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Correlation of Self-empowerment and Family Support with the Quality of Life of Diabetes Mellitus Patients

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ABSTRACT

Background: Diabetes mellitus can cause dangerous complications and affect the sufferer's quality of life. **Objectives:** This research aims to study the relationship between self-empowerment and family support and the quality of life of diabetes mellitus sufferers in Tuban Regency. **Methods:** This research used a cross-sectional method. The research population was all diabetes mellitus sufferers who participated in the chronic disease program in Tuban Regency in July 2023, as many as 192 people. The sample for this research was 130 people selected using simple random sampling. Data collection used a questionnaire that has been tested. Data analysis used descriptive statistics and the Spearman test. **Results:** The characteristics of Diabetes Mellitus sufferers are 8 people aged less than 45 years, 103 women, 75 people with high self-empowerment, and 107 people with good family support. The quality of life of sufferers was in the good category for as many as 105 people and in the bad category for as many as 25 people. The relationship between self-empowerment and the quality of life of sufferers is 0.754 (p=0.000), and family support and the quality of life of sufferers is 0.950 (p=0.000). The results of the analysis show that high self-empowerment and good family support are closely related to the quality of life of diabetes mellitus sufferers. **Conclusion:** So, if there is a family member in the family who suffers from diabetes mellitus, it is hoped that the family will empower the sufferer to meet their needs, and it is important for the family to provide support so that the sufferer is confident.

Keywords: Diabetes Mellitus; Family Support; Quality of Life; Self-empowerment

INTRODUCTION

Diabetes mellitus can be serious and lead to various dangerous complications if left untreated. Various problems, such as stress to physical disability, often cause diabetes mellitus to affect a person's quality of life (Pramesti & Adiatmika, 2018). If the quality of life of people with Diabetes Mellitus (DM) is good, treatment and care will be easier to carry out, diabetes will be better controlled, and there will be fewer complications. Almost all people with diabetes mellitus have a bad quality of life, which makes it very difficult to lead everyday life due to the large number of physical and psychological problems (Yuliastuti *et al*., 2022).

The International Diabetes Federation in 2021 reported that 537 million adults, one in ten people worldwide, suffer from DM. In 2017, Indonesia ranked sixth in the world along with the United States, India, China, Brazil, Russia and Mexico. In Indonesia, there are 10.3 million cases of DM, and this will increase to 16.7 million in 2045. The percentage of deaths due to DM in Indonesia is the second highest after Sri Lanka. East Java Health Service 2020 recorded 875,745 cases of DM. Meanwhile, the Tuban District Health Service recorded diabetes sufferers in 2020 as many as 83.8% of the 15,709 visitors to the Community Health Centre. DM sufferers at the Semanding Community Health Centre in 2020 were 757 sufferers, the highest. Factors that influence the quality of life of DM sufferers are age, gender, level of education, knowledge, complications, length of suffering, stress, family support, self-empowerment, and self-care (Dankoly *et al*., 2023). The poor quality of life of DM sufferers is characterised by decreased physical health, psychological disorders, social dissatisfaction, and an unhealthy environment. DM sufferers need attention to improve their

quality of life, including psychological, social, and environmental support (Luthfa & Ardian, 2019).

Self-empowerment is an individual's ability to meet needs, solve problems, and control life (Dewi *et al.*, 2022). Self-empowerment is also defined as the skills and ability to participate in developing coping mechanisms to increase self-confidence, self-esteem, and personal skills. Thus, self-empowerment is the process of managing factors that influence one's health. Self-empowerment for diabetes mellitus sufferers aims to enable sufferers to independently manage the treatment of their disease. This allows diabetes mellitus sufferers to regain control over their lives and increase independence regarding the management of their disease treatment (Li *et al.*, 2020). Self-empowerment for diabetes mellitus sufferers is a process for managing their disease. So, the skills can be improved to treat the illness, have a positive attitude about what to do, and have the self-awareness to change the behaviour, ultimately improving overall quality of life (D'Souza *et al.*, 2015).

