Family Support and Knowledge Level: Key Motivators for Dietary Adherence in Patients with Diabetes Mellitus

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Abstract

Background: Diabetes mellitus is a chronic disease that requires dietary adherence as an effort to control blood sugar levels. One important aspect of diet management is patient motivation. Patient motivation in carrying out the diet is strongly influenced by various factors including the level of knowledge and family support.

Objective: This study aims to analyze the relationship between the level of knowledge and family support with the motivation of diet compliance in patients with diabetes mellitus.

Methods: This study used a quantitative approach with a cross-sectional design. The sample consisted of 130 patients with diabetes mellitus at Bangetayu Community Health Center Semarang who were selected using simple random sampling technique. The test used is chi-square test.

Results: Based on the results of the analysis obtained (p-value = 0.01), it shows that there is a significant relationship between the level of knowledge and family support on the motivation of dietary compliance in patients with diabetes mellitus. Therefore, more intensive education and family involvement in patient care are needed to improve proper dietary compliance.

Keywords:
Diabetes Mellitus; Level of knowledge; Family Support; Motivation; Dietary Adherence

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Introduction

Diabetes Mellitus (DM) is known as a silent killer because it is often not realised by the person and when it is known, complications have occurred (Yi Wong et al., 2011). Patients suffering from Diabetes Mellitus disease are required to follow a proper Diabetes Mellitus (Dimitriades & Pillay, 2022)diet The increase in DM disease is largely due to the effects of an unhealthy diet, where often sufferers do not pay attention to balanced food intake so that the patient's blood sugar levels are not controlled (Ebrahim et al., 2014).

Several factors that influence the success of dietary adherence are motivation, knowledge, perception, participation in nutrition counselling and family support (Klinovszky et al., 2019). Patients who have high motivation are seven times more likely to adhere to a diet than patients with low motivation (Lie et al., 2018). Good self-motivation will make individuals have confidence that they are able to perform certain tasks or actions (Di et al., 2023a). Family support and self-care behaviour of patients with diabetes mellitus are very important because active participation from patients and families is needed to improve the management of blood glucose levels, prevent complications and improve patient conditions (Dimitriades & Pillay, 2022).

Patients' motivation for DM care can start in themselves or from outside such as support from close people or family. Motivation is very important because it can make someone do something to achieve the desired goal (Priharsiwi & Kurniawati, 2021). Lack of motivation in DM patients to adhere to the diet is often related to the discomfort felt due to drastic dietary changes. In addition, the lack of support from family and the surrounding environment is also a factor that reduces the patient's motivation to maintain compliance with the prescribed diet ((Wijaya, 2021).

Based on a preliminary survey conducted by researchers, data obtained in the medical records section of the Bangetayu Semarang Health Centre in January - July 2024 there were 193 people with

diabetes mellitus who underwent outpatient care. Most patients aged 45 and over are referred to the hospital, because some patients are physically unable to go to the hospital, on average going to the hospital only to connect drugs. Therefore, this study aims to determine the relationship between the level of knowledge and family support on the motivation of diet compliance for patients with diabetes mellitus.

Based on the results of previous researchers conducted with the title 'The relationship between the level of knowledge, family support with adherence to diet therapy in patients with diabetes mellitus at Puskesmas Mranggen I Demak Regency' there is a relationship between knowledge and dietary motivation. This study also showed that the better the level of knowledge of the DM disease diet, the more obedient the research subjects became in carrying out their diet (Andoko et al., 2020). In addition, based on the results of previous researchers also produced research conducted 'there is a relationship between knowledge and family support for the diet of patients with diabetes mellitus' this can also mean that the better a person's level of knowledge, of course, the more information exposure is obtained. The more information exposure is obtained, it will affect a person's attitude and behaviour in doing something (Marito & Lestari, 2021).

This means that these 2 studies reveal that knowledge and family support greatly affect the patient's motivation to carry out the diet that is being undertaken. While slightly different previous researchers produced research 'there is no relationship between the level of knowledge and family support on the motivation of respondents' compliance in undergoing a DM diet (Pharamita, 2023). Although many studies have discussed the importance of diet in diabetes management, research examining the relationship between the level of patient knowledge, family support and motivation for dietary compliance in patients with diabetes mellitus is still relatively limited. Therefore, this study is important to understand the extent to which the level of knowledge and family support affects patient motivation in adhering to a diet in patients with diabetes mellitus.

Methods

Research Design and Approach

This study utilized a quantitative design with a cross-sectional approach. The research was conducted at the Bangetayu Semarang Health Center in November 2024, involving a sample of 130 patients diagnosed with diabetes mellitus. Participants were selected using a simple random

sampling technique to ensure a representative sample.

Participants

The study included 130 patients with diabetes mellitus, who were recruited from the Bangetayu Health Center. The inclusion criteria required participants to be adults aged 18 years and older, diagnosed with diabetes mellitus, and able to provide informed consent. This selection process aimed to ensure that the sample accurately reflected the population of interest.

