CHAPTER I
INTRODUCTION

1.1 Research Background

Diabetes mellitus (DM) is one of the chronic condition characterized by elevated blood glucose levels in the body due to the pancreas's inability to produce or effectively utilize insulin. Insulin plays a role in lowering blood sugar levels, so if insulin is disturbed, blood sugar levels cannot be controlled and cause diabetes.[1] In 2019, Indonesia ranked seventh globally in the prevalence of DM among individuals aged 20-79, with approximately 10.17 million people affected. This number is projected to increase to 13.7 million by 2030 and 16.6 million by 2045, highlighting the growing burden of diabetes in the country.

Diabetes mellitus is not only caused by hereditary factors but also due to unhealthy styles such as overeating, which causes obesity or increased cholesterol levels. These things are the triggering factors for diabetes mellitus. Diabetes mellitus can cause complications if not treated properly. Diabetic foot complications are a condition in which peripheral nerve damage occurs in the legs so that the blood supply from the heart to the tissues is insufficient, causing sensory disorders in the legs such as numbness, pain, or tingling. Blood sugar levels can be controlled if the patient has good knowledge. Knowledge is the basis for patients to be able to control blood sugar independently and overcome anxiety about the impact of diabetes.[2]

Adherence to medication for diabetes mellitus, including the use of insulin, is crucial for achieving optimal health outcomes. Obedience is emphasized not only in

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[1] Wiwin A Muhammad, Nelfa Fitria Takahepis, and Nurlela Hi Baco, 'The Relationship Between Knowledge and Dietary Adherence in Patients With Type II Diabetes Mellitus', *Journal of Health Sciences* 2, No. 1 (16 March 2022): 58–71, Https://Doi.Org/10.55606/Jrik.V2i1.528.

[2] Wiwin A Muhammad, Nelfa Fitria Takahepis, and Nurlela Hi Baco, 'The Relationship between Knowledge and Dietary Adherence in Patients with Type II Diabetes Mellitus'.

religious practices but also in all aspects of life, including maintaining health through proper medication use. As in Surah An-Nisa verse 59, which emphasizes the importance of obedience to Allah, the Messenger, and the authorities. In the context of health, doctors and other medical personnel can be said to be ulil amri, or people who are authorized to provide treatment therapy. So that compliance in carrying out medical recommendations in using insulin is one of the efforts to maintain the body's mandate that Allah has given us.

يَٰٓأَيُّهَا الَّذِيْنَ اٰمَنُوْٓا اَطِيْعُوا اللهَ وَاَطِيْعُوا الرَّسُوْلَ وَأُولِى الْاَمْرِ مِنْكُمْۚ فَاِنْ تَنَازَعْتُمْ فِيْ شَيْءٍ فَرُدُّوْهُ اِلَى اللهِ وَالرَّسُوْلِ اِنْ كُنْتُمْ

تُؤْمِنُوْنَ بِاللهِ وَالْيَوْمِ الْاٰخِرِۚ ذٰلِكَ خَيْرٌ وَّاَحْسَنُ تَأْوِيْلًاء :٥٩

It means: "O you who believe, obey Allah and obey the Messenger (Prophet Muhammad) and ulil amri (the holder of power among you). If you disagree about something, return it to Allah (the Qur'an) and the Messenger (the Sunnah) if you believe in Allah and the Last Day. That is better (for you) and better for the consequences (in this world and the hereafter)."

Patients with diabetes mellitus require a multifaceted approach to treatment, including both non-pharmacological therapies like lifestyle modifications and dietary regulation, as well as pharmacological interventions such as oral antidiabetic drugs and insulin therapy.For patients on insulin therapy, understanding proper insulin use is crucial for achieving optimal treatment outcomes. Knowledge of insulin administration techniques and dosage is essential for patient adherence to the therapy.

Most diabetes treatment failures are due to patient non-compliance in carrying out therapy due to several factors, including patient non-compliance with the use of the tool or the understanding, goals, and targets of the therapy. Based on the above background, it is necessary to evaluate patient compliance in carrying out antidiabetic therapy, especially insulin. A tool that can be used to measure the level of patient compliance with the MMAS-8 (*Morisky Medication Adherence* Scale-8) questionnaire,

which is a questionnaire that aims to measure patient compliance in carrying out treatment.

