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OVERVIEW OF THE COMPLIANCE OF DIABETES MELLITUS PATIENTS IN UNDERGOING INSULIN THERAPY IN THE WORK AREA OF THE HEALTH CENTER TELING MANADO

Dwi Yogo Budi Prabowo, Rindiani Akbar, Velicia Tampil
Akper Rumkit Tingkat III Manado
* Correspondence to:
dwiyogo250688@gmail.com

Abstract: Background Diabetes Mellitus is currently a disease whose prevalence is increasing. Diabetes mellitus mostly comes from developing countries, one of which is Indonesia. India ranks fifth in the number of people with diabetes mellitus after China, India, Pakistan and the United States. The increasing prevalence of diabetes mellitus can be reduced by complying and continuing throughout his life. The low level of adherence in DM patients, especially regarding consumption of diabetes drugs can have an impact on the risk of complications. Insufficient use of insulin in diabetics is known that some patients stop using insulin because they do not want to provide recovery every day, find it difficult, uncomfortable, and burdensome, are not satisfied with insulin treatment as a whole. The purpose of this study is to know the description of adherence Diabetes Mellitus Patients Undergoing Insulin Therapy in the Working Area of the Teling Manado Health Center. The method used is quantitative descriptive research. Sampling using purposive sampling with a total of 74 samples. The results of the research show that the majority level of adherence is low by 53 (71.6%), and the level of compliance is moderate by 21 (28.4%). The conclusion in this study is that the level of adherence of patients with diabetes mellitus in undergoing insulin therapy is still low, so it is necessary to provide education to patients with diabetes mellitus..

Keywords: Compliance, Insulin, Diabetes Mellitus

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INTRODUCTION

Diabetes Mellitus (DM) is a chronic disease characterized by an increase in blood glucose levels due to impaired insulin production or effectiveness. Insulin plays an important role in glucose metabolism, and its imbalance causes prolonged hyperglycemia (Yulianto, 2018). Based on data from the International Diabetes Federation (2021), there are 537 million people with DM globally, with Indonesia ranking fifth highest in the world. Local data also showed a significant increase, including in Manado City and the Teling Health Center work area.

One of the main challenges in managing DM is the patient's level of adherence to therapy, particularly insulin use. Non-compliance can trigger serious complications such as neuropathy, diabetic ulcers, and kidney disorders, as well as decrease the patient's quality of life (Memento et al., 2018; Alfie, 2021). Factors that cause non-compliance include fear of needles, discomfort with insulin use, and lack of education and social support. Non-compliance also has an impact on trust in health workers and the overall effectiveness of treatment (Rasdianah et al., 2016).

Efforts to improve compliance require the active role of health workers in education, therapeutic communication, and support from the patient's family or social environment (Katuuk & Gannika, 2019). The results of the preliminary study at the Tikala Health Center show that the level of patient adherence to insulin therapy still varies. Therefore, the researcher is interested in further exploring the "Overview of Insulin Therapy Compliance for Diabetes Mellitus Patients at the Teling Manado Health Center."

METHODS

This study is a quantitative descriptive study with a cross sectional approach, which aims to describe the level of adherence of Diabetes Mellitus (DM) patients to insulin therapy. The population in this study is all DM patients who underwent treatment at the Teling Health Center in September 2022, as many as 291 people. Samples were taken using purposive sampling techniques based on inclusion criteria, namely DM patients who were willing to become respondents and underwent insulin therapy, and exclusions, namely patients who were uncooperative, had verbal communication disorders, or had severe complications such as heart disease. The number of samples was calculated using the Slovin formula with an error rate of 10%, so that 74 respondents were obtained.

The research was carried out in the working area of the Teling Health Center in December 2022. The main variable in this study was patient adherence to insulin therapy. Compliance was measured using the Morisky Medication Adherence Scale (MMAS-8) questionnaire which has been modified and translated into Indonesian. The instrument consists of eight questions with a combination of dichotomy and Likert scales, and has been tested for validity (r count > 0.3) as well as its reliability (Cronbach's Alpha = 0.716). Compliance scores are categorized into three levels, namely high (score 8), medium (score 6–7), and low (score <6).

