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The Correlation Between Knowledge and Self-Management Compliance in Type 2 Diabetes Mellitus Patients at The Regional Hospital Of Pringsewu

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ABSTRACT

Background & Objective: To determine "The Correlation Between Knowledge and Self-Management Compliance in Type 2 Diabetes Mellitus Patients At The Regional Hospital Of Pringsewu". **Method:** This study was a quantitative study with a cross-sectional design and purposive sampling technique. The population was all type 2 diabetes mellitus patients at the Internal Medicine Polyclinic of Pringsewu Regional Hospital, with a sample of 79 respondents who met the inclusion and exclusion criteria. The research instrument used the Diabetes Knowledge Questionnaire 24 (DKQ-24) for knowledge and the Diabetes Self-Management Questionnaire (DSMQ) for self-management compliance. Data analysis was performed using the Gamma test. **Result:** The results obtained based on the gamma statistical test showed that there was a Correlation Between Knowledge and Self-Management Compliance in Type 2 Diabetes Mellitus Patients At The Regional Hospital Of Pringsewu with a p-value of 0.001. **Conclusion:** It was concluded that knowledge can influence self-management compliance in type 2 diabetes mellitus patients.

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Introduction

According to the American Diabetes Association (ADA), diabetes mellitus is a chronic metabolic disease or problem with various causes, characterized by increased blood sugar levels (hyperglycemia), accompanied by disturbances in carbohydrate, fat (lipid), and protein metabolism (Association, 2022).

The International Diabetes Federation (IDF) reports that by 2024, 589 million adults aged 20 to 79 worldwide will have diabetes. Projections indicate that the total number of global diabetes sufferers will reach 853 million by 2050. The regions with

the highest number of sufferers are Southeast Asia and the Western Pacific, with a record of 322 million people. Meanwhile, Europe records around 66 million sufferers, while North America and the Caribbean contribute around 56 million people with DM. Then, the five countries with the highest number of diabetes sufferers in 2025 consist of China with 148 million sufferers, India with 90 million sufferers, the United States with 39 million sufferers, followed by Indonesia with 20.4 million sufferers, and Pakistan with 19.7 million sufferers (*IDF Diabetes Atlas*, 2025).

Based on data from the Health Development Policy Agency (BKPK) of the Ministry of Health in 2023, the province with the highest prevalence of diabetes was DKI Jakarta (3.1%), followed by DI Yogyakarta (2.9%) and East Kalimantan (2.3%), while Lampung Province was in 10th place with a prevalence of 1.2% (Kemenkes, 2023). In Lampung Province, the highest number of cases was recorded in West Lampung Regency with (95.5 cases), then Tanggamus Regency (95.0 cases), and South Lampung Regency (50.4 cases) (Dinkes Provinsi Lampung, 2023). In Pringsewu Regency, the number of DM sufferers in 2023 reached 5,027 people (Badan Pusat Statistik, 2023).

Type 2 diabetes mellitus is a disease that, if managed properly, particularly through regular monitoring of blood glucose levels, allows sufferers to maintain optimal health and prevent complications (Ayuningtyas *et al*., 2021).

One way to prevent these complications is through self-management compliance. Self-management compliance is the level of adherence demonstrated by individuals with diabetes to control their health (SUNDARI, 2020). Management of diabetes mellitus is divided into five main pillars, namely education, medical nutrition therapy, physical exercise, medication, and monitoring of blood sugar levels (PERKENI, 2021).

Adherence is key to successful self-management, ensuring patients remain healthy and able to optimally carry out daily activities (Ayuningtyas *et al*., 2021). However, low adherence is influenced by various factors, both internal factors such as knowledge, attitudes, and motivation, and external factors such as family support, socioeconomic conditions, and access to healthcare (Darmayanti *et al*., 2021).

One factor that significantly influences compliance is patient knowledge s(Darmayanti *et al*., 2021). Studies indicate that knowledge plays a crucial role in controlling and mitigating the impacts of diabetes mellitus (DM). Knowledge is the understanding or information about a topic gained through experience or learning, both by individuals and the general public (Swarjana & Skm, 2022). Patients' understanding of the disease they are experiencing can improve their ability to manage the disease independently, if the patient has good knowledge (Mulyana *et al*., 2024).

Based on the results of a pre-survey conducted on May 15 2025, interviews with 10 type 2 diabetes patients at the Internal Medicine Clinic at Pringsewu Regional Hospital revealed a picture of their level of knowledge regarding self-management adherence. The results showed that four respondents had good knowledge of diabetes and a high level of self-management adherence, while the other six respondents had low levels of knowledge and adherence.

Based on the phenomena and problems above, the researcher is interested in conducting research on "The Correlation Between Knowledge and Self-Management Compliance in Type 2 Diabetes Mellitus Patients At The Regional Hospital Of Pringsewu ".

Objective

This study aims to determine the Correlation Between Knowledge and Self-Management Compliance in Type 2 Diabetes Mellitus Patients At The Regional Hospital Of Pringsewu.

