

THE RELATIONSHIP BETWEEN KNOWLEDGE AND *SELF CARE* ACTIVITY IN PATIENTS WITH DIABETES MELLITUS AT KUTA ALAM HEALTH CENTER BANDA ACEH CITY

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Abstract: Diabetes mellitus is a chronic disease that occurs when the pancreas cannot produce enough insulin or when a person's body cannot use the insulin it produces effectively. The purpose of this study is to determine the relationship between the level of knowledge and *self-care activity* in patients with diabetes mellitus at the Kuta Alam Health Center, Banda Aceh City. This type of research is quantitative, the research design used is descriptive correlative with the *cross Sectional Study approach*. Sampling was carried out by purposive sampling, namely patients with diabetes mellitus who met the research criteria with a sample of 81 people. The results of this study are that the knowledge category is good at 47 (58.0%), sufficient 34 (42.0%) and the *SelfCare Activity* category is high 51 (63.0%), low 30 (37.0%), the results of bivariate analysis show that the level of knowledge with *self care activity* in patients with diabetes mellitus with a p-value of 0.006 (p-value <0.05), so that it can be stated that H0 is rejected and Ha is accepted where there is a relationship between the level of knowledge and *Self care activity* in people with diabetes mellitus. The conclusion of this study is that there is a meaningful relationship between the level of knowledge and *self-care activity* in patients with diabetes mellitus at the Kuta Alam Health Center, Banda Aceh City in 2025. It is hoped that it can make diabetes mellitus patients able to control and regulate *their self-care activities* independently, and become a source of knowledge The community is increasing their knowledge.

Keywords: Knowledge, *Self Care Activity*, Diabetes Mellitus

1. Introduction

Diabetes mellitus is a chronic disease caused by impaired production or function of insulin, a hormone that regulates blood sugar levels. When insulin is insufficient or not used effectively, glucose levels in the blood increase (hyperglycemia) and can cause serious complications in organs such as blood vessels and nerves ⁽¹⁾. This condition is one of the biggest health challenges in the world today. Globally, in 2014 there were 422 million people with diabetes, and this number is estimated to reach 700 million by 2045. Indonesia ranks fifth in the world with 19.5 million sufferers in 2020 and is predicted to reach 28.6 million by 2045 ⁽²⁾.

Indonesia occupies 5th Rank after China 140.9 million, India 74.2 million, Pakistan 62.2 million, the United States 32.2 million, Indonesia 19.5 million, Brazil 15.7 million, Mexico 14.1 million, Bangladesh 13.1 million, Japan 11 million and Egypt 10.9 million. Meanwhile, Indonesia is predicted to increase to 28.6 million by 2045 ⁽²⁾. At the local level, Aceh Province recorded a prevalence of diabetes at 2.4%, with Banda Aceh City having the highest rate in the province, at 2.3% ⁽³⁾. According to data from the Banda Aceh City Health Center, the Kuta Alam Health Center has seen the prevalence of diabetes mellitus in the last two years The prevalence of diabetes mellitus in public health service centers increased significantly in 2020 as many as 1,093 in Kuta Alam, Banda Aceh City, and in 2021 as many as 1,295, and in 2022 the Kuta Alam Health Center is included in the top 5 Puskesmas that have the highest number of diabetes mellitus patients in the Banda Aceh City area, which is 1,017 ⁽⁴⁾.

Initial data collection at the Kuta Alam Health Center, Banda Aceh City, contains data from January-September 2024. In January there were 175 patients, February 150 patients, March 254 patients, April 250 patients, May 290 patients, June 203 patients, July and August there were 161 patients, and September 185 patients.

Patient knowledge is an important factor in effective diabetes management. The level of knowledge of people with diabetes mellitus includes five main pillars namely diet, exercise, blood sugar monitoring, medication consumption, and education requires active patient involvement driven by a good level of understanding⁽⁵⁾. *Self care activity* plays a role in maintaining blood sugar stability and preventing long-term complications ⁽⁶⁾. Previous research supports the relationship between knowledge level and behavior *self care activity*. Study by Rizki et al. (2024)⁽⁷⁾ stated that 88% of patients improved their self-care after social media-based education.

A hypothesis that is quite controversial in some circles: that high knowledge does not always go hand in hand with good self-care behavior. Other factors such as work pressure, family support, and cultural habits also affect patient compliance. Initial observations by researchers at the Kuta Alam Health Center support this view. Of the 15 patients interviewed, only 5 consistently engaged in *self-care activities*, while others faced obstacles such as time, family support, or eating habits that were difficult to change.