Data collection was carried out through filling out questionnaires and interviews. The stages of data collection include administrative preparation, selection of respondents based on criteria, provision of informed consent, filling out questionnaires, and thanking respondents. The data collected then goes through the process of editing, coding, entering, and cleaning using the SPSS application. Data analysis was conducted in a univariate manner to provide an overview

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of patient adherence to insulin therapy.

This study also pays attention to the ethical aspects of the research, including providing informed consent, maintaining the confidentiality of respondents' identities, ensuring that there are no negative impacts of participation, and providing benefits in the form of increasing patient understanding and compliance with treatment. The ethical principles used refer to the principles of beneficence, maleficence, and confidentiality.

RESULT AND DISCUSSION

1. Respondent Characteristics

Based on the results of the study, the majority of respondents at the Teling Manado Health Center were female as many as 53 (71.6%). The results of this study are in line with research by milda, et al. (2019) at the Banjarbaru endocrine sub-specialist Poly which stated that the most respondent gender was 59 women (71.1%). Female sex tends to be more at risk of developing diabetes mellitus related to the body mass index and menstrual cycle syndrome as well as during manopause which results in easy accumulation of fat which results in inhibited the transport of glokusa into cells (Trisnawati SK & Setyorogo S, 2013). This is in line with Munawaroh's (2016) research which shows that more women experience diabetes mellitus, this happens because women have higher average adiponectin levels than men. Adiponectin is one of the specific protein hormones that fat tissue secretes. This may explain that women are more sensitive to insulin than men (Tigauw, 2014). Soewondo (2016) also stated that in addition to the hormone adinopectin, monthly cycle syndrome in women makes the distribution of body fat easily accumulate, as a result of this hormonal process so that women are more at risk of suffering from diabetes mellitus.

The results of the study stated that the majority of respondents were in the final age of the elderly (56-65), which was 31 (41.9%). This situation occurs because at the age of more than 40 years, the body begins to experience glucose intolerance caused by a decrease in the ability of cells β pancreas to produce insulin which results in an increase in blood glucose (Sujaya in Trisnawati and Setyorogo, 2013). The results of previous research by Trisnawati and Setyorogo (2013) also stated that it is consistent that 75% of DM incidents occur at the age of > 45 years. Handayani's research (2012) also showed results that supported this study where 87.32% of respondents who experienced DM were >45 years old. This shows that the incidence of type 2 DM or the onset of type 2 DM will begin to appear after the age of 40 (Purnamasari in Purbondasari, 2014), This is supported by the statement that the age of over 45 years is one of the risk factors for the occurrence of Diabetes Mellitus disease (PERKENI, 2011). Age> 45 years old is at high risk of developing Diabetes Mellitus because in individuals with age> 45 years there is a decrease in mitochondrial activity in muscle cells by 35% and this is related to an increase in fat levels in muscles by 30% so as to trigger insulin resistance (Trisnawati, 2012).

The results of the study stated that the majority of respondents had a high school education as many as 25 (33.8%), junior high school as many as 24 (32.4%),

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elementary school as many as 22 (29.7%), namely 53 (71.6%) and higher education 3 (4.1%). The results of this study are in line with the results of Manurung (2019) research in Medan which received the majority of education for DM patients who received treatment at the Internal Polytechnic of H Adam Malik Hospital (43.1%). This research is also in line with the results of research by Prasetyani & Apriani, (2017) entitled Characteristics of Type 2 Diabetes Mellitus Patients at Central Cilacap Health Center 1 and 2 stated that most of them have a high school or college education level of 78 people (51.3%). Education is a learning process that is able to change a person's behavior to achieve quality of life. In theory, a person with high education will have the opportunity to behave well (Ernawati, Harini, Signa, & Gumilas, 2020). Highly educated people have an easier time understanding and adhering to dietary behaviors compared to people with low education. A higher level of education will make it easier for a person or society to absorb information and implement it in daily behavior and lifestyle, especially in adhering to the management of the DM diet (Hestiana, 2017). Higher education has a broader knowledge to enable patients to have more control over themselves in overcoming the problems they are facing, have high confidence, experience, and have the right thinking on how to overcome problems and easily understand what health workers teach. Cognitive knowledge is a domain that is very important for the formation of an action, behaviors based on knowledge will be more lasting than those that are not based on knowledge (Sumigar et al., 2015). Based on the description above, researchers can conclude that DM patients who are more educated will have broader knowledge so that the learning process that is able to change a person's behavior to achieve quality of life will be easier in absorbing information and implementing it in daily behavior and lifestyle, especially in complying with the management of their diet for success in treatment and dieting.

