

THE RELATIONSHIP BETWEEN FAMILY SUPPORT AND THE LEVEL OF MEDICATION ADHERENCE IN TYPE 2 DIABETES MELLITUS PATIENTS AT KARUNIA KASIH HOSPITAL

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Abstract

Background: Diabetes mellitus is a medical condition or chronic metabolic disorder that has various causes and is characterized by elevated levels of blood sugar, accompanied by disturbances in the metabolism of carbohydrates, lipids, and proteins due to insufficient insulin function (Diyah Chandra et al., 2021). Type 2 diabetes is a term used to describe a condition in which hyperglycemia occurs despite the presence of sufficient insulin (Sulastri, 2021). According to the International Diabetes Federation (IDF, 2021), Indonesia ranks seventh in the world, following China, India, the United States, Pakistan, Brazil, and Mexico, with a total of 10.7 million diabetes patients aged between 20 and 79 years. The Indonesian Ministry of Health (2020) reported that Indonesia ranks seventh among the top 10 countries with a total of 10.7 million individuals suffering from diabetes mellitus, and additionally, 1.5 million people have died from diabetes mellitus. In 2015, there were approximately 39.5 million cases of diabetes, resulting in 56.4 million deaths worldwide. According to the outcomes of the 2018 Basic Health Research (Riskesdas), familial support constitutes a reciprocal interaction among family members, involving the provision of assistance to those within the family who require it. The assistance offered encompasses informational, emotional, and instrumental support (Kamaryati & Malathum, 2020). Compliance represents an individual's adherence to the treatment regimen they need to follow in their daily life. Several terms are associated with medication adherence, including the concepts of compliance and adherence. The concept of compliance indicates the extent to which a patient follows the advice provided by medical experts. Conversely, the concept of adherence refers to the behavior of taking medication in accordance with the agreement established between the patient and the prescriber (Selly, 2020, as cited in Pradana, 2021). **Objective:** The objective of this research was to examine the association between family support and the degree of medication adherence in patients with type 2 diabetes mellitus at Karunia Kasih Hospital. **Methods:** The research design employed in this research is analytical-descriptive, which involves examining the relationship between independent and dependent variables. The data were collected through a questionnaire completed by respondents who are patients with type 2 diabetes mellitus. The statistical test results yielded a p-value of 0.000. Therefore, it can be concluded that there is a significant relationship between family support and medication adherence among patients with type 2 diabetes mellitus at Karunia Kasih Hospital.

Keywords: Family Support, Level of Medication Adherence, Type 2 Diabetes Mellitus

Introduction

Diabetes mellitus is a disease caused by the body's inability to adequately release or utilize insulin, leading to high blood glucose levels (hyperglycemia) (Suryati, et al., 2019).

Type 2 diabetes is a term used to describe a condition where hyperglycemia occurs even though the required insulin is available (Sulastrri, 2021).

Medication adherence is influenced by several factors such as socioeconomic factors (income, education level, employment status), healthcare access, the type of medication used, the number of medications consumed, the frequency of medication intake, patient conditions (gender, social support, emotions, satisfaction with treatment, knowledge level, education, and counseling from pharmacists) (Wibowo et al., 2021).

The research by Yanto and Setyawati (2017) stated that adequate family support for type 2 Diabetes Mellitus patients, which is as high as 72.9%, has an influence on the treatment being undertaken by the patients. It was found that patients who are married receive significantly higher levels of family support compared to those who are not married, at 97.6%. Family support can have a direct effect on improving medication adherence in patients with type 2 Diabetes Mellitus (Tabasi et al., 2014). Patient adherence to their medication regimen often declines because family members do not accompany and provide support to the patient during their treatment, leading to a deterioration in their condition marked by an increase in blood glucose levels (Waluyo & S., 2015).