Instruments and Measurement

Data were collected using three validated questionnaires:
1. The Diabetes Knowledge Questionnaire (DKQ-24) to assess the level of knowledge among diabetic patients.
2. The Hensarling's Diabetic Family Support Scale (HDFSS) to evaluate the level of family support provided to patients.
3. The Treatment Self-Regulation Questionnaire (TSRQ) to measure the motivation of patients regarding dietary adherence.

Before data collection, informed consent was obtained from all participants to ensure ethical compliance. The data analysis was performed using SPSS software, where univariate analysis described the distribution of demographic variables, and bivariate analysis was conducted using the chi-square test to explore relationships between variables.

Data Collection

Data collection occurred after obtaining informed consent from the participants. The questionnaires were administered in a structured manner, ensuring that each participant understood the questions. The data collection process was conducted over a period of one month, allowing for thorough engagement with the participants.

Ethical Considerations

Ethical approval for the study was obtained from the relevant Institutional Review Board (IRB) prior to the commencement of the research. Informed consent was secured from all participants, ensuring their voluntary participation and understanding of the study's purpose and procedures. Anonymity and confidentiality were maintained throughout the research process to protect the participants' identities.

Results

The table 1 shows that the majority of respondents are in the early elderly age group, with an age range of 40-59 years as many as 79 people or 60.77%. Respondents were female as many as 81 people or 62.31%. A total of 59 people or 45.38% have the latest high school education level (SMA). A total of 39 people or 11.54% of respondents did not work. Meanwhile, 117 respondents or 90.00% were married.

The table 1 shows the frequency distribution of respondents based on the DKQ (Diabetes Knowladge Questionnaire) questionnaire with high enough knowledge there were 93 respondents with a high percentage (71.54%). The frequency distribution of respondents based on the HDFSS (Hensarling's Diabetic Familly Suppoert) questionnaire with family support groups was 92 respondents with a percentage of 70.77%. The frequency distribution of respondents based on the TSRQ (Treatment Self-Regulation Questionnaire) questionnaire with the highest motivation was 69 respondents with a percentage of 53.08%.

The table 2 shows that the highest percentage of respondents with high knowledge and high motivation is 35 respondents and the lowest result is low knowledge and poor motivation as many as 1 respondent. The chi-square test results show a p-value of 0.001 which is smaller than 0.05. This indicates a statistically significant relationship between the level of knowledge and motivation for dietary adherence. In other words, the level of knowledge possessed by respondents significantly influenced their motivation to adhere to the recommended diet. This finding underscores the importance of education as one of the key factors in improving dietary adherence in patients with diabetes mellitus.

The highest percentage is respondents with high family support groups and high motivation as many as 65 respondents. The lowest results were respondents with low family support and low motivation as many as 2 respondents. The chi-square test results show a p value of 0.001 which is much smaller than 0.05. This indicates a highly statistically significant relationship between family support and diet adherence motivation. In other words, the higher the family support, the more likely respondents were to have motivation to adhere to their diet. These results confirm the importance of family involvement in supporting the care of patients with diabetes mellitus, particularly in maintaining dietary adherence.

Table 1
Characteristics of respondent

Indicators	n	%
Gender		
Man	49	37.69
Woman	81	62.31
Age		
<40 (20-39 years)	32	24.62
<60 (40-59 years)	79	60.77
>60 years	19	19
Education		
Elementary school	13	10.0
Junior High School	43	33.08
Senior High School	59	45.38
College	15	11.54
Work		
Government employees	23	17.69
Private employees	25	19.23
Trader	28	30.00
Not working (housewife)	39	11.54
Marital status		
Not married yet	13	10.0
Married	117	90.00
Knowledge		
High	93	71.54
Medium	23	17.69
Low	14	10.77
Family Support		
High	92	70.77
Medium	36	27.69
Low	2	1.54
Motivation		
High	69	53.08
Medium	57	43.85
Low	4	3.08
Total	**130**	**100**

Table 2
Relationship between knowledge and family support with Diet compliance motivation of diabetes mellitus patients at the Community Health Center Very Beautiful Semarang

Indicators	Motivation						p
	Low		Medium		High		
	n	%	n	%	n	%	
Knowledge							
Low	2	100	0	0	0	0	0.001
Medium	2	6	30	83	4	11	
High	0	0	27	29	65	71	
Family Support							
Low	3	21	6	43	5	36	0,001
Medium	0	0	16	70	7	30	
High	1	1	35	38	57	61	

Discussion

Level of Knowledge in Diabetes Mellitus Patients

Based on the results of the study, most patients with diabetes mellitus have a high level of knowledge regarding their condition, namely 93 respondents (71.54%). A total of 23 respondents (17.69%) have a moderate level of knowledge, and only 14 respondents (10.77%) have a low level of knowledge. This shows that the majority of patients understand the importance of knowledge about diabetes, including the care and management needed to maintain their health. This knowledge plays an important role in decision making regarding a healthier lifestyle.