Based on the results of the study, the majority of long-term sufferers were 34 (45.9%), 27 (36.5%) > 10 years, and 13 (17.6%) 5-year < 13 years. Long suffering from DM plays a role in the occurrence of dysteres in DM sufferers. People who have suffered from DM for a long time tend to have mild levels of distess. This is because the person already has a coping mechanism or adapts better to the state of his disease. Patients who suffer from DM for longer will be able to understand the state they are feeling, both in terms of physical, psychological, social relationships, and environment. And this understanding arises because patients are more aware and experienced about their illness so that it will encourage patients to be more able to anticipate the occurrence of emergencies or something that may happen to the patient someday (Laila, 2017).

Based on the results of the study, the majority of the low compliance rate is 53 (71.6%), and the medium compliance rate is 21 (28.4%). The results of this study are in line with the results of a study by Dewa (2021) conducted at the Karang Asem Health Center with the results of the study, most people with diabetes mellitus have low adherence in undergoing insulin therapy as many as 23 people (49.3%). Non-adherence to the use of insulin in diabetes mellitus It is known that there are some patients who stop using insulin because they are not interested in insulin injections every day, feel uncomfortable, find it difficult, and feel that the injections are burdensome, as well as dissatisfied with the insulin treatment itself and say that it has a negative impact on their quality of life, such as anxiety about the syringe where the

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patient may feel phobia and anxiety about the injections that are they felt it in the past even though they had different goals and related it to the present (Semadi, 2018). While diabetic patients who do not comply with insulin therapy can have an impact on uncontrolled sugar levels with a much higher number than patients who are compliant (Saibi, Romadhon, & Nasir, 2020) According to the opinion of researchers from the adherence of patients with diabetes mellitus in undergoing insulin therapy, it can be measured that the things that become non-compliant patients are lack of knowledge, beliefs, lifestyle choices and lack of support. Low adherence is a lack of knowledge and understanding of insulin therapy and everything related to the disease. The client's compliance in undergoing insulin therapy greatly affects the success of therapy. When patients have a good knowledge of the disease and their treatment, their adherence to treatment increases and the success rate of treatment increases. Based on the theory (Imelda, 2019) explains that diabetes mellitus (DM) is a chronic multisystem disease related to abnormal insulin production, the inability to use insulin, or both. Therapy in diabetes mellitus consists of achieving normal glucose levels without hypoglycemia and maintaining a good quality of life. The five components that patients must pay attention to and follow in the overall management of diabetes are diet, exercise, blood glucose monitoring, medication, and education. Although the majority of respondents do not comply because DM patients feel that their glucose levels are normal, normal or stable glucose levels in DM patients are affected by the medications they take. The longer a person suffers from DM, the more disobedient he becomes to why he is bored with treatment.

Table 1. DM Patient Compliance Overview

Yes	Compliance Level	Frequency	Percentage (%)
1	low	53	71,6
2	keep	21	28,4
	Sum	74	100

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CONCLUSION

This study shows that the majority of diabetic patients at the Teling Manado Health Center are women of late elderly age with high school education and have suffered from DM for 5–10 years. The rate of adherence to insulin therapy is still low (71.6%), due to lack of knowledge, discomfort, and saturation of long-term treatment. Ongoing education and support are needed to improve patient adherence and therapeutic outcomes.

AUTHOR CONTRIBUTION

The author designs, designs, and conducts research, analyzes data, and writes article manuscripts.

CONFLIC OF INTEREST

The author states that there are no conflicts of interest related to this study.

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