

The relationship between family support, subjective well-being and dietary adherence in diabetes mellitus patients

La relación entre el apoyo familiar, bienestar subjetivo y adherencia dietética en pacientes con diabetes mellitus

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SUMMARY

Objective: The research aims to explain the correlation between family support and subjective well-being with dietary adherence in diabetes mellitus (DM) patients.

Methods: This research used a cross-sectional design. This research applied proportional simple random sampling with 110 respondents in Krembung Health Center. Data was collected using the Hensarling Diabetes Family Support Scale (HDFSS), subjective well-being questionnaires, and Self-Management Dietary Behaviors Questionnaire (SMDBQ). Data analysis used Spearman's rho relation test with a significance level of $\alpha \leq 0.05$. **Results:** This research involved 79 female respondents with an age range of 46-55 years (98 persons), married status of 89 persons, and had suffered from DM for 1-2 years

of 63 people. There was a significant correlation between family support ($p=0.0001$; $r=+0.787$) and subjective well-being ($p=0.0001$; $r=+0.823$) with DM dietary adherence. Subjective well-being has a stronger relationship than family support with dietary adherence in DM patients. **Conclusion:** The higher the family support and subjective well-being, the higher the DM's dietary adherence. The research underscores the need for health centers to provide educational media and information for DM patients. This can increase their value of family support and subjective well-being, helping DM sufferers develop routines for setting the right meal schedule to maintain stable blood glucose levels.

Keywords: Diabetes, diet, family support, well-being, healthcare.

RESUMEN

Objetivo: Este estudio tiene como objetivo explicar la relación entre el apoyo familiar y el bienestar subjetivo

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con la adherencia dietética en pacientes con diabetes mellitus (DM). **Métodos:** Esta investigación utilizó un diseño transversal. Se utilizó un muestreo aleatorio simple proporcional con 110 encuestados en el área de trabajo del Centro de Salud Krembung. La recopilación de datos se realizó mediante la Escala de apoyo familiar para la diabetes de Hensarling (HDFSS), cuestionarios de bienestar subjetivo y el Cuestionario de conductas dietéticas de autogestión (SMDBQ). El análisis de datos utilizó la prueba de correlación rho de Spearman con un nivel de significancia de $\alpha \leq 0,05$. **Resultados:** Este estudio involucró a 79 encuestadas de sexo femenino, con 98 personas en un rango de edad de 46 a 55 años, estado civil casados de 89 personas y que habían sufrido DM durante 1 a 2 años de 63 personas. Existe una relación significativa entre el apoyo familiar ($p=0,0001$; $r=+0,787$), el bienestar subjetivo ($p=0,0001$; $r=+0,823$) con la adherencia alimentaria en pacientes con DM. El bienestar subjetivo tiene una relación más fuerte que el apoyo familiar con la adherencia alimentaria en pacientes con DM. **Conclusión:** Cuanto mayor sea el apoyo familiar y el bienestar subjetivo, mayor será la adherencia alimentaria en pacientes con DM. Los centros de salud deberían poder proporcionar medios educativos e información a los pacientes con DM para aumentar el valor