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RESEARCH ARTICLE

Relationship between family support and compliance in diabetes mellitus patients

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Abstract

Background: Indonesia holds fourth place in the world with the highest number of patients with diabetes mellitus (DM), and the province of East Kalimantan is in third place with the city of Bontang. The existence of distance restrictions during the COVID-19 pandemic led to restrictions on the number of outpatients in health facilities, so family support had a prominent role in drug therapy adherence in DM patients. **Aim:** This study aims to determine the relationship between family support and adherence to antidiabetic drug therapy in DM patients. **Methods:** This observational cross-sectional research conducted from May to June 2021 at the Pupuk Kaltim Hospital, Bontang city, used a purposive sampling technique. It enrolled 104 DM outpatients who completed a validated questionnaire instrument to measure family support and drug therapy adherence. **Results:** Data analysis showed a significant relationship between family support and drug therapy adherence ($p=0.009$) and the emotional support dimension ($p=0.0001$), while the three other dimensions (informational support, instrumental support, and reward support) were not significant. **Conclusion:** Family support, especially emotional support, is associated with adherence to antidiabetic drug therapy in DM patients.

Introduction

Diabetes mellitus (DM) is a chronic disease that occurs when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin produced (American Diabetes Association, 2020). Indonesia is in the top five estimates of countries with the most diabetes sufferers in 2000 and 2030. A person is diagnosed with diabetes if the HbA1c value is more than 6.5%, GDP is more than 126mg/dL, GD2PP is more than 200mg/dL. Besides family history, risk factors for developing diabetes include overweight or obesity, ethnicity, comorbidities, physical inactivity, and lifestyle (Mamahit *et al.*, 2018). DM cannot be controlled if left unchecked and can cause other dangerous complications. DM management consists of non-pharmacological therapy (lifestyle changes and physical activity) and pharmacological therapy (oral antidiabetic drugs and insulin) (Kementerian Kesehatan RI, 2019; Mamahit *et al.*, 2018).

Treatment success is influenced by patient compliance with prescribed medications related to time, dose, and

frequency. Adherence is also paramount in therapy outcomes (Rasdianah *et al.*, 2016). Based on the theory developed by Lawrence Green (2005), behavioural causes are affected by three factors, i.e. predisposing, enabling, and reinforcing factors. Family support, which is part of the reinforcing factor, is a form of service behaviour carried out by the family (Liliyanti M L Sangian *et al.*, 2017). It consists of four dimensions: emotional support, informational support, instrumental support, and appreciation support (Liliyanti ML Sangian *et al.*, 2017; Sutini, 2018).

Methods

This research is observational with a cross-sectional design. This study was carried out at the Pupuk Kaltim Bontang Hospital between May and June 2021, with ethical clearance obtained before data collection. Data were obtained from answers to the questionnaires completed by DM outpatients treated at the Pupuk Kaltim Bontang Hospital.

Population, sample, sampling technique, and sample size

The population in this study consisted of DM outpatients treated with oral antidiabetic drugs/insulin at the Pupuk Kaltim Hospital Bontang Hospital who met the inclusion criteria. The sampling technique in this study was purposive, with a minimum of 96 respondents.

Inclusion and exclusion criteria

Inclusion criteria were DM outpatients taking oral antidiabetic drugs/insulin for at least one month at the Pupuk Kaltim Bontang Hospital, aged 17 years and above, living with a family (not alone), understanding Indonesian, willing to participate in the study. Exclusion criteria were patients who could not read.

Method of collecting data

Data were collected using the Adherence to Refills and Medication Scale (ARMS) validated by Suwardiman to measure the variables (Suwardiman, 2011).

Data processing

Descriptive analysis was carried out for demographic data, family support profiles, and compliance profiles. Furthermore, normality tests and correlation analyses using Spearman's test were performed. A value of $p < 0.05$ was considered significant.

Results

A total of 104 DM outpatients treated at the Pupuk Kaltim Bontang Hospital responded to this study. Table I shows the sociodemographic characteristics of participants.

Table I: Distribution of age, gender, length of suffering from Diabetes Mellitus

Demographics	Information	n (%)
Age (year)*	Adult (26 – 45)	11 (10,6)
	Seniors (46 – 65)	86 (82,7)
	Elderly (> 65)	7 (6,7)
Gender	Male	54 (51,9)
	Female	50 (48,1)
Long suffering from Diabetes Mellitus	1 – 5 year	33 (31,7)
	6 – 10 year	49 (47,1)
	> 10 year	22 (21,2)
Total		104 (100)

Family support profile rated as good was as follows: emotional support 98 (94.2%), informational support 96 (92.3%), instrumental support 98 (94.2%), and appreciation support 95 (91.3%). The results of overall family support obtained from 104 respondents were as follows: 89 (85.6%) had good family support, and 15 (14.4%) had sufficient family support. Most participants, 82 (78.8%), had good compliance, and 22 (21.2%) had sufficient compliance. None of them showed good adherence (Table II).

Table II: Relationship between family support and therapeutic adherence

Variable	r	p
Emotional support	0.445	0.0001
Informational support	0.164	0.097
Instrumental support	0.043	0.667
Achievement support	0.147	0.136
Family support	0.256	0.009

Discussion

Age is among the factors that affect the decline in all body systems, including the endocrine system, which causes insulin resistance, thereby increasing the risk of DM (Setiyorini & Wulandari, 2017). Men have a lot of fat accumulation around the abdomen, causing central obesity, which is at risk of causing metabolic disorders that can lead to diabetes (Setiyo Nugroho & Musdalifah, 2020). The longer the illness, the lower the compliance (Balqis, 2018).

Emotional support can be done by listening to the complaints felt by the patient, giving praise for what is done, and always being there when needed (Ihsan & Rahmadiyah, 2018). The results demonstrated a relationship between emotional support and adherence to antidiabetic therapy, in line with previous findings showing that family support, especially emotional support, can reduce diabetes distress, an emotional reaction related to the disease (Khasanah, 2018; Rahmi *et al.*, 2018).

Informational support is the assistance provided in the form of advice, input, direction, or information needed (Suwardiman, 2011). According to Friedman (1998), instrumental support is an economic and a healthcare function applied by the family to sick family members, while appreciation support is when the family acts as a feedback guidance system, guides, and becomes an intermediary in solving problems and a source of member identity validator. The results show no relationship between informational, instrumental, and appreciation support and compliance to antidiabetic therapy, in agreement with previous research that

could not demonstrate a significant relationship between those three variables and DM treatment adherence (Ulfah, 2011).

Conclusion

This study could demonstrate a significant relationship between emotional family support and adherence to drug therapy in DM outpatients at the Pupuk Kaltim Hospital, Bontang City.

Ethical consideration

Health Research Ethics Committee with Ethical Approval No. 16/LE/2021.

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