

THE RELATIONSHIP BETWEEN HEALTH LITERACY AND BLOOD SUGAR CONTROL IN PATIENTS WITH TYPE II DIABETES MELLITUS AT THE PEKKABATA HEALTH CENTER POLEWALI MANDAR

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ABSTRACT

Health literacy is an important factor in improving self-care management in DM sufferers. Health literacy is also closely related to blood sugar control. Someone who has adequate health literacy will make patients involved in decision making, maintain their health and have better treatment, thus contributing to improving health. Therefore, improving self-care management requires good health literacy in order to prevent further complications in DM sufferers. Blood sugar control is an indicator of the quality of life for individuals with diabetes because good blood sugar control is one of the parameters of successful lifestyle. This study aims to determine the relationship between health literacy and blood sugar control in people with type II diabetes mellitus at the Pekkabata Polewali Mandar Community Health Center. This type of research is quantitative research using a cross-sectional approach. The population in this study were DM patients at the Pekkabata Polewali Mandar Community Health Center. The sampling technique used in this research was consecutive sampling technique. The data analysis method uses univariate and bivariate analysis using the Chi Square test at a confidence level of 95% ($\alpha=0.05$). The research results showed a significant relationship between Health Literacy and blood sugar control in Type II Diabetes Mellitus sufferers ($p=0.031$). The conclusion of this research is that a person's Health Literacy greatly influences the level of health experienced by individuals, especially T2DM sufferers

Keywords: blood sugar control; diabetes mellitus; dmt2; health literacy

INTRODUCTION

Diabetes mellitus is a chronic disease characterized by increased glucose levels in the blood caused by abnormalities in insulin secretion, insulin action or both (Safruddin & Yuliati, 2022). World health organization World Health Organization (WHO) in 2014 said that Indonesia was ranked 4th as a DM patient with 8.426 million people and this figure is still predicted to increase to 21.257 million people in 2030 (Ukwatu et al., 2022). Every year more and more people are living with chronic diseases, one of which is diabetes mellitus. In 2021, there were 537 million people suffering from diabetes worldwide and this figure continues to increase to 643 million in 2030 and 783 million in 2045 (International Diabetes Federation, 2021). In Indonesia, according to Basic Health Research, in 2018 the prevalence of diabetes nationally was around 20.4 million people affected by DM and in 2019 Indonesia ranked 7th out of 10 countries with the highest number of people with diabetes mellitus, namely 10.7 million people, and Indonesia itself is the only Southeast Asian country included in the list, so it is estimated that Indonesia's contribution to the prevalence of diabetes in Southeast Asia is estimated (Fitri A. Sabil, 2021).

Complications of Diabetes Mellitus can lead to heart attack, stroke, blindness, kidney failure and lower extremity amputation and death (Rosya et al., 2022). Therefore, it is important to prevent complications in DM disease. In this case, self-management is very important in the treatment of diabetes mellitus. Blood sugar control is One of the indicators of the quality of life of individuals

with diabetes because good blood sugar control is one of the parameters of success in lifestyle (Hartuti, 2022). Control compliance is an important aspect for the success of running and control blood sugar levels, if Diabetic Mellitus patients can comply with their control schedule, it will help in controlling their blood sugar levels because compliance with the control can help the healing process (Kurniati et al., 2016). Health literacy is a person's ability to access, read, process, and understand health information and services, and to use information and health services effectively to make informed health decisions (Gani et al., 2017; Karasneh et al., 2020). Health literacy also closely related to blood sugar control. Someone who has health literacy adequate, will make patients involved in decision-making, maintain health and have better treatment so as to contribute to improving health (Asharani et al., 2021).

Self-Care Management is The actions taken by a patient in controlling and managing their disease independently which include treatment measures and preventing complications (Saqila & Muflihatin, 2021). The goal of DMT2 self-care management is to normalize insulin activity and blood glucose levels without the occurrence of hypoglycemia and serious disruption of the patient's activity pattern in an effort to reduce the occurrence of vascular complications and neuropathy (Saqila & Muflihatin, 2021). Action self-management that can be done by DM sufferers include regulating sports activities, regulating a healthy diet, using DM medications, controlling blood sugar levels regularly and also doing regular foot care (Luthfa & Fadhilah, 2019). The management of the five pillars of Diabetes Mellitus type 2 control can be applied to DM patients in an effort to prevent complications and improve quality of life. The management of these five pillars includes diet, pharmacological treatment, physical activity, education (health education) and blood sugar level monitoring (Zakiudin et al., 2023). Other research also explains that it is very beneficial if a person with diabetes has Health Literacy This is one of the factors that affect the rate of recovery or good development for diabetics and if Health Literacy Diabetic patients are less or not good, this will worsen the patient's condition or condition and if this is allowed to continue, it will cause complications in the patient, one of which can cause Diabetic Ulcers (Ukwatu et al., 2022).

