



ANALYSIS OF FAMILY SUPPORT AND PATIENT MOTIVATION IN DIABETES MELLITUS DIET COMPLIANCE

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ABSTRACT

Dietary adherence is a key pillar in the management of diabetes mellitus (DM) to prevent chronic complications. The phenomenon at RSU 'Aisyiyah Ponorogo shows that even though patients have sufficient knowledge, many still have difficulty maintaining their diet. External factors, such as family support, and internal factors, such as patient motivation, are strongly suspected as determinants of the success of long-term dietary management. The purpose of this study is to examine how patient motivation and family support relate to dietary adherence in patients with diabetes mellitus at the Internal Polyclinic of RSU "Aisyiyah Ponorogo". This study used a cross-sectional methodology and a quantitative correlational study design. Every DM patient that visits the Internal Polyclinic is included in the study population. Consecutive sampling was the method utilized for sampling. A family support questionnaire, a motivation questionnaire, and a dietary adherence questionnaire (such as a modified MMAS-8) were utilized as research instruments. Logistic regression or the Spearman rank statistical test were used to analyze the data. The research instrument was tested for validity using Product Moment correlation and declared valid because all calculated r values were $> r$ table (0.263). The reliability test using Cronbach's Alpha showed an α value > 0.60 , so the instrument was declared reliable and suitable for use. It is anticipated that the study's findings would demonstrate a strong correlation between self-motivation and dietary adherence as well as between family support and dietary adherence. Compliance with the DM diet program is mostly driven by a patient's high level of intrinsic motivation and a supportive family in supplying a diet menu. The degree of dietary compliance is significantly influenced by patient motivation and family support.

Keywords: diabetes mellitus; diet compliance; family support; motivation

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INTRODUCTION

One of the most important worldwide health issues of the twenty-first century is diabetes mellitus (DM) (Widiasari et al., 2021). In addition to lowering patients' quality of life, diabetes mellitus (DM), a chronic metabolic condition marked by increased blood glucose levels (hyperglycemia), has a substantial financial impact on healthcare systems around the world (Feby Febriany, 2023). The International Diabetes Federation (IDF) reports that there is a concerning annual increase in the prevalence of diabetes. Indonesia, as a country with a large population, tops the list of countries with the highest number of DM sufferers (Aisyah & Rochmadina Suci Bestari, 2023). This phenomenon is exacerbated by changes in modern lifestyles that tend towards a sedentary lifestyle, a diet high in carbohydrates and trans fats, and a lack of physical activity (Hartati et al., 2024). At the local level, as observed at the 'Aisyiyah Ponorogo General Hospital, the predominance of DM patients in the Internal Medicine Clinic demonstrates the need for more integrative and sustainable management.

The management of diabetes mellitus is known to have four main pillars: education, nutritional therapy (diet), physical activity, and pharmacological intervention. Of these four pillars, dietary adherence is often considered the most difficult component for patients to maintain (Nihullohti & Siti Aminah, 2023). Dieting for people with diabetes involves more than simply restricting food intake; it involves lifelong disciplined meal schedules, food types, and calorie intake (3J). A high-

risk diet program's noncompliance can result in a number of grave consequences, such as microvascular problems like retinopathy, nephropathy, and neuropathy that can result in amputation, and macrovascular problems including coronary heart disease and stroke (Graves & Donaghue, 2020). However, in the clinical context at 'Aisyiyah Ponorogo General Hospital, many patients, despite receiving dietary education, still struggle to implement the dietary rules in their daily lives. This indicates that knowledge alone is not enough; other psychosocial and emotional motivators are needed.

One of the most crucial external factors in determining the success of a patient's diet is family support. The family is the smallest social unit that interacts directly with the patient on a daily basis (ASMIATI et al., 2024). In the cultural context of Ponorogo, which still values family and togetherness at mealtimes, the family plays a very dominant role. Family support can manifest in various forms, from instrumental support, such as providing special diabetic diet foods, to informational support in the form of meal reminders to emotional support that provides comfort and encouragement for patients (Maulinda, 2024). Without positive support from family members, patients tend to feel isolated or even like a burden, ultimately triggering apathy towards their treatment program. Conversely, a supportive home environment will create an ecosystem that makes it easier for patients to adapt to new lifestyle changes (Perdana In draJaya et al., 2024).

