

The Relationship Between Self-Efficacy and Dietary Compliance in Patients with Diabetes Mellitus at Cancar Public Health Center

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ABSTRACT

Dietary regulation is one of the main pillars in the management of diabetes mellitus. Effective dietary management requires strong commitment and self-discipline from patients to achieve optimal outcomes. This study aimed to examine the relationship between self-efficacy and dietary compliance among patients with diabetes mellitus at Cancar Public Health Center, Manggarai Regency. A quantitative approach with a cross-sectional design was employed, using a total sampling technique involving 30 respondents. Data were analyzed using Kendall's Tau-b correlation test. The findings revealed that among respondents with high self-efficacy, 13 were compliant with their diet and 2 were less compliant. Among those with moderate self-efficacy, 1 was compliant, 5 were less compliant, and 4 were non-compliant. Meanwhile, respondents with low self-efficacy showed no compliance or low compliance, with 5 individuals categorized as non-compliant. The statistical analysis using Kendall's Tau-b test demonstrated a significant relationship between self-efficacy and dietary compliance (p -value = 0.000). These results suggest that improving self-efficacy in patients with diabetes mellitus is essential to enhance dietary adherence and prevent more severe health complications.

Keywords: Diabetes Mellitus Patients, Dietary Compliance, Self-Efficacy

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INTRODUCTION

Diabetes mellitus is a chronic condition characterized by elevated blood glucose levels, typically above 200 mg/dL, resulting from the body's inability to effectively absorb and utilize glucose as a source of energy. This leads to an accumulation of glucose in the bloodstream. Diabetes mellitus is classified into two types: type 1, which is caused by an autoimmune response that destroys insulin-producing cells in the pancreas, and type 2, which results from a combination of genetic factors affecting insulin secretion and sensitivity, as well as environmental influences such as obesity, poor diet, physical inactivity, stress, and aging (1).

In Southeast Asia, Indonesia ranks third in diabetes prevalence, with an estimated rate of 11.3%. Diabetes mellitus is the third leading cause of death in the country, accounting for approximately 6.7% of all deaths, following stroke and heart disease. Nationally, the prevalence of diabetes mellitus has risen from 2.0% to 2.5%.

Based on blood test data among individuals aged over 15 years, the proportion of people diagnosed with diabetes increased from 6.9% in 2013 to 8.5% in 2018. This rise suggests the emergence of new cases, with an estimated 25% being newly diagnosed (2). According to the 2022 Health Profile of Manggarai Regency, among the 25 community health centers in East

Nusa Tenggara, 1,374 cases of diabetes mellitus were reported, and 1,313 patients (95.6%) received standardized health services (3). At Cancar Public Health Center, Manggarai Regency, 30 patient visits related to diabetes mellitus were recorded between January and September 2023.

The management of diabetes mellitus is based on five pillars: education, dietary planning, physical activity, pharmacological therapy, and blood glucose monitoring (4). Among these, dietary regulation plays a critical role in controlling blood glucose levels. Individuals with diabetes must carefully manage their food intake, as it directly affects their glycemic status (5). Adherence to a diabetes-specific diet requires both awareness and a strong sense of self-efficacy—the belief in one’s ability to successfully manage and maintain health behaviors. Self-efficacy significantly influences patients’ engagement in diabetes self-care. Higher levels of self-efficacy are associated with better outcomes in disease management, including improved recovery, prevention of complications, and adherence to treatment. Conversely, low self-efficacy can negatively impact all aspects of disease control.

Preliminary interviews conducted on September 10, 2023, with seven patients at Cancar Public Health Center revealed a common pattern of non-adherence to dietary recommendations. Respondents admitted to eating whenever they felt hungry without regard to meal timing, portion size, or food types, citing a lack of self-control over their eating habits. Based on these findings, this study aims to examine “The Relationship Between Self-Efficacy and Dietary Adherence in Patients with Diabetes Mellitus at Cancar Public Health Center, Manggarai Regency”.

METHODS

This study was conducted at Cancar Public Health Center, Manggarai Regency, from March 27 to April 27, 2024. It employed a quantitative approach with a cross-sectional research design. The target population included all patients diagnosed with diabetes mellitus, aged between 44 and 74 years, totaling 30 individuals. A total sampling technique was used, resulting in a sample size of 30 respondents.

Data collection involved the use of two structured questionnaires: one assessing self-efficacy and the other assessing dietary compliance. The dietary compliance questionnaire consisted of 20 items measured using a Likert scale, while the self-efficacy questionnaire included 20 items measured using the Guttman scale. Both instruments were adapted from previous studies and had been previously tested for validity and reliability at a different location—Anam Health Center.