Furthermore, another study explains that a person's lack of compliance in treating diabetic ulcers so that this can make the condition of the wound experienced even worse because of the lack of Health Literacy Therefore, it is very important for each individual to have Health Literacy The good (Ukwatu et al., 2022). Therefore, the level of health literacy A person is very important in self-care management. Puskesmas is a first-level health service facility that provides various information for the community so that people can find out their conditions such as DM patients, then the puskesmas are located in various areas so that people can easily check their health, through the efforts organized by the puskesmas. Health literacy in the new value in Indonesia data level health literacy currently still limited, Health literacy is an individual's ability to obtain, process and understand basic health information and services needed to improve health status as expected, health literacy and self-care management has a significant relationship the better health literacy in a person, it will also be good to manage self-care for DM sufferers (Safitri et al., 2022) then it needs to be improved again health literacy and self-care management in Indonesia, especially those in health centers.

Based on data from the Polewali Mandar Health Office in 2022, the number of DM sufferers at each health center in Polewali Mandar amounted to 4,385, while at the Pekkabata Health Center there were 500 people (Polewali Mandar Health Office, 2022). Data on visits of DM patients at

the Pekkabata Health Center in the last three months from November 2022 to January 2023 was 87 people. The researcher conducted an initial study at the Pekkabata Health Center by conducting interviews about how they got information and how the information could be useful for them. From the results of the interview, it was obtained that DM sufferers in obtaining health information, namely counseling by health workers carried out at the health center. Information from health workers sometimes they understand and sometimes just pass by. For self-care, they consume medication from health workers, even though they have taken medication still, some of them for blood sugar remain uncontrolled. Based on the above phenomenon, it is important to know that the relationship between health literacy and blood sugar control, especially in Indonesia, is still lacking. Therefore, a good level of health literacy is needed to be able to improve self-care management and can help patients to be able to carry out blood sugar control.

METHOD

This type of research is cross sectional, which is a design of researchers who make measurements or observations at the same time. This research is located in the Pekkabatan Polewali Mandar Health Center area. The research was carried out for approximately 2 months from August – September 2023. The population in this study is 540 patients. The number of samples in this study was 84 patients with diabetes mellitus at the Pekkabata Health Center Poly. In this study, sampling was carried out using the consecutive sampling technique which is sampling by selecting samples that meet the research criteria for a certain period of time so that the number of samples is met. Data collection was carried out using a questionnaire. The Health Literacy Questionnaire (HLS-EU-Q16) used has been modified and has been used previously by the researcher with a question weight of 15 questions, the results of the validity and reliability test show that the R alpha Cronbach is 0.77 with 15 questions having corrected items total correlation ranging from 0.4232-0.40 R alpha > 0.3 which shows that the HLS-EU-16Q questionnaire can be declared valid and reliable. The Blood Glucose Monitoring Questionnaire is a questionnaire consisting of 12 question items developed by Dr. I Mastura from Malaysia which functions to measure blood sugar monitoring. The validity measurement in this study uses the item content validity index (I-CVI). The I-CVI value obtained for each item is 0.87-0.92 while the S-CVI value is 0.88. This means that this questionnaire has a good validity value. The results of the feasibility test are known to be 0.89 alpha Cronbach. The alpha > 0.89 r value which indicates that the Blood Glucose Monitoring questionnaire can be declared valid and reliable (Mastura et al, 2017).

The procedure for collecting data for this research is that the researcher submits an application for a research permit by the Chairman of STIKES Bina Generasi to the Regent of Polewali Mandar Cq. Head of the National and Political Unity Agency. After the researcher obtained a research permit from the Polewali Mandar Regency Investment and One-Stop Integrated Services Office, it was then forwarded to the Polewali Mandar Regency Health Office, the Head of the Pekkabata Health Center. Then the researcher prepares instruments that will be used in the research. Next, provide informed consent and ask for the patient's consent. The data analysis methods used in this study are univariate analysis and bivariate analysis. Univariate analysis to explain or describe the characteristics of each research variable. Meanwhile, the bivariate analysis used in this study is for knowledge data using the Chi Square test with a significance level of <0.05.

RESULTS AND DISCUSSION

Table 1.
Distribution of respondents by age

Age	f	%
25-45	28	32.9
46-65	42	50.0
67-85	14	16.7

Tabel 1 above, it shows that the age distribution of respondents aged 25-45 is 28 people (32.9%), 46-65 is 42 people (50.0%), 67-85 is 14 people (16.7%).

Table 2.
Distribution of Respondents by Education

Education	f	%
No School	2	2.4
SD	15	17.6
SMP	17	20.0
SMA	38	44.7
College	12	14.1

Table 2, it shows that the educational distribution of respondents is 2 people (2.4%), elementary school 15 people (17.6%), junior high school 17 people (20.0%), high school 38 people (44.7%), and university education 12 people (14.1%).