Support from the patient's family can enhance adherence to Diabetes Mellitus management and promote regular blood glucose monitoring (Syahid, 2021). A research conducted by Pazokani et al. (2020) with 160 respondents who were type 2 Diabetes Mellitus patients found a significant relationship between family support and patient adherence to treatment. According to the research outcomes of Putri et al. (2013) and in line with the World Health Organization (WHO, 2022), approximately 422 million people worldwide suffer from Diabetes Mellitus. Based on data published by the *World Health Organization* (WHO), diabetes is projected to be one of the top ten leading causes of death worldwide in the year 2022. *The International Diabetes Federation (IDF, 2021)* states that Indonesia is ranked seventh in the world after China, India, the United States, Pakistan, Brazil, and Mexico, with a total of 10.7 million diabetes patients between the ages of 20 and 79 years. The Indonesian Ministry of Health (Kementrian Kesehatan RI, 2020) reported that Indonesia is in 7th place among 10 countries, with a total of 10.7 million individuals suffering from diabetes mellitus, and additionally, 1.5 million people have died due to Diabetes Mellitus. In the year 2015, there were approximately 39.5 million reported cases of diabetes, resulting in 56.4 million deaths worldwide. Based on the results of the Basic Health Research (Riskesdas) in 2018, the prevalence of diabetes mellitus (DM) in West Java reached 1.74%, estimated to be 570,611 diabetes patients. In the year 2021, the West Java Health Office found a total of 46,837 individuals with diabetes, of which 17,379, or 37.1%, did not receive healthcare in accordance with government standards. In the year 2020, among the estimated number of diabetes patients in Bekasi City, which was 44,714 individuals, approximately 58,270 had received healthcare services in accordance with the standards, equivalent to 130.3%. This healthcare service is provided both at the primary level (community health centers) and at referral hospitals. From Figure 6.38 above, it can be observed that diabetes patients are distributed across all sub-districts in the city of Bekasi, with the Pondok Gede sub-district having the highest number of cases (7,254 cases) and Karunia Kasih Hospital totaling 1,350 cases from January to September 2023.

Based on previous studies conducted on 10 patients with type 2 diabetes mellitus who underwent treatment at the outpatient clinic of Karunia Kasih Hospital on October 15, 202, the interview results revealed that 65% of them experienced an increase in their blood glucose levels during their previous examinations, even though they had been taking medication as prescribed by the doctor. The increase in blood glucose levels during the last examination indicates that blood glucose

levels have not been well controlled, possibly due to patient non-adherence to medication being one of the contributing factors.

This research aims to determine and analyze“ *The Relationship Between Family Support and The Level Of Medication Adherence in Type 2 Diabetes Mellitus Patients at Karunia Kasih Hospital*”

Method

Data Collection

The research design used in this research is a correlational analytical research design, with a cross-sectional approach method. A correlational analytical research design connects one variable with another and is subsequently tested statistically through hypothesis testing, known as correlation testing, which yields correlation coefficients. The population in this research consists of 100 outpatient diabetes mellitus type 2 patients at the Karunia Kasih Hospital in October 2023. From the population, the author selected participants based on inclusion and exclusion criteria, using the Slovin formula. For populations of small size, less than 1000, the total sample size was determined to be 50 respondents, with an additional 10%, resulting in a research sample of 55 respondents. So, the required sample size is 55 respondents.

Results

1. Univariate Analysis

Table 1 Distribution of Respondents Based on Demographic Data in Type 2 Diabetes Mellitus Patients at Karunia Kasih Hospital in 2023 (n = 55)

No	Respondents' Demographic Characteristics	Category	F	%
1	Age	26 - 35 years (Early Adulthood)	6	10.9
		36 - 45 years (Late Adulthood)	8	14.5
		46 - 55 years (Early Elderly)	22	40.0
		56 – 65 years (Late Elderly)	19	34.5
2	Gender	Male	14	25.5
		Female	41	74.5
3	Education	Elementary School (SD)	9	16.4
		Junior High School (SMP)	9	16.4
		High School (SMA)	25	45.5
		Bachelor's degree (S1)	12	21.8
4	Occupation	Housewife (IRT - Ibu Rumah Tangga)	23	41.8
		Trader	8	14.5
		Private sector employee	24	43.6
5	Living in the same house	Husband and child	22	40.0
		Wife and child	6	10.9
		Husband	7	12.7
		Wife	3	5.5
		Child	13	23.6
		Parent	4	7.3
Total			55	100.0

Based on Table 1 concerning the demographic characteristics of the respondents, it is evident that a significant portion of the respondents are aged 46 to 55 years, comprising 22 respondents (40%), and the majority of them are female, accounting for 41 respondents (74.5%). According to the data, the majority of respondents have completed at least a secondary education level, with 25 respondents (45.5%), and most of the respondents are employed in the private sector, totaling 24 respondents (43.6%). The largest family size is those living with both a husband and children, with a total of 20 respondents (40%).