Validity testing showed that all items in both questionnaires were valid, with correlation coefficient values (r -count) exceeding the critical value (r -table). Reliability testing yielded high internal consistency, with a Cronbach's alpha of 0.914 for the Self-Efficacy Questionnaire and 0.927 for the Dietary Compliance Questionnaire. Data analysis was conducted using Kendall's Tau-b correlation test to examine the relationship between self-efficacy and dietary compliance.

RESULTS AND DISCUSSION

Based on Table 1, the majority of diabetes mellitus patients at Cancar Public Health Center, Manggarai Regency, were aged between 44 and 64 years, totaling 24 individuals (80%).

Table 1. Characteristics of Respondents Based on Age Among Diabetes Mellitus Patients at Cancar Public Health Center, Manggarai Regency

Age Group (years)	Frequency (n)	Percentage (%)
44-54	12	40
55-64	12	40
65-74	6	20
Total	30	100

Source: Primary Data (SPSS, 2024)

Table 2. Characteristics of Respondents Based on Gender Among Diabetes Mellitus Patients at Cancar Public Health Center, Manggarai Regency

Gender	Frequency (n)	Percentage (%)
Male	14	46.7
Female	16	53.3
Total	30	100

Source: Primary Data (SPSS, 2024)

Table 3. Characteristics of Respondents Based on Self-Efficacy Among Diabetes Mellitus Patients at Cancar Public Health Center, Manggarai Regency

Self-Efficacy	Frequency (n)	Percentage (%)
High	15	50
Moderate	10	33.3
Low	5	16.7
Total	30	100

Source: Primary Data (SPSS, 2024)

Table 4. Characteristics of Respondents Based on Dietary Compliance Among Diabetes Mellitus Patients at Cancar Public Health Center, Manggarai Regency

Dietary Compliance	Frequency (n)	Percentage (%)
Good	14	46.7
Moderate	7	23.3
Poor	9	30
Total	30	100

Source: Primary Data (SPSS, 2024)

Table 2 shows that most of the respondents were female, accounting for 16 individuals (53.3%). According to Table 3, 15 respondents (50.0%) had high self-efficacy, while 10 respondents (33.3%) demonstrated moderate self-efficacy, and 5 respondents (16.7%) reported low self-efficacy.

Table 4 presents data on dietary compliance among the respondents. Fourteen individuals (46.7%) exhibited good dietary compliance, 7 individuals (23.3%) had moderate compliance, and 9 individuals (30.0%) demonstrated poor compliance with dietary recommendations.

Further analysis regarding the relationship between self-efficacy and dietary compliance in patients with diabetes mellitus at Cancar Public Health Center is presented in Table 5. Among respondents with high self-efficacy, 13 (43.4%) were compliant with their diet and 2 (6.7%) were less compliant. Among those with moderate self-efficacy, 1 respondent (3.3%) was compliant, 5 (16.7%) were less compliant, and 4 (13.3%) were non-compliant. None of the respondents with low self-efficacy were compliant or partially compliant; however, 5 respondents (16.7%) were classified as non-compliant.

The results of the statistical analysis using Kendall's Tau-b test indicated a significant relationship between self-efficacy and dietary compliance, with a p-value of 0.000. Therefore, the null hypothesis (H_0) was rejected, suggesting a statistically significant association between self-efficacy and dietary adherence among diabetes mellitus patients at Cancar Public Health Center, Manggarai Regency.

Table 5. The Relationship Between Self-Efficacy and Dietary Compliance in Diabetes Mellitus Patients at Cancar Public Health Center, Manggarai Regency

Self-Efficacy Level	Compliant (n/%)	Less Compliant (n/%)	Non-Compliant (n/%)	Total (n/%)	p-value
High	13 (43.3%)	2 (6.7%)	0 (0%)	15 (50%)	0.000
Moderate	1 (3.3%)	5 (16.7%)	4 (13.3%)	10 (33.3%)	
Low	0 (0%)	0 (0%)	5 (16.7%)	5 (16.7%)	
Total	14 (46.7%)	7 (23.3%)	9 (30.0%)	30 (100%)	

Source: Primary Data (SPSS, 2024)

This study revealed that the majority of respondents (50%) demonstrated high levels of self-efficacy. Such a positive attitude contributes to the stabilization of the health condition of patients with diabetes mellitus. Self-efficacy is a critical factor influencing treatment adherence in diabetes mellitus patients, particularly in self-care management such as dietary regulation. One of the foundational strategies in preventing the progression of diabetes mellitus in pre-diabetic individuals is lifestyle modification, which includes a structured dietary plan and increased physical activity (1).