Bivariate analysis was carried out to determine the relationship between health literacy and blood sugar control in type II diabetes mellitus at the Pekkabata Polewali Mandar Health Center. The statistical test used is the chi square test.

Table 3.
The Relationship between Health Literacy and Blood Sugar Control in Patients with Type 2 Diabetes Mellitus at the Pekkabata Health Center

Health Literacy	Blood Sugar Control			P value
	Good	Bad	Total	
Good	19	35	54	0,031
Not Good	4	26	30	

Table 3, it shows that as many as 19 people (11.0%) who have good health literacy have good blood sugar control, 4 people who have poor health literacy have good blood sugar control. A total of 35 people had good health literacy but poor blood sugar control and as many as 26 people had poor health literacy, had poor blood sugar control. From the results of the chi square test, a value of $p = 0.031$ ($p < 0.05$) was obtained, which means that there is a meaningful relationship between Health Literacy and Blood Sugar Control in Diabetes Mellitus patients at the Polewali Mandar Health Center.

Diabetes Mellitus (DM) is a disease of metabolic disorders that chronic due to the hormone insulin in the body that cannot be used effectively in regulating blood sugar balance, thus increasing the concentration of sugar levels in the blood (hyperglycemia) (Fitri A. Sabil, 2021). Health Literacy It is the knowledge, motivation and competence of individuals to assess, understand, and apply health information to make judgments and make decisions regarding health care, disease prevention and health promotion to maintain and improve the quality of life (Pondaag, 2020). Health Literacy low can affect the Health outcomes DMT2 patients such as the inability to

demonstrate the correct use of the drug, as well as the effect of poor glycemic control in DMT2 patients (Patandung et al., 2018). Health Literacy a person has a great influence on the level of health that individuals are undergoing, especially DMT2 sufferers, Health Literacy In low individuals, it can have an impact on misunderstanding the therapy given, mistakes about the rules of taking medication, not complying with therapy, to not knowing what therapy to follow to overcome complaints or diseases experienced and even increasing the risk of increasing disease and the risk of complications (Mewo et al., 2023).

This is in line with (Safitri & Ahmed Siyafaq, 2022) Low understanding of health is caused by the level of Health Literacy individuals who are low in understanding, utilizing, and applying various available information to take care of their health so that blood sugar in DM sufferers can become uncontrolled due to a lack of understanding of individuals. Results (Masruroh & Islamy, 2020) show that health literacy a person is very important for a person, especially patients suffering from DMT2 disease, because people who have higher health literacy skills tend to participate in self-management activities. Individuals who have Health Literacy low ones generally have a higher risk of developing glucose intolerance.it can experience disturbances in the blood sugar of DMT II patients within abnormal limits. In general, individuals, who have Health Literacy high will use time appropriately and lead to more mainstream behavior, so that individuals have an obligation to direct and regulate behavior so that blood sugar in respondents can be controlled (Fasilita, 2012). If Health Literacy DM patients are low, so the level of awareness to improve their pain (controlling blood sugar levels regularly) will also decrease.

According to research (Mensing et al., 2018) optimal management of diabetes mellitus by teaching or providing education about several healthy lifestyle behaviors so that blood sugar levels can be well controlled, so that individuals have good Health Literacy in making their choices about which path is good for their health. This is in line with the research of Gani et al. 2016 there is a Health literacy with blood sugar control, a relationship between health literacy with contro, blood sugar. The researcher argues that the better healh literacy then it will be as good as blood sugar levels in diabetic mellitus patients. Ability health literacy is very influential in obtaining all kinds of information to achieve medication adherence for type II DM patients undergoing treatment, therefore the lack of understanding in type II DM patients will be the importance of treatment will affect medication adherence, so that it can cause glycemic control to deteriorate (Asharani et al., 2021). Research conducted by (Rosya et al., 2022) health literacy Lack or inadequacy can cause glycemic control to deteriorate due to lack of knowledge of the patient, on the other hand, if patients with adequate health literacy can do good self-management and take care of themselves so that glycemic control can improve.

CONCLUSION

Based on the analysis of the discussion above, the results of the research conducted at the Pekkabata Polewali Mandar Health Center on Health Literacy with blood sugar control in patients with type II Diabetes Mellitus can be formulated as follows: Diebetes Mellitus patients with good Health Literacy and normal Blood Sugar Control were 55 respondents (65.5%) out of 84 respondents Diabetes Mellitus patients with poor Heath Literacy and abnormal Blood Sugar control were 29 respondents (34.5%) 84 respondents. There was a meaningful relationship between Health Literacy and Virgin Sugar Control in patients with Type II Diabetes Mellitus with a value of $p = 0.031$

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