The family plays an important role in maintaining the health status of diabetes mellitus sufferers. The family is expected to provide support, always be with the sufferer, and solve problems so that the emotions of Diabetes Mellitus sufferers are always controlled. Family support can take the form of emotional support, instrumental support, and informational support. Family emotional support by providing motivation at all times, listening to complaints, and respecting sufferers. Instrumental family support by accompanying or supporting the sufferer during treatment and paying for treatment. Family informational support by reminding sufferers to take regular medication, regulate their diet, and carry out routine control. Thirdly, family support is very meaningful in improving the quality of life of diabetes mellitus sufferers. This research aims to determine the relationship between self-empowerment and family support and the quality of life of Diabetes Mellitus sufferers.

METHODOLOGY

This research employed a cross-sectional study design.

Study Population

The study population consisted of 192 individuals participating in the Diabetes Mellitus (DM) chronic disease programme at the Semanding Health Centre, Tuban Regency, in July 2023.

Sampling Method and Sample Size

The sampling method used was simple random sampling. The sample size was calculated with a confidence level of 95%, an estimated population proportion of diabetes sufferers at 30%, and a precision level of 5%, resulting in a minimum required sample of 121 participants.

Study Variables

Independent Variables:

Self-empowerment
Family support

Dependent Variable:

Quality of life of Diabetes Mellitus sufferers

Instruments

Data were collected using the following validated and reliable instruments:

Self-Empowerment Questionnaire:

Validity ranged from 0.412 to 0.846, reliability ranged from 0.695 to 0.891 (Hara *et al.*, 2014).

Family Support Questionnaire:

Validity of 0.87 and reliability of 0.94 (Naderimagham *et al.*, 2012).

Quality of Life Questionnaire for Diabetes Mellitus:

Validity of 0.81 and reliability of 0.91 (Burroughs *et al*., 2004).

Data Collection

Data collection was conducted from August to September 2023.

Data Analysis

Spearman correlation analysis was utilized to examine relationships between variables. With minimum of 0.7, Spearman's correlation results classify the relationship between family support and self-empowerment with quality of life as strong to very strong (ABS, 2024; Ibrahim & Koch, 2015; Ratner, 2009).

Ethical Consideration

This study received ethical approval from the Board of Health Research Ethics of the Institute of Health Sciences, Nahdlatul Ulama Tuban, Indonesia with reference number 0243/LEPK.IIKNU/VIII/2023 on 25th August 2023.

RESULTS

The univariate analysis is presented in Table 1, cross-tabulation among variables is presented in Table 2, while the correlation analysis among variables is presented in Table 3.

Table 1: Univariate Analysis of Quality of Life with Characteristics of Diabetes Mellitus Sufferers (n=130)

Variables	Categories	N (%)	Mean ± SD	t^* value	p
Age (years old)		130 (100,00%)	52.44 ± 5.66	0.757	0.758
Gender	Male	27 (20.76%)	1.74 ± 0.45	0.988	0.085
	Female	103 (79.24%)	1.83 ± 0.38		
Education level	Middle school or less	83 (63.85%)	1.79±0.41	1.184	0.239
	High school	33 (25.38%)	1.79±0.42		
	University	14 (10.77%)	1.93±0.27		
Family support	Good	107 (82.31%)	1.98±0.14	1.793	0.183
	Bad	23 (17.69%)	1.00±0.00		
Self-empowerment	High	75 (57.69%)	2.00±0.00	18.365	0.000
	Moderate	28 (21.54%)	2.00±0.00		
	Low	27 (20.77%)	1.07±0.27		

*Using independent sample t-test

According to WHO, DM is categorised as a non-communicable disease and can occur at a young age (18 years) (WHO, 2022). In line with WHO, DM sufferers are aged under 45 years. This condition illustrates that diabetes mellitus needs to be known about by all individuals. The highest prevalence of DM sufferers occurred in the female group (Table 1). Characteristics of Diabetes Mellitus sufferers are age, gender, education level, and family support, illustrating that there are no differences between categories in variables that describe the equality of respondents.