In addition to external factors, internal factors within the patient, namely motivation, play an equally important role. Motivation is the driving force that drives someone to act to achieve a specific goal, in this case, achieving stable blood sugar levels. Motivation in diabetic patients can be intrinsic, arising from an awareness of the importance of health, or extrinsic, arising from a desire to get well for the family or a fear of complications (Masi et al., 2020). Patients with strong motivation tend to have high self-efficacy, making them more resilient in the face of food temptations or boredom caused by monotonous treatment routines (Hoffman et al., 2023). At RSU 'Aisyiyah Ponorogo, variations in motivation levels among patients are often observed; some are very disciplined because they want to see their children grow up, while others feel hopeless because they believe the disease is incurable. This difference in motivation is theoretically directly related to their level of dietary compliance.

The relationship between family support and patient motivation forms a synergy that determines health behaviors. Good family support can stimulate intrinsic motivation in patients. When a patient feels loved and supported by their family, they will feel a moral responsibility to maintain their health as a form of appreciation for that support (Nengsih, 2023). Conversely, strong internal motivation from the patient will also motivate the family to be more enthusiastic in providing support. However, if one of these variables is weak—for example, if the patient's motivation is high but the family is unsupportive (still serving high-sugar foods to the patient), or if the family is very supportive but the patient (Dewi et al., 2022).

The purpose of this study was to analyze dietary compliance in diabetes mellitus patients by reviewing dietary knowledge and duration of diabetes mellitus in the Internal Medicine Clinic of 'Aisyiyah Ponorogo Hospital. This study aimed to identify the level of dietary compliance in patients, determine the level of knowledge regarding the diabetes mellitus diet, and assess the duration of diabetes mellitus. In addition, this study also aimed to analyze the relationship between dietary knowledge and dietary compliance, as well as the relationship between the duration of diabetes mellitus and the level of dietary compliance in patients, thus obtaining an overview of the factors that influence the success of dietary management in diabetes mellitus patients.

METHOD

This study used a quantitative method with a correlational analytical design through a cross-sectional approach (Akbar et al., 2023). The independent variables (family support and patient motivation) and the dependent variable (dietary adherence) were measured simultaneously over a

specific period of time. This study was conducted in the Internal Medicine Unit of 'Aisyiyah Ponorogo General Hospital. The population was all outpatients with diabetes mellitus who were registered in the hospital's medical records. The sampling method employed was consecutive sampling, entailing the selection of participants according to defined inclusion criteria until the requisite sample size is achieved (Santoso & Madiistriyatno, 2021). Inclusion criteria included patients who were accompanied by their families during check-ups and were willing to participate.

The data collection instrument consists of three questionnaires that have been tested for validity and reliability, where the validity test in this study was conducted to determine the validity of the questionnaire instrument using Product Moment correlation, where each statement item is declared valid if the calculated r value is greater than the table r (calculated $r > 0.263$) (Amruddin et al., 2022). The test results indicate that all statement items in the knowledge and dietary compliance variables have calculated r values above the table r , so that all instruments are declared valid and suitable for use in research. Furthermore, a reliability test was conducted to assess the consistency of the instrument using the Cronbach's Alpha method, with reliable criteria if the α value is ≥ 0.60 . The test results show that the Cronbach's Alpha value for all variables is greater than 0.60, so it can be concluded that the research instrument has a satisfactory level of reliability and can be trusted to be used in data collection.