With the background experienced, this study aims to determine the relationship between the level of knowledge and *self-care activity* in diabetes mellitus patients at the Kuta Alam Health Center, Banda Aceh City. This research is important to understand the extent to which knowledge plays a role in self-care behaviors, as well as whether conventional educational approaches are still effective or need to be combined with social and cultural interventions.

2. Literature Review

"The Relationship between Knowledge and *Self Care Activity* in Patients with Diabetes Mellitus at the Kuta Alam Health Center, Banda Aceh City"

2.1 Diabetes Melitus

Diabetes Mellitus is a group of metabolic disorders characterized by the occurrence of hyperglycemia caused by insulin deficiency, insulin action, or both. Chronic hyperglycemia diabetes causes failure, dysfunction and damage to several organs over a long period of time, especially in the organs of the eyes, kidneys, nervous system, heart and blood vessels (ADA)⁽⁵⁾.

Diabetes Mellitus is a group of metabolic diseases with hyperglycemia characteristics that occur due to abnormalities in insulin secretion, insulin action or both. Hyperglycemia is a medical condition in the form of an increase in glucose levels in the blood beyond normal limits. Hyperglycemia is one of the hallmarks of diabetes mellitus, although it may also be found in some other conditions (PERKENI)⁽⁸⁾.

The number of people with diabetes mellitus continues to increase globally and is one of the highest causes of death in the world⁽²⁾. In Indonesia, the prevalence of diabetes shows a fairly high increase. Data from the International Diabetes Federation (IDF) shows that Indonesia ranks fifth in the world with 19.5 million sufferers in 2020, and is expected to increase to 28.6 million by 2045 ⁽³⁾. The increase in cases is influenced by modern lifestyles, diets high in sugar and fat, and low physical activity.

2.2 Knowledge Level

Knowledge comes from the word "tahu" in the Great Dictionary of the Indonesian Language, the word tahu has meanings, among others, understanding after seeing (witnessing, experiencing, and so on), knowing and understanding. According to Mubarak, knowledge is everything that is known based on human experience itself and knowledge will increase according to the process of experience that he experiences⁽⁹⁾.

According to Bloom, which was developed by Darsini et al., (2019) Knowledge is the result of knowing, and this happens after people do sensing a certain object. Sensing occurs through

the five human senses, namely the senses of sight, hearing, smell, taste and touch. Most of human knowledge is acquired through the eyes and ears. Knowledge is a very important domain in shaping one's actions (*overt behavior*). Behavior based on knowledge will be more lasting than behavior that is not based on knowledge⁽¹⁰⁾.

Knowledge is very closely related to education, where it is hoped that with higher education, the person's knowledge will be wider. However, it needs to be emphasized, it does not mean that someone who is poorly educated is absolutely low-knowledge. A person's knowledge of an object contains two aspects, namely positive aspects and negative aspects. These two aspects will determine a person's attitude, the more positive aspects and objects are known, the more positive attitudes will be given to certain objects. According to the WHO theory, one form of health object can be described by knowledge gained from one's own experience⁽¹⁰⁾.

A person's level of knowledge of objects has different intensities or levels. Broadly speaking, it is divided into 6 levels, namely: knowing, understanding, application, analysis, synthesis, and evaluation⁽¹¹⁾. Good knowledge is characterized by respondents being able to know the factors that cause diabetes mellitus such as risk factors, complications, and how to manage it play an important role in shaping self-care behaviors (*self care activity*) patient. Conversely, a low level of knowledge can lead to the patient being unable to control his or her health condition, which ultimately increases the risk of complications⁽¹²⁾.

2.3 Self Care Activity in Diabetic Patients

Self Care Aktiviti is a way that can be done independently or individually Where patients are able to observe individual needs in taking care of themselves⁽⁷⁾.

Independent nursing (*Self Care* According to Orem, it is an implementation of activities initiated and carried out by the individual himself to meet the needs to maintain life, health and welfare according to death, both healthy and sick. If *self care* This is well formed, so it will help form the integrity of human structures and functions that are closely related to human development. Theory *self care* focus on self-care, that's what Orem conveyed. The Orem theory needs to be developed, so that the client is expected not to always rely on nurses in fulfillment *self care activity* and the concept of nursing *self care* will be very useful in the future for a client because it will make it easier for patients to maintain health in the future⁽¹³⁾.

Behaviour *self care activity* For people with diabetes mellitus include: Physical activity (exercise), dietary knowledge, blood glucose level control, medication, and knowledge of complications, because one of the things that affects the occurrence of diabetes mellitus is not disciplined *self care activity* among others, such as: low knowledge, lack of family support, and the use of health services that are not optimal⁽⁶⁾.

2.4 Relavan Research

Research by Qusyairi et al. (2022) found that there was a meaningful relationship between the level of knowledge and self-care activity in diabetics at the Batua Health Center with a p-value of 0.000.