Table 2: Cross-Tabulation among Variables (n=130)

Variable	Quality of Life	
	Good: f (%)	Poor: f (%)
Family Support		
Good	105 (80.77%)	2 (1.54%)
Weak	0 (0.00%)	23 (17.69%)
Self-empowerment		
High	75 (57.69%)	0 (0.00%)
Moderate	28 (21.54%)	0 (0.00%)
Low	2 (1.54%)	25 (19.23%)

The quality of life of DM sufferers was mostly (80.77%) categorised as good (Table 2).

Table 3: Spearman Correlation among Variables (n=130)

Variable	Family Support	Self - empowerments	Quality of Life
Family support	1		
Self-empowerments	0.716*	1	
Quality of life	0.930*	0.754*	1

Using bivariate correlation analysis * p < 0.01

Variables of family support and self-empowerment are related to quality of life (Table 3). The strong relationship between variable family support and quality of life illustrates the importance of family support in maintaining the quality of life of a DM sufferer. The results of Spearman's correlation obtained a minimum of 0.7, which means the relationship between family support and self-empowerment with quality of life is categorised as strong to very strong.

DISCUSSION

Family Support for Diabetes Mellitus Sufferers

Table 3 illustrates that family support has a very strong correlation ($r = 0.930$). Research in Thailand shows that family support is a strong predictor that can relieve patient discomfort, reduce anxiety levels, and enable self-care (Tamornpark *et al.*, 2022). It is hoped that family support can have an impact on the mental and physical well-being of Diabetes Mellitus sufferers. Family support is an attitude of family members providing care to Diabetes Mellitus sufferers. Family support can take the form of instrumental, emotional, and informational support. Because family support is thought to be able to support a person's mental health or psychosocial problems (Yuliastuti *et al.*, 2022). Diabetes Mellitus sufferers who are in a supportive social environment usually have a better condition than those who are not. Families of Diabetes Mellitus sufferers play an important role in controlling blood sugar levels, preventing complications, and improving the patient's quality of life (Sarpooshi *et al.*, 2021).

Diabetes Mellitus is a chronic disease and requires constant attention, so sufferers need intensive care (Zanzibar & Akbar, 2023). The sex risk factors for DM sufferers are explained: male DM sufferers tend to occur at a young age, while the risk factors that occur in female DM sufferers are due to obesity (Kautzky-Willer, Leutner & Harreiter, 2023). The family plays an important role in providing comfortable and emotional support and appreciation, for example, by always accompanying the sufferer when facing problems, providing motivation to feel comfortable, and reducing stress. DM sufferers who are in good physical condition need to receive instrumental and informational support, including meeting daily needs, fulfilling food according to their diet, and reminding them to take medication. Family support in meeting needs and treatment carried out routinely and continuously can improve the patient's condition (Zafirah *et al.*, 2022).

Family support for DM sufferers who are undergoing lifelong treatment is measured by the Hensarling Diabetes Family Support Scale (HDFSS); the family must provide emotional, appreciative, informational and instrumental support as well as routine supervision and treatment at health service facilities (Andriani *et al.*, 2022). Research in Gianyar Regency, Bali, in 2021, showed that family support is more important than routine medical management (Trisnadewi & Suniyadewi, 2022). Also, research in Sleman, Yogyakarta, showed that family support and emotional pressure for sufferers were related to self-care by DM sufferers (Primadani *et al.*, 2023). Family support, including emotional, respectful, informational, and instrumental support, is very much needed for DM sufferers so that sufferers' self-empowerment increases. Family support is needed as long as DM sufferers undergo treatment. This is because family support can increase and maintain sufferers' self-empowerment in self-awareness, treatment and self-care so that the quality of life of DM sufferers increases.