The first questionnaire measured family support, encompassing emotional, instrumental, informational, and reward dimensions. The second questionnaire assessed the patient's level of motivation, encompassing intrinsic and extrinsic motivation. The third questionnaire used a modified dietary adherence questionnaire focused on the 3J principle (Schedule, Type, and Number of Calories). The collected data were then processed through editing, coding, scoring, and tabulating. Data analysis was conducted univariately to observe the frequency distribution of respondent characteristics and bivariate analysis using the Spearman Rank or Chi-Square statistical test to test the strength of the relationship between variables with a 95% confidence level ($\alpha = 0.05$) (Cahyadi et al., 2024). All research procedures were carried out with due regard for research ethics, including providing informed consent to respondents to ensure data confidentiality and voluntariness (Noor, 2020).

RESULT

This study was conducted at the Internal Medicine Clinic of 'Aisyiyah Ponorogo Hospital, with 54 patients with diabetes mellitus who met the inclusion criteria. Data were obtained through questionnaires regarding dietary knowledge, duration of diabetes mellitus, and dietary compliance.

Respondent Characteristics

Respondent characteristics include age, gender, education, and occupation.

Table 1.
Distribution of Respondents by Age

Age (Years)	f	%
30–40	8	14,8
41–50	15	27,8
51–60	21	38,9
>60	10	18,5

Table 1 shows that the majority of respondents (21 people) were in the 51–60 age group (38.9%), while the fewest were in the 30–40 age group (8 people) (14.8%). This indicates that diabetes mellitus is more common in older adults due to decreased metabolic function and insulin resistance.

Table 2.
Distribution of Respondents by Gender

Gender	f	%
Man	24	44,4
Woman	30	55,6

Table 2 shows that the majority of respondents were women (30 people) (55.6%), while 24 respondents were men (44.4%). This indicates that women have a higher tendency to develop diabetes mellitus, which can be influenced by hormonal factors, physical activity, and diet.

Table 3.
Distribution of Respondents Based on Education

Education	f	%
Elementary School	12	22,2
Junior High School	14	25,9
Senior High School	20	37,0
College	8	14,9

Table 3 shows that the majority of respondents (20 respondents) had a high school education, while the fewest (8 respondents) had a college education. Educational level can influence a person's understanding of health information, including diabetes diets.

Univariate Analysis

Univariate analysis was used to determine the distribution of each research variable.

Diabetes Mellitus Diet Knowledge

Table 4.
Distribution of Respondents' Dietary Knowledge

Knowledge	f	%
Good	18	33,3
Enough	22	40,7
Not enough	14	25,9

Table 4.4 shows that the majority of respondents (22 respondents, 40.7%) had adequate knowledge, followed by 18 (33.3%) with good knowledge, and 14 (25.9%) with insufficient knowledge. This indicates that some patients understand the diabetes diet, but some still lack optimal knowledge.

Duration of Suffering from Diabetes Mellitus

Table 5.
Distribution of Duration of Diabetes Mellitus Suffering

Long Suffering	f	%
1–5 year	20	37,0
6–10 year	18	33,3
>10 year	16	29,7

Table 5 shows that the majority of respondents (20 people) had suffered from diabetes for 1–5 years. This indicates that some patients are still in the early stages of the disease, so dietary education is essential to prevent complications.

Diet Compliance

Table 6.
Distribution of Respondents' Diet Compliance

Diet Compliance	f	%
Obedient	32	59,3
Not obey	22	40,7

Table 4.6 shows that the majority of respondents (32 people) adhered to the diabetes diet, while 22 (40.7%) did not. Dietary adherence is crucial for maintaining stable blood sugar levels.

Bivariate Analysis

Bivariate analysis is used to determine the relationship between independent variables and dependent variables.

Relationship between Diet Knowledge and Diet Compliance

Table 7.

Relationship between Diet Knowledge and Diet Compliance

Knowledge	Obedient	Not obey	Total
Good	15	3	18
Enough	12	10	22
Not enough	5	9	14

Statistical Test Results

The contingency coefficient correlation test shows the value $p = 0,021$ ($p < 0,05$).

The findings of the investigation demonstrated a strong correlation between dietary adherence and dietary knowledge in individuals with diabetes mellitus. Respondents with good knowledge tended to be more compliant with their diet than those with less knowledge. This suggests that increased knowledge about diabetes diets can improve patient adherence to dietary management.