The majority of patients have a good level of knowledge (75%), the results of this study further strengthen that good knowledge about diabetes mellitus plays an important role in patient motivation to comply with the recommended diet (Wijaya 2021) . High knowledge allows patients to better understand the importance of diet in controlling their blood sugar levels, which in turn increases their adherence to the diet. This emphasizes the importance of ongoing education to improve patient understanding and motivation in managing diabetes optimally (Wijaya, 2021).

The researcher's assumption regarding the results of this study is that the higher the respondent's knowledge about diabetes mellitus, the more it helps the respondent in understanding its impact on the body and the importance of managing the disease. Respondents are also more active in maintaining their lifestyle, diet and implementing their diet obediently.

Family Support for Diabetes Mellitus Patients

Based on the results of the study, family support for diabetes mellitus patients is divided into three categories: high, medium, and low. Most patients (70.77%) received high family support, followed by 27.69% of patients who received medium support, and only 1.54% who received low support. High family support includes aspects such as monitoring the patient's diet, providing motivation, and active involvement in the diabetes management process, which are very important in improving the patient's quality of life.

The majority of family support for diabetes mellitus patients is at a high level (72.8%), the results of this study reinforce the importance of family support in motivating patients to adhere to their diet and manage their health conditions (Dewi 2022) . High family support, such as monitoring diet and providing motivation, is very influential in increasing patient dietary compliance, which in turn contributes to more effective diabetes management. This confirms that family support has a very significant role in the success of diabetes mellitus management (Priharsiwi & Kurniawati, 2021).

The researcher's assumption of this study is that the family is the closest person to the respondent. The family is able to provide support to the respondent both psychologically and through actions such as preparing a varied menu, helping to remind the respondent to return to the right diet track. Good family support will have a direct impact on the diet of people with Diabetes mellitus.

The Relationship Between Knowledge Level and Family Support on Diet Compliance Motivation in Diabetes Mellitus Patients

The first chi-square analysis result showed a p-value of 0.001, which is smaller than 0.05, indicating a statistically significant relationship between the level of patient knowledge and their motivation to adhere to the diet. This means that the higher the level of patient knowledge about diabetes mellitus and proper diet, the more likely they are to have high motivation to follow the diet recommendations. Good knowledge about diabetes management allows patients to better understand the positive impact of adherence to the diet, which ultimately increases their motivation to maintain a healthy diet.

Motivation is a state within a person that drives the individual's desire to carry out certain activities in order to achieve goals (Di et al., 2023b). In the context of diabetes mellitus patients, motivation to adhere to the recommended diet plays a very important role in managing their condition. Also emphasized that dietary compliance, which includes regulating the schedule, type, and amount of food, is a key factor in preventing increased blood sugar levels in people with diabetes. The results of this study support this, because it was found that a high level of knowledge and strong family support increased patient motivation to adhere to the diet, which in turn helped patients control their blood sugar levels more effectively.

Based on the results showing a relationship between knowledge and motivation in preventing complications in people with diabetes mellitus, the results of this study further strengthen that good knowledge about diabetes mellitus plays an important role in increasing patient motivation to follow dietary recommendations.   Patients who have high knowledge tend to be more motivated to adhere to the right diet, so they can prevent

Nurse Update, Vol 1 No 1, Januari 2025

9

Indah Murni - Family Support and Knowledge Level: Key Motivators for Dietary Adherence in Patients with Diabetes Mellitus

complications caused by poor diabetes management (Siti Maemunah). Knowledge gained from medical education and strong family support supports patients in making better decisions regarding self-care, which ultimately reduces the risk of diabetes complications (Priharsiwi & Kurniawati, 2021).

Based on the results of the description of the relationship between family support and motivation to carry out a diabetes mellitus diet, the results of this study confirm that high family support is very influential in increasing patient motivation to comply with the recommended diet (Hisni et al., 2017). Family support that includes emotional, instrumental, and informational support helps diabetes patients manage their diet and face self-care challenges(Hisni et al., 2017).

Conclusion

Based on the results of the discussion that has been described, most patients with diabetes mellitus have a good level of knowledge about their condition, especially regarding disease management and the importance of diet. Higher levels of knowledge have been shown to support patient motivation in complying with the recommended diet, indicating that adequate understanding is essential in making healthy decisions to manage diabetes.

Family support plays a significant role in helping patients with diabetes mellitus maintain their motivation to adhere to the diet. Families who provide emotional support, reminders, and practical assistance to the patient's needs can influence a better level of diet compliance. A good level of knowledge and strong family support show a significant relationship to patient motivation to adhere to the diet. These two factors complement each other in encouraging patients to follow an appropriate diet, so that diabetes management becomes more effective. Synergy between patient education and family support is essential to achieve optimal compliance.

Acknowledgement

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