1.2 Research Question

The problem formulation of this study is:

1. What is the level of adherence of insulin therapy among outpatients with diabetes mellitus?
2. Is there a relationship between sociodemographic factors and insulin adherence among outpatients with diabetes mellitus?
3. What are the pharmacological and non-pharmacological of patients with diabetes mellitus undergoing insulin therapy?

1.3 Research Objectives

The objectives of this study are:

1. To evaluate the level of adherence to insulin therapy among outpatients with diabetes mellitus.
2. To evaluate the level of adherence to insulin therapy among outpatients with diabetes mellitus.
3. To describe the pharmacological and non-pharmacological profiles of patients with diabetes mellitus undergoing insulin therapy.

1.4 Research Benefit

1.4.1 Theoretical Benefit

The finding of this study can serve as a valuable reference for future research, particularly in evaluating patient adherence to insulin therapy. These insights can inform the development of improved interventions and more effective management strategies at Dr. Moewardi Surakarta Hospital.

1.4.2 Practical Benefit

The expected practical benefits of this study are as follows:

a. For researchers, it can be used to develop more effective patient education programs about insulin use.

b. For health workers, the results of the study can be used to identify patients at low risk of low compliance and can provide appropriate interventions.

c. For hospitals, they can use the results of research to develop policies and procedures that can support patient compliance in the use of insulin.

1.5 Authenticity of Research

Several previous studies have investigated patient compliance in the context of diabetes mellitus, as summarized in Table 1.

Table 1 Research Authenticity

Title of the study	Type of research	Variable	Result	Research Differences
Level of Compliance of Type II Diabetes Mellitus Patients to the Use of Antidiabetic Drugs at the Yosowilangun Health Center, Lumajang Regency[3]	Descriptive observational	Dependent: level of compliance of patients with type 2 diabetes mellitus in the use of oral antidiabetics Independent: the level of knowledge of the patient	The level of compliance with an overall score of 5.05 is classified as a low compliance category.	Dependence: the level of compliance of diabetic mellitus patients in the use of insulin
Analysis of Treatment Adherence Factors Based on MMAS-8 Score	Analytical Observations	Dependent: patient treatment compliance Independent: patient's age,	Income and education are the biggest risk factors for non-compliance with	The research was conducted using descriptive methods and qualitative and

[3] Yahya Wahyu Muhaymin and Andini Andini, 'The Level of Compliance of Type II Diabetes Mellitus Patients to the Use of Antidiabetic Drugs at the Yosowilangun Health Center, Lumajang Regency', *Pharmademica : Journal of Pharmacy and Nutrition* 2, No. 2 (April 28, 2023): 83–92, Https://Doi.Org/10.54445/Pharmademica.V2i2.22.

Title of the study	Type of research	Variable	Result	Research Differences
in Type 2 Diabetes Mellitus Patients[4]		gender, education, occupation, income, length of illness, type of treatment, number of medications	patients' treatment	quantitative approaches
Health *Beliefe Model* (HBM) Approach to Analyze the Adherence of Type 2 Diabetes Mellitus Patients to Use Insulin	Observational that is descriptive. Using *self efficacy* questionnaire instruments and *given et al questionnaire*	Dependent: insulin adherence Independent: perceived vulnerability, perceived severity, perceived benefits and obstacles	*Perceived succeptibility, perceived severity, perceived benefit, perceived self-efficacy* have a positive influence while perceived barrier has a negative influence on patient compliance in using insulin correctly.	The study found out the level of patient compliance using the MMAS-8 questionnaire

[4] Siti Julaiha, 'Analysis of Treatment Compliance Factors Based on Mmas-8 Score in Type 2 Diabetes Mellitus Patients', *Health Journal* 10, No. 2 (September 13, 2019): 203, Https://Doi.Org/10.26630/Jk.V10i2.1267.