Table 2 Frequency Distribution of Family Support in Type 2 Diabetes Mellitus Patients at Karunia Kasih Hospital in 2023 (n = 55)

No	Family Support	Frequency of Respondents	%
1.	Bad	18	32.7
2.	Good	37	67.3
	Total	55	100

Based on Table 2, it was found that out of 55 respondents, the number of respondents who had poor family support was 18 respondents (32.7%), while those who had good family support were 37 respondents (67.3%).

Table 3 Frequency Distribution of Family Support in Type 2 Diabetes Mellitus Patients at Karunia Kasih Hospital in 2023 (n = 55)

No	Level of Compliance	Frequency of Respondents	%
1.	Low	19	34.5
2.	High	36	65.5
	Total	55	100

Based on Table 3, it was found that out of 55 respondents, the number of respondents with low medication adherence was 19 respondents (34.5%), while those with high medication adherence was 36 respondents (65.5%).

2. Bivariate Analysis

Table 4 The Relationship Between Family Support and Medication Adherence Level in Type 2 Diabetes Mellitus Patients at Karunia Kasih Hospital in 2023 (n = 55)

Level of Medication Adherence									
Family Support	Low		High		Total		QR	95% CI	P-Value
	n	%	n	%	n	%			
Bad	17	30.9	1	11.8	18	32.7		25.179	
Good	2	3.6	35	63.6	37	67.3	297.500	-	0.000
Total	19	34.5	36	65.5	55	100		3515.051	

From Table 4, it can be observed that the relationship between family support and the level of medication adherence in type 2 diabetes mellitus patients at Karunia Kasih Hospital yielded the following results:

- 1) Poor family support was associated with a low level of medication adherence in 18 respondents (32.7%), while low medication adherence was observed in 17 respondents (30.9%), and only 1 respondent (11.8%) exhibited a high level of medication adherence.

- 2) Good family support was associated with a high level of medication adherence in 37 respondents (67.3%), while low medication adherence was observed in 2 respondents (3.6%), and a high level of medication adherence was observed in 35 respondents (63.6%).
- 3) The Odd Ratio (OR) value obtained is 297.500 with a *lower limit* of 25.179 and an *upper limit* of 3515.051. This means that individuals with good family support have a 297 times higher chance of medication adherence compared to those with poor family support in type 2 diabetes patients.
- 4) The statistical test results yielded a p-value of 0.000, indicating a significant relationship between family support and medication adherence level in type 2 diabetes mellitus patients at Karunia Kasih Hospital.

Discussion

Based on the results of the bivariate analysis between family support and medication adherence level in type 2 diabetes mellitus patients, it was found that poor family support was associated with a low level of medication adherence in 18 respondents (32.7%), while low medication adherence was observed in 17 respondents (30.9%), and only 1 respondent (11.8%) exhibited a high level of medication adherence. Good family support was associated with a high level of medication adherence in 37 respondents (67.3%), while low medication adherence was observed in 2 respondents (3.6%), and a high level of medication adherence was observed in 35 respondents (63.6%).

From the results of the bivariate *Chi-Square* test to examine the relationship between family support and the level of medication adherence, it was obtained that the *p-value Asym. Sig. (2-sided)* = 0.000, which is $< \alpha = 0.05$ in the 2x2 table. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted. The conclusion is that there is a significant relationship between family support and medication adherence level in type 2 diabetes mellitus patients at Karunia Kasih Hospital.