Method

This research is a quantitative descriptive correlation with a cross-sectional approach, which aims to determine the correlation between knowledge and self-management compliance in type 2 diabetes mellitus patients. The sampling technique used purposive sampling, namely respondents were deliberately selected from the population considered most relevant to the research objectives, namely type 2 diabetes mellitus patients who met the inclusion and exclusion criteria. Data analysis in this study used the Gamma statistical test. The instrument used in this study to measure knowledge used the Diabetes Knowledge Questionnaire 24 (DKQ-24) and to measure self-management compliance used the Diabetes Self-Management Questionnaire (DSMQ). This study was conducted for 10 days on July 4 to July 15, 2025 at the Internal Medicine Polyclinic of at The Regional Hospital Of Pringsewu.

Results

Univariate Analysis

TABLE 1. Respondent Characteristics

Variabel	N	%
Age		
30-35	5	6.3
36-40	13	16.5
41-45	15	19.0
46-50	35	44.3
51-55	9	11.4
56-60	2	2.5
Gender		
Male	33	41.8
Female	46	58.2
Education		
Elementary School	24	30.4
Middle School	28	35.4
High School	21	26.6
Bachelor's Degree	6	7.6
Occupation		
Civil Servant	6	7.6
Housewife	33	41.8
Self-Employed	15	19.0
Farmer	25	31.6
Duration of Type 2 Diabetes		
1-5 years	52	65.8
5-10 years	22	27.8
> 10 years	5	6.3

Based on Table 1, it can be seen that the majority of respondents were in the 46–50 age group (35 respondents (44.3%), while the fewest were in the 56–60 age group (2.5%).

Respondent characteristics based on gender indicate that the majority were female (46 respondents (58.2%), while the majority were male (33 respondents (41.8%).

Based on education level, the majority of respondents had a junior high school education (28 respondents (35.4%), while the fewest had a college education (6 respondents (7.6%).

Occupational characteristics indicate that the majority of respondents were housewives (33 respondents (41.8%), while the fewest were civil servants (6 respondents (7.6%).

Based on the duration of type 2 diabetes mellitus, the majority of respondents had suffered from the disease for 1–5 years (52 respondents (65.8%), while the fewest had suffered from it for more than 10 years (5 respondents). (6.3%).

TABLE 2. Knowledge Distribution in Type 2 Diabetes Mellitus Patients

Knowledge	N	%
Good	17	21.5
Fair	27	34.2
Less	35	44.3
Total	**79**	**100.0**

Based on table 2 , the majority of respondents' knowledge was lacking, namely 35 respondents (44.3%). Meanwhile, the number of respondents with good knowledge was 17 respondents (21.5%), and the number of respondents with sufficient knowledge was 27 respondents (34.2%).

TABLE 3. Distribution of Self-Management Adherence in Type 2 Diabetes Mellitus Patients

Self-Management Adherence	N	%
Good	32	40.5
Fair	16	20.3
Less	31	39.2
Total	**79**	**100.0**

Based on Table 3 above, it can be explained that of the 79 respondents, 32 respondents (40.5%) were compliant with self-management. Meanwhile, 16 respondents (20.3%) were quite compliant with self-management, and 31 respondents (39.2%) were less compliant with self-management.

Bivariate Analysis

TABLE 4. The Relationship Between Knowledge and Self-Management Adherence in Type 2 Diabetes Mellitus Patients

Knowledge	**Self-Management Adherence**						**Total**		***P-Value***	**Correlation Coefficient (r)**
	Good		Fair		Less					
	N	%	N	%	N	%	N	%		
Good	15	88.2	2	11.8	0	0.0	17	100.0		
Fair	11	40.7	1	3.7	15	55.6	27	100.0	**0,001**	**0,535**
Less	6	17.1	13	37.1	16	45.7	35	100.0		
Total	**32**	**40.5**	**16**	**20.3**	**31**	**39.2**	**79**	**100.0**		

Based on Table 4.8 above, it shows that respondents with a good level of knowledge mostly have good self-management compliance, namely 15 respondents (88.2%), then 2 respondents (11.8%) have sufficient compliance, and no respondents have poor compliance. Among respondents with sufficient knowledge, 11 respondents (40.7%) have good self-management compliance, 1 respondent (3.7%) with sufficient compliance, and 15 respondents (55.6%) with poor compliance.

Meanwhile, among respondents with a poor level of knowledge, only 6 respondents (17.1%) have good self-management compliance, 13 respondents (37.1%) with sufficient compliance, and 16 respondents (45.7%) with poor compliance. The results of statistical tests using the gamma test obtained a p-value = 0.001 (<0.05), which means H1 is accepted and H0 is rejected. Furthermore, a gamma correlation coefficient of 0.535 was obtained, indicating a positive relationship with moderate strength. This positive relationship indicates that the better the patient's knowledge, the higher their level of adherence to self-management. Thus, it can be concluded that there is a relationship between knowledge and self-management compliance in Type 2 Diabetes Mellitus patients at Pringsewu Regional Hospital.