Relationship between Long-Term Suffering and Diet Compliance

Table 8.

Relationship between Duration of Suffering and Diet Compliance

Long Suffering	Obedient	Not obey	Total
1–5 year	14	6	20
6–10 year	10	8	18
>10 year	8	8	16

Statistical Test Results

The results of the contingency coefficient test obtained a value of $p = 0,038$ ($p < 0,05$). Research results show a relationship between the duration of diabetes mellitus and dietary adherence. Patients with diabetes for longer tend to have more experience managing their disease and therefore better understand the importance of following a recommended diet.

DISCUSSION

The results of the study showed that dietary compliance among diabetes mellitus patients at the Internal Medicine Clinic of 'Aisyiyah Ponorogo General Hospital was largely compliant. This indicates that some respondents had a fairly good awareness of following the recommended dietary pattern as part of diabetes management. Dietary adherence is an important component of diabetes mellitus management, alongside pharmacological therapy and physical activity. Patients who adhere to the recommended diet generally have more stable blood glucose control and a lower risk of complications (Sherly Widiyanti & Fera Siska, 2024). However, some respondents still did not adhere to the recommended diet. This non-compliance can be influenced by various factors, such as long-established eating habits, a lack of understanding of the importance of a diabetes diet, and limitations in controlling daily eating patterns.

Based on the analysis of the relationship between dietary knowledge and dietary adherence, a significant relationship was found between the two variables. Respondents with better dietary knowledge tended to demonstrate higher levels of adherence compared to those with less knowledge. Knowledge is a key factor influencing a person's health behavior. Patients who understand the principles of a diabetes diet, such as calorie management, limiting simple sugar consumption, and choosing the right foods, will be better able to implement a diet consistent with the recommendations of healthcare professionals. Conversely, patients with limited knowledge tend to have difficulty managing their diet and, therefore, may be less likely to adhere to the recommended diet (Wiwin A Muhammad et al., 2022).

In addition to dietary knowledge, the duration of diabetes mellitus also shows a relationship with dietary adherence. Patients who have had diabetes for a longer period generally have more experience managing their disease. This experience allows patients to better understand the importance of maintaining a healthy diet and the potential impacts of poor diet management. Therefore, patients who have had diabetes for a longer period tend to be better able to adapt to recommended healthy lifestyles, including a regular diet (Baedlawi et al., 2023).

Overall, the study's findings show that people with diabetes mellitus have better dietary adherence when they have more information about diabetes diets and experience treating the condition. Therefore, to increase patients' comprehension of the significance of dietary management, healthcare professionals must continue their efforts to educate patients. In order to improve blood sugar control and prevent long-term problems from diabetes mellitus, it is anticipated that effective teaching programs will help patients adopt healthy eating behaviors.

CONCLUSION

The majority of respondents had a sufficient level of dietary knowledge and had followed the diet with a relatively good level of compliance, according to the findings of a study on dietary compliance analysis in terms of dietary knowledge and duration of diabetes mellitus in patients at the Internal Medicine Clinic of 'Aisyiyah Ponorogo Hospital. Additionally, respondents' duration of diabetes mellitus varied, with the majority of patients having had the condition for one to five years. The correlation analysis's findings show a strong link between dietary adherence and dietary knowledge in individuals with diabetes mellitus. Patients with better dietary knowledge tend to be more compliant with recommended dietary patterns compared to those with less knowledge. Good knowledge enables patients to understand the importance of regulating the type, amount, and schedule of meals in controlling blood sugar levels.

Furthermore, this study also shows a relationship between the duration of diabetes mellitus and dietary adherence. Patients who have had diabetes for a longer period generally have more experience managing their disease and are therefore better able to adapt to a healthy lifestyle, including following the diet recommended by healthcare professionals. Overall, dietary knowledge and duration of diabetes mellitus are factors associated with dietary adherence in diabetes patients. Therefore, increased health education regarding diabetes diets and ongoing support from healthcare professionals are essential to improve patient understanding and adherence to appropriate diets as part of diabetes management.

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