Furthermore, the study found that 46.7% of respondents exhibited good dietary compliance. However, this figure is not entirely satisfactory, as a significant proportion of patients still showed low or non-compliant behavior. Adhering to a diabetes-specific diet is an effective approach to minimizing the risk of complications and recurrence by maintaining stable blood glucose levels. Dietary regulation involves controlling nutrient intake to promote overall health. Patients with diabetes mellitus are also advised to consume fiber, as the microbiota in the large intestine converts it into substrates for producing short-chain fatty acids, including acetate. These compounds can enhance insulin sensitivity by promoting the release of free fatty acids from adipose tissue,

thereby reducing circulating fatty acids and improving glucose regulation.

Several factors can influence dietary compliance, including age, gender, motivation, and family support (7). This study found that most respondents were in the middle-aged to elderly category, with 40% in both the 44–54 and 55–64 age groups. These findings align with a study by Allorerung et al. (2016), which reported that type 2 diabetes mellitus is more prevalent among individuals aged over 60 and within the 50–59 age range (9). Advancing age is associated with changes in carbohydrate metabolism and reduced insulin secretion, which in turn impairs glucose uptake. Older age also often correlates with declining memory, hearing, and vision, potentially impacting adherence to treatment plans.

In terms of gender, this study showed a nearly equal distribution, with 53.3% male and 46.7% female respondents. Gender differences appear to influence health behavior. According to White, gender reflects socially recognized behavior patterns. In general, women are more attentive to their health, whereas men tend to neglect health concerns, often avoiding regular medical check-ups even when symptoms are present (11). In addition to age and gender, other unmeasured factors such as motivation and family support likely contribute to dietary compliance. Motivation is a key

determinant of individual behavior and adherence, while family support is instrumental in promoting and sustaining healthy lifestyle practices.

Importantly, this study demonstrated a statistically significant relationship between self-efficacy and dietary compliance among diabetes mellitus patients at Cancar Public Health Center, Manggarai Regency (p -value = 0.000). These findings underscore the importance of strengthening self-efficacy as a means of promoting dietary adherence. This result is consistent with a study by Ningsih et al. (2018), which found a significant relationship between self-efficacy and dietary compliance among diabetes mellitus patients at Arifin Achmad Hospital, Pekanbaru. That study concluded that higher self-efficacy is associated with improved compliance to dietary recommendations (6).

A similar conclusion was drawn by Datuela et al. (2021), who found a relationship between motivation and dietary compliance among diabetes mellitus patients at the Kotamobagu Wound Care Center. Their study indicated that strong motivation enhances compliance and supports better recovery (8). Self-efficacy plays a pivotal role in promoting adherence to dietary recommendations and helps patients regulate blood glucose levels even when faced with daily challenges. It is an essential factor in behavior change, influencing both effort and persistence. High self-efficacy facilitates significant improvements in health behavior (12).

However, the study also identified exceptions: two respondents with high self-efficacy still showed low dietary compliance, and one respondent with moderate self-efficacy was compliant. This indicates that other factors such as

knowledge, motivation, perception, family support, and information-seeking behavior may also influence dietary compliance. Therefore, patient-centered management strategies that focus on enhancing self-efficacy are highly recommended for policymakers and healthcare providers, both at the service level and nationally (14).

LIMITATIONS

This study was limited by its focus on a single influencing factor—self-efficacy—in determining dietary compliance among diabetes mellitus patients. Additionally, as the findings are based on subjective interpretation, variations in results may occur when compared with other studies due to differences in settings, populations, and research methodologies.

RESEARCH ETHIC

This research was approved by the Ethics Committee under the Institute for Research and Community Service (LPPM) at Universitas Katolik Indonesia Santu Paulus Ruteng, with ethical clearance number: 41/USP/R01/K/02/2024.

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CONCLUSION

Based on the findings, the majority of diabetes mellitus patients in this study

were aged 44–54 and 55–64 years, with each group comprising 12 respondents (40.0%). Most respondents were female (53.3%). Half of the respondents (50.0%) demonstrated high self-efficacy, while 46.7% exhibited good dietary compliance. The analysis revealed a significant relationship between self-efficacy and dietary compliance (p -value = 0.000).

These findings highlight the critical role of self-efficacy in managing diabetes mellitus, particularly in promoting adherence to dietary guidelines. Health education programs designed to build self-efficacy are essential in helping patients achieve better self-management outcomes, including dietary compliance, and in preventing complications associated with diabetes mellitus.

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