Discussion

Knowledge, according to Cambridge Dictionary (2020), refers to understanding or information acquired through learning and experience, while Oxford Dictionary defines it as information and skills obtained through education or experience. In the health context, (Notoatmodjo, 2017) further emphasizes knowledge as a key determinant of health-related behavior, forming the cognitive foundation for attitude and practice. In this study, nearly half of the respondents (44.3%) demonstrated poor knowledge, while only 21.5% reached a good level of understanding. The DKQ-24 results highlighted that many patients were not familiar with the etiology of diabetes, possible complications, and acute management strategies. This aligns with *(Sarumi et al*., 2024), who noted that patients with T2DM often receive education only once at diagnosis and little reinforcement during follow-up visits. Consequently, knowledge fades over time and is not sufficiently internalized to guide daily management.

Several previous studies confirm this finding. (Fidia *et al*., 2025) reported that only 11% of their respondents achieved a good knowledge level, while (Andhini *et al*., 2025) demonstrated that limited health literacy, particularly among patients with lower educational backgrounds, hindered comprehension of medical terminology. Similarly, (Kusumawati *et al*., 2024) stressed the importance of repeated and continuous education, suggesting that social media could be an effective medium for visual, simple, and repetitive health promotion. These findings collectively indicate that inadequate and inconsistent patient education remains a critical challenge in diabetes care.

Self-management is defined as a set of behaviors performed by individuals with diabetes to control their condition, including adherence to medication, dietary regulation, regular physical activity, blood glucose monitoring, and foot care (Sundari *et al*., 2019). In the present study, 40.5% of respondents demonstrated good adherence, while 39.2% were categorized as poor, and 20.3% as moderate. This distribution suggests that while some patients successfully manage their condition, a substantial proportion struggle with consistent adherence.

Supporting evidence comes from (Wang *et al*., 2022), who identified a significant relationship between family support and self-management adherence.

Patients with supportive families were more consistent in medication, diet, and regular check-ups. (Nisak, 2025) also highlighted the role of motivation and self-efficacy, while (Cheng *et al*., 2025) emphasized that direct instructions and personal guidance from health professionals significantly improved patient engagement. These studies collectively underline that self-management is a multifactorial process shaped not only by knowledge but also by psychosocial and environmental factors.

Theoretically, the Self-Determination Theory provides a useful framework to interpret these findings. The theory posits that autonomy, competence, and relatedness are crucial in sustaining health behaviors. Patients with internal motivation, confidence in their ability, and supportive relationships are more likely to engage in consistent self-management. Additionally, the family function theory highlights the role of family as emotional supporters and decision-making partners, further reinforcing adherence.Bivariate analysis showed a significant relationship between knowledge and self-management adherence ($p = 0.001$). Patients with good knowledge mostly had good adherence (46.9%), while poor knowledge was associated with poor adherence (51.6%). However, some patients with low knowledge still adhered well, and some with moderate knowledge showed poor adherence.

This indicates that knowledge is important but not sufficient. As (Notoatmodjo, 2017) states, behavior is influenced by knowledge, attitude, and practice. Factors such as family support, health service structure, motivation, and doctor's guidance often compensate for limited knowledge. Similar findings were reported by (Rangga et al., 2024) and (Della *et al*., 2023), where family support and motivation were stronger predictors of adherence than knowledge alone.

Implications from this study highlight the need for continuous, tailored education, not just one-time counseling. Health workers should also strengthen patient motivation, self-efficacy, and family involvement, while social media-based education can provide simple, repetitive, and accessible reinforcement.

Field observations further suggest that poor knowledge is linked to limited education and one-time counseling at diagnosis, while better knowledge was often gained through active information-seeking (e.g., TikTok, Facebook). Nonetheless, good adherence among low-knowledge patients was often due to strong family support, motivation, and professional guidance. Therefore, self-management adherence should be seen as the result of interactions between cognitive, motivational, and social factors.

The study's strengths include providing crucial information to improve patient education and motivation in self-managing their disease, which can reduce the risk of complications and improve quality of life. This research supports the basis for effective educational interventions to improve patient adherence to type 2 diabetes self-management.

Identified weaknesses of this study include the small sample size and the relatively short duration of the study. This limits the generalizability of the results and may not reflect the long-term adherence behavior of type 2 diabetes patients.

Conclusion

The majority of type 2 diabetes mellitus patients at the Regional Hospital Of Pringsewu were aged 46–50 years, female, had junior high school education, worked as housewives, and had been diagnosed for 1–5 years. Most respondents had poor knowledge (44.3%), while self-management adherence was generally good (40.5%).

Statistical analysis showed a significant relationship between knowledge and self-management adherence (p = 0.001).

Suggestions

1. For patients: it is recommended to actively participate in continuous health education through health services, social media, or discussions with healthcare professionals to strengthen understanding and prevent complications.
2. For hospitals: it is important to develop sustainable education programs, such as through social media platforms, self-monitoring booklets, and family involvement.
3. For universities: the findings can serve as academic references and support curriculum development related to chronic disease management.
4. For future researchers: it is suggested to expand the study scope and include other influencing factors such as family support, intrinsic motivation, and patient–healthcare provider relationships.

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