Self-empowerment of Diabetes Mellitus Sufferers

Table 2 illustrates that the self-empowerment of DM sufferers is weak, categorised as much as 20.77%, and has a strong relationship of 0.754 with quality of life (Table 3). The results of this study are similar to research in Pidie Jaya that self-care management is related to the quality of life of Diabetes Mellitus sufferers (Hijriana, Yusnita & Wati, 2023). Diabetes mellitus sufferers who have self-empowerment in the high category

have received health education directly from health workers (doctors or nurses). The health education received includes instructions on meal planning, reasons for taking medication, and exercise habits so that sufferers can empower themselves. Self-empowerment aims to make a Diabetes Mellitus sufferer independent (Pramesti & Adiatmika, 2018), namely, to increase awareness of physical activity, have a healthy diet, maintain mental health, and improve well-being. The aim of empowerment is referred to as an empowerment model to build self-confidence, increase personal abilities, increase knowledge and skills, and build a better body defence system (Budiman & Said Mardijanto, 2020). Research in Iran also illustrates that self-empowerment using workshop and package intervention methods is related to and can improve the quality of life of DM sufferers (Nabi-Amjad *et al.*, 2016).

The way to increase the capacity of diabetes mellitus sufferers is to equip sufferers through long-term training on knowledge, skills, and treatment of Diabetes Mellitus (Kurniyawan *et al.*, 2023). Self-empowerment for Diabetes Mellitus sufferers can help sufferers reduce stress, be able to make good decisions for themselves, be able to motivate themselves and implement eating plans (Li *et al.*, 2023; Luthfa & Ardian, 2019). To achieve self-empowerment, Diabetes Mellitus sufferers must have intention and commitment, overcome existing obstacles, and increase independence. However, Diabetes Mellitus sufferers who are not ready to empower themselves can be caused by a lifestyle of consuming foods that contain high cholesterol and being very busy, so they don't have time to exercise. So, it can cause stress, difficulty in changing, and not committing to one's health (Aquino *et al.*, 2018).

Self-empowerment means that individuals think, act, and control their choices using cognitive, conative, psychomotor, and affective abilities (Nuari & Kartikasari, 2015). Self-empowerment is influenced by several aspects, such as recognition, self-awareness, responsibility, realising the past, letting go of future worries, trust, cultivating mindsets, sharing, and living in harmony with truth and forgiveness (Lin *et al.*, 2020). Diabetes Mellitus sufferers who have a high category of self-empowerment admit that they are sick and realise that their disease cannot be cured. So that sufferers make efforts, are responsible, and act according to their abilities, awareness, and desire to deal with the disease. However, in contrast to diabetes sufferers with moderate and low self-empowerment, they stated that they had prolonged stress. Empowerment of oneself and the family of Type 2 DM sufferers is very necessary. Empowerment efforts are carried out by increasing knowledge, providing skills training, and increasing family support during treatment. Indicators of the success of empowerment efforts are increased self-efficacy, self-concept, self-care abilities, and increased self-control for individuals suffering from Type 2 DM (Setyoadi *et al.*, 2023).

Self-empowerment, as increasing the role of DM sufferers to maintain and improve the quality of life of DM sufferers, requires various efforts. Self-empowerment efforts for families and sufferers are carried out by increasing knowledge about symptoms, treatment, and prevention of complications; training on how to choose the right food for sufferers; how to reduce stress so as not to make an illness worse; and increasing physical activity according to body condition. If these empowerment efforts are carried out by sufferers and their families, they will be able to maintain and improve the quality of life of DM sufferers.

Relationship between family support and self-empowerment with quality-of-life Diabetes Mellitus sufferers

The quality of life of 105 (80.77%) Diabetes Mellitus sufferers is in a good category, and the Spearman correlation value between the quality of life and family support is 0.930 and with self-empowerment is 0.754 (Table 3). Research in South Korea has many factors that influence the quality of life of Diabetes Mellitus sufferers (Choi & Chang, 2023). The difference in research results in Tuban is possible because the family support obtained by Diabetes Mellitus sufferers is better than research in other places. The family support includes emotional, instrumental, and informational support. Research in Cirebon illustrates that the relationship between family support and self-empowerment has a low correlation value, namely only 0.213 (Nurhayani & Suprihatin, 2021).

