problems [16]. Self-care behaviour increased significantly after providing Type 2 DM self-care management education [17]. Based on a preliminary study conducted by researchers in August 2023 in Kutacane City on 10 Type 2 DM sufferers, it was found that 5 people consumed fast food more often and often drank sweet drinks, 3 people rarely exercised and 2 people did not regularly use insulin. As for the phenomenon in 10 Type 2 DM sufferers in PuloKemiri Village, it is known that 5 people rarely check their blood sugar, 3 people often get emotional and 2 people do not exercise. All Type 2 DM sufferers in both Kutacane City and PuloKemiri Village have never received counselling about self-care management related to this disease. Diabetes Mellitus (DM) Type 2 is a chronic disease that requires effective self-care to manage blood sugar and prevent long-term complications. Self-care management education is key to improving patients' understanding and skills in managing their conditions. However, differences between urban and rural areas can influence the accessibility, understanding and practice of self-care in people with Type 2 DM. Therefore, this study aims to analyse the comparison of self-care practices through diabetes self-care management education in people with Type 2 DM in urban and rural areas.

Methods

Type of research is quantitative with a cross sectional study design approach. The population in this study was all people suffering from type 2 diabetes mellitus, totaling 156 people consisting of 92 people from Kutacane City and 64 people from PuloKemiri Village, Babussalam District, Southeast Aceh Regency. Sampling used a total sampling technique, so the entire population was used as a research sample in accordance with the researcher's inclusion criteria. The research data collection process has been carried out for 4 (four) months (August to November 2023).

The instrument to measure self-care practices in this study used the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire covers five aspects, namely diet, physical exercise, foot care, taking medication, and monitoring blood sugar. This questionnaire has eight alternative answers for each aspect, calculated for each day (0-7), with scores given based on the number of days: 0 (day 0), 1 (day 1), 2 (day 2), 3 (day 3), 4 (day 4), 5 (day 5), 6 (day 6), and 7 (day 7). This scoring scheme is applied to questions number 1, 2, 4, 5, 6, 7, 8, 9, 10, 12, and 13. However, for questions 3 and 11, the scores are given in reverse [18].

The educational material related to diabetes self-care management (Diabetes Self-Management Education/DSME) [19]. DSME details strategies for regulating diet, carrying out physical exercise activities, monitoring blood sugar levels, foot care, as well as pharmaceutical therapy or compliance aspects in controlling and treating diabetes.

Researchers have carried out validity and reliability tests on self-care practice instruments involving 30 type 2 diabetes mellitus sufferers in Lawe Loning Aman Village, Lawe Sigala-Gala District. The results of the validity test show that all questions related to self-care practices have a level of validity with an r value of ≥ 0.361 each. Meanwhile, the results of the reliability test show that the alpha (α) value for the self-care practice variable is 0.87, exceeding the minimum limit of 0.60. This indicates that the self-care practice variable has a good level of reliability. Based on these findings, the researcher decided to include all question items from the self-care practice variable in research conducted in Kutacane City and PoluKemiri Village.

This study used the Independent Sample T-Test to analyze differences in the level of diabetes self-care management education and self-care practices between Kutacane City and PoluKemiri Village, Babussalam District, Southeast Aceh Regency. The goal is to identify whether there are significant differences between the two locations. This research has undergone an ethical test by the Ethics Commission at the Institute for Research and Community Service, Poltekkes, Ministry of Health, Aceh, and has successfully passed the ethical review. Successfully passing this ethical test not only reflects the integrity of the researcher but also confirms that this research complies with applicable ethical norms, providing confidence that the rights and welfare of research subjects have become a top priority.

Result and Discussion

Result

Table 1 shows that the characteristics of respondents in Kutacane City, most of the respondents are in late adulthood, most of the respondents are female, almost all of the respondents have a tertiary education level and work as entrepreneurs. Meanwhile, the characteristics of respondents in PuloKemiri Village are that most of the respondents are in late

adulthood, most of the respondents are female, almost all of the respondents have a high school education and most of the respondents work as entrepreneurs.

1. Respondent Characteristics

Table 1. Frequency Distribution of Respondent Characteristics inKutacane City and PuloKemiri Village

Characteristics Mother	Category	Kutacane City		Pulo Kemiri Village	
		f	%	F	%
Age	a. Early adulthood	10	10.9	3	4.7
	b. Late adulthood	46	50.0	37	57.8
	c. Elderly	36	39.1	24	37.5
Gender	a. Man	28	30.4	27	42.2
	b. Woman	64	69.6	37	57.8
Education	a. Elementary school	7	7.6	12	18.8
	b. Junior High school	24	26.1	18	28.1
	c. Senior High School	27	29.4	23	35.9
	d. College	34	36.9	11	17.2
Work	a. Doesn't Work	33	35.8	20	31.2
	b. Self-employed	41	44.6	39	60.9
	c. Civil servants	18	19.6	5	7.9
	Total	92	100	64	100

2. Self-Care Practices

Table 2. Frequency Distribution of Self-Care Practices in Type 2 Diabetes Mellitus Patients

Variable	Category	Kutacane City		Pulo Kemiri Village	
		f	%	f	%
Self-Care Practices	a. Good	71	56.2	42	47.6
	b. Not enough	21	43.8	22	52.4
	Total	92	100	64	100

Table 2 shows that the majority of respondents have good self-care practices in Kutacane City. Meanwhile, most of the respondents' self-care practices in PoluKemiri Village were good.

Comparison of Self-Care Practices through Diabetes Self-Care Management Education in Type 2 DM Sufferers in Kutacane City and PuloKemiri Village

Table 3. Comparison of Self-Care Practices through Care Management Education Independent Diabetes in Type 2 DM Sufferers in Kutacane City and PuloKemiri Village

Variable	Location	n	Mean	T (t-test)	P-Value
Self-Care Practices	Kutacane City	92	25.16	2,415	0.013
	Pulo Kemiri	64	22.12		

Table 3 shows that of the 92 respondents who received diabetes self-care management education in Kutacane City had an average self-care practice of 25.16 and 64 respondents who received diabetes self-care management education in PuloKemiri Village had an average self-care practice of 22. 12. Based on the mean value, it can be concluded that the respondents' self-care practices through diabetes self-care management education in Kutacane City are better compared to PuloKemiri Village. As for the results of the independent sample t-test statistical test, the t-test value was 2.415 with p = 0.013 < (α = 0.05) so Ho was rejected, which means there is a significant difference between self-care practices through diabetes self-care management education in DM sufferers. Type 2 in Urban and Rural areas.

Discussion

The research results show that there is a significant difference between self-care practices through diabetes self-care management education in Type 2 DM sufferers in Kutacane City and PuloKemiri Village. This aligns with the study findings, indicating a substantial difference in the average self-care behavior scores of Type 2 diabetes patients following self-care management education utilizing DSME [20]. Type 2 DM is a chronic health condition characterized by insulin resistance and a lack of adequate insulin production by the pancreas. This disease is generally related to lifestyle factors and genetic predisposition, and can cause serious complications if not managed properly. Risk factors involve obesity, heredity, lack of physical activity, and unhealthy eating patterns. Symptoms that commonly appear include frequent urination, excessive thirst, increased appetite, fatigue, and weight loss [21]. Good self-care behavior in Type 2 DM patients not only affects their quality of life, but can also reduce the burden on the health system and long-term care costs. Appropriate education and ongoing support are the keys to success in managing type 2 diabetes effectively [22]. Self-care management education in Type 2 Diabetes Mellitus (Type 2 DM) plays a crucial role in equipping sufferers with the knowledge and skills necessary to manage their condition effectively. This approach involves a set of practices that include an in-depth understanding of diabetes, diet management, blood sugar monitoring, medication management, physical activity, stress management, health monitoring, and psychosocial support. Education also emphasizes the importance of regular physical activity, stress management, and overall health monitoring [23].

According to researchers' assumptions, there is a significant difference between selfcare practices through diabetes self-care management education for Type 2 DM sufferers in Kutacane City and PuloKemiri Village. Diabetes Mellitus type 2 (Type 2 DM) presents complex self-care challenges, and differences in self-care practices between sufferers in Kutacane City and PuloKemiri Village are evident. In Kutacane City, higher levels of education, and greater variation in lifestyle may have contributed to more effective self-care practices, having a better understanding of diabetes, and being able to better adopt healthy eating patterns. Meanwhile, in PuloKemiri Village, economic challenges may be the main factor influencing self-care practices and cultural differences may be an obstacle in managing diabetes well. These differences reflect the complexity of social and economic dynamics that influence public health. To achieve equitable improvements in self-care, approaches need to be taken that take local context into

account and ensure that diabetes self-care management education is tailored to the unique characteristics of each community.

Conclusion

The conclusion from the results of this study shows that there are significant differences in self-care practices for Type 2 diabetes mellitus (DM) between individuals in urban and rural areas. The t-test value is 2.415 with a p-value of 0.013 indicating statistical significance. Therefore, it is recommended to health workers that their diabetes self-care approach in urban and rural areas is not universal, but rather detailed according to the dynamics of local communities. Closer collaboration with stakeholders, such as community health officials, patient families, and local health agencies, can form the basis for designing more relevant and affordable programs. An in-depth evaluation of the regulations and health policies that apply in each environment is also a must, with the aim of identifying barriers and potential improvements to support optimal self-care practices.

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