Other research, Saqila (2021) entitled The relationship between knowledge and self-management in patients with type II diabetes mellitus in the working area of the Palaran Health Center, Samarinda City, the results of the study showed that there was a relationship between knowledge and self-management with a p-value of $0.013 < \alpha 0.05$ with a correlation coefficient of 0.326 which showed a positive correlation value and weak correlation strength⁽¹⁴⁾.

And research results Mulfianda & Desreza, 2023 (2023) entitled The Relationship between Knowledge Level and Diabetes Mellitus *Self Management* With the level of stress in patients with diabetes mellitus, the results of the study were obtained that there was a relationship between knowledge ($p=0.034$) and diabetes *self-management* ($p=0.012$) with the stress level of diabetic mellitus patients undergoing a diet in Rukoh Village⁽¹⁵⁾.

These studies reinforce the suspicion that increased knowledge has a significant role in the self-care behavior of diabetic patients.

3. Method

This study uses a quantitative approach with a correlative descriptive design and a *cross-sectional* method. The population in this study is Diabetes Mellitus patients at the Kuta Alam Health Center from July to September 2024 with a total of 507 patients. Where in July there were 161 patients, August 161 patients, September 185 patients. The sample size in this study was taken from 507 diabetes mellitus patients at the Kuta Alam health center, Banda Aceh City, which was counted from July-September. In determining the sample size, the researcher used a formula developed by Lemeshow with a total sample of 81 respondents. The research instrument is in the form of a closed questionnaire that measures the level of knowledge and *self-care activity*, which has been tested for validity and reliability. Data collection was carried out from March 13 to April 28, 2025 with the stages of permitting, socialization, and questionnaire distribution. Data were analyzed univariate and bivariate using the Chi-Square test with a significance level of 0.05 through the help of SPSS software version 26.

4. Findings and Discussion

This study involved 81 respondents of diabetes mellitus patients at the Kuta Alam Health Center, Banda Aceh City. The characteristics of the majority of respondents were 56-65 years old (45.7%), female (66.7%), and last educated in high school (76.5%). Most of the respondents were not working (77.8%) and had had diabetes for more than 1 year (80.2%). As many as 85.2% did not use insulin, 50.6% ate more than three meals a day, and 50.6% had a health check-up once a month.

The results of the univariate analysis showed that of the 81 respondents who had good knowledge, 47 people with 36 people (76.6%) experienced *high self-care activity*, while 34 people experienced sufficient knowledge with 19 people (55.9%) experiencing *low self-care activity*. Based on the results of the chisquer test which was carried out using a 2x2 contingency table and no cells were found to be less than 5, then the decision was taken using *continuity corction* with a p-value of 0.006, then there was a relationship between knowledge and *selfcare activity*.

Table. 1
The Relationship Between Knowledge and *Self Care Activities*

Variabel	Self Care Activity				Sum		P Value
	Tall		Low				
	F	%	F	%	F	%	

Knowledge							0,006
Good	36	76,6	11	23,4	47	100	
Enough	15	44,1	19	55,9	34	100	
Total	51	63,0	30	37,0	81	100	

This study shows that respondents with good knowledge are more likely to have behavioral *self care activity* tall ones. These results are consistent with the research of Qusyairi et al. (2022) which shows a meaningful relationship between knowledge level and *self care activity* in patients with diabetes mellitus. Adequate knowledge allows patients to understand the importance of dietary regulation, regular exercise, regular medication, as well as blood sugar monitoring to avoid complications.

This research is also in line with the research of Rizki et al. (2024) which shows that educational interventions based on social media and animated videos can improve knowledge as well as behavior *self care activity* in diabetic patients. Therefore, it is recommended that education to diabetic patients not only emphasizes the cognitive aspect, but also involves social support, cultural approaches, and ongoing interventions that are practical and relevant to the patient's daily life.

5. Conclusions and Recommendations

The results showed that there was a significant relationship between knowledge and *self-care activity* in patients with diabetes mellitus at the Kuta Alam Health Center, Banda Aceh City, with a p-value = 0.006 ($p < 0.05$). This indicates that the higher the patient's knowledge of diabetes mellitus, the better their ability to perform self-care. Knowledge is an important factor in forming effective *self-care activity* behaviors, in order to prevent complications and improve the quality of life of patients. It is hoped that patients can improve their understanding of diabetes and the importance of self-care independently. Puskesmas as a primary service institution is also expected to strengthen education and periodic evaluation of *patients' self-care activities*. Nursing education institutions need to enrich references related to the relationship between knowledge and *self-care activities* as part of strengthening the learning curriculum. In addition, researchers were further advised to expand the study to include other variables such as family support or motivation, as well as to use longitudinal designs to look at long-term effects.

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