The outcomes of this research are consistent with the theory where Yanto & Setyawati (2017) stated that good family support for type 2 diabetes mellitus patients, amounting to 72.9%, influences the treatment being carried out by patients. Notably, patients who are married have a higher level of family support compared to those who are not married, accounting for 97.6%. Family support can have a direct effect on improving medication adherence in type 2 diabetes mellitus patients (Tabasi et al., 2014). Patient adherence to their treatment often declines when family members are not involved and do not provide support throughout the treatment process, leading to a worsening condition characterized by an increase in blood sugar levels (Waluyo & S., 2015). Family support for patients can improve adherence to Diabetes Mellitus management and ensure regular blood glucose monitoring (Syahid, 2021).

A research conducted by Pazoki et al. (2020) with 160 respondents who were type 2 Diabetes Mellitus patients found a significant relationship between family support and patient adherence to treatment. The management of Diabetes Mellitus should be carried out throughout one's life, as patients often experience fatigue and non-compliance in the management of Diabetes Mellitus. Diabetes patients can have a high quality of life when they manage their diabetes well (*International Diabetes Federation, 2017*). Patient adherence to treatment is highly necessary to achieve treatment goals, prevent complications, and improve the quality of life (PERKENI, 2021).

The results of this research align with the research conducted by Herianto Karolus and Sri Wahyuni with the title: "The Relationship between Family Support and Medication Adherence in Patients with Diabetes Mellitus at RSUD I Sawah Besar Jakarta in 2020." Based on the research conducted at RSUD I Sawah Besar Jakarta in 2022 using the Chi-square test, it was found that there is a significant relationship between family support and medication adherence in diabetes mellitus patients, with a p-value of 0.004. The results of this research align with research conducted by Dayani

Hisni and Retno Widowati in 2014, which found a significant relationship between family support and medication adherence with a p-value of 0.005. Family support can enhance medication adherence in diabetes mellitus patients. In the absence of family support, patients may not comply with medication, leading to uncontrolled diabetes and faster onset of complications.

Based on the research conducted by Widi Aprianta, Hartiani Pansori, and Elsi Rahmadani in 2022, titled "The Relationship Between Family Support and Medication Adherence in Type 2 Diabetes Mellitus Patients at the Outpatient Clinic of Harapan Dani Doai Hospital in Bengkulu City," the results of univariate analysis showed that more than half of the respondents (54.3%) had good family support, and almost the same proportion (37.1%) had high medication adherence. The results of bivariate analysis indicated a significant relationship between family support and medication adherence in type 2 diabetes mellitus patients at Harapan Dani Doai Hospital in Bengkulu City in 2020, with a p-value of 0.000.

The research results, in line with the researchers at Karunia Kasih Hospital, Jl. Rayai Jatiwaringin No. 133, Pondok Gede, Bekasi, indicate that families of type 2 diabetes mellitus patients have provided good support, resulting in a higher level of medication adherence in these patients.

The researchers hope that this family support can continue and not be temporary, so that patients with type 2 diabetes mellitus remain motivated and motivated to maintain their health and adhere to their medication regimen every day.

Conclusion

Based on the research conducted at Karunia Kasih Hospital, Jl. Raya Jatiwaringin No. 133, Pondok Gede, Bekasi, the outcomes can be summarized as follows:

1. Based on Table 2, it was found that out of 55 respondents, the number of respondents with poor family support was 18 (32.7%), while those with good family support were 37 (67.3%).
2. Based on Table 3, it was found that out of 55 respondents, the number of respondents with low adherence to medication was 19 (34.5%), while those with high adherence to medication were 36 (65.5%).
3. The obtained Odds Ratio (OR) value is 297.500 with a *lower limit* of 25.179 and an *upper limit* of 3515.051. This means that having good family support increases the likelihood of medication adherence in patients with type 2 diabetes by 297 times compared to having poor family support. The statistical test results yielded a p-value of 0.000. Therefore, it can be concluded that there is a significant relationship between family support and the level of medication adherence in patients with type 2 diabetes at RS Karunia Kasih.

Suggestion

It is expected that healthcare professionals, especially nurses, can provide support to families by providing education about diabetes mellitus, emphasizing the importance of family support for medication adherence so that patients can continue to have regular check-ups and take their medications, thereby preventing severe complications.

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