The emotional support provided by the family is always accompanying the sufferer when they find it difficult to decide and provide solutions. Also, sufferers may feel more comfortable if they receive appreciative

support, including encouragement and listening to their concerns (Safitri & Syafiq, 2022). Family instrumental support aims to control blood sugar. Family informational support can take the form of increasing knowledge, providing complete information about the disease, and how to prevent complications. Such family support has a big impact on Diabetes Mellitus sufferers. In general, patients with strong family support live longer than patients with weak family support (Nuari, 2018).

Self-empowerment for Diabetes Mellitus sufferers aims to ensure blood sugar levels are in the normal range, energy intake meets the body's needs and prevents complications (Hope *et al*., 2018). Self-empowerment efforts include planning meals, taking medication regularly, managing stress, and getting used to activities. Regular physical activity is done for 30 minutes three to four times a week. Self-empowerment efforts can increase self-efficacy and quality of life. Apart from family support, peer support for Diabetes Mellitus sufferers is very important to increase a sense of togetherness and share life experiences (Dewi *et al*., 2022). The quality of life of Diabetes Mellitus sufferers can be improved by establishing good relationships between sufferers so that they feel not alone, relationships with other people (neighbours) and relatives, openness in expressing problems, and carrying out religious and social activities (Kalirai *et al*., 2018).

Family support, self-empowerment, and the quality of life of DM sufferers are interconnected. Family support and patient self-empowerment can be increased through nursing interventions that are appropriate to the nurse's role. The role of nurses in increasing family support and self-empowerment for sufferers is that of educators and motivators. Interventions carried out by nurses often result in increased knowledge, psychology, self-management behaviour and physiology of DM sufferers (Dailah, 2024).

The Nurse's Role in Improving the Quality of Life of Diabetes Mellitus Sufferers

Nurses play an important role in improving the quality of life of DM sufferers. DM sufferers in Indonesia have peers who are members of the PROLANIS (Chronic Disease Management Program) located at the Public Health Centre. The PROLANIS role was to monitor the blood sugar, blood fat profile, BMI (Body Mass Index), and blood pressure of DM sufferers (Fadlilah, Nugroho & Bistara, 2024). The nurse's role at the Public Health Centre is training in gymnastics to prevent complications of DM (Setyawati *et al*., 2024) as well as PROLANIS activities.

Community nurses play a very important role in improving the quality of life of DM sufferers through prevention efforts and managing DM sufferers (O'Flynn, 2022). Even nursing education in Italy prepares family and community nurses (FCN) to act as educators, coordinators, and facilitators for DM sufferers in schools (Brentari *et al*., 2023). The role of these nurses is no different from the nurse's role in Indonesia as determined by the Ministry of Health of the Republic of Indonesia in 2017. Nurse role in Indonesia is that of a clinical nurse, manager, educator, and researcher (Gunawan & Juanamasta, 2022). Based on the discussion above, the role of community nurses for DM sufferers is as educators so that DM sufferers' health conditions are monitored, and complications are prevented.

Limitation

The limitation of this study is that it particularly specifically on individuals with diabetes mellitus who were actively engaged in chronic disease management under supervision from the Community Health Centre, providing valuable insights relevant to similar healthcare contexts.

CONCLUSION

Family support includes emotional, instrumental, and informational support related to the quality of life of people with Diabetes Mellitus, and self-empowerment can improve the ability of people with diabetes to control themselves. The quality of life of people with DM can be improved by controlling blood sugar, preparing food intake according to body needs, regular physical activity, and peer involvement. Community Nurses have a role as educators to families on how to provide support to patients and to people with Diabetes Mellitus on how to improve their quality of life. The role of nurses as educators needs to be improved through training activities.

Future research can broaden the scope of this study by incorporating larger, more diverse populations from varying socioeconomic and cultural backgrounds to enhance the generalizability of findings. Longitudinal studies could provide deeper insights into how self-empowerment strategies and family support evolve over time and their sustained impact on the quality of life among diabetes mellitus sufferers. Additionally, exploring other psychosocial factors and their interactions with self-empowerment and family support can enrich the understanding and help develop holistic intervention models. Future studies may also examine technological interventions, such as digital self-management tools and online support systems, to determine their effectiveness in enhancing self-empowerment and quality of life.

Conflict of Interest

The authors declare that they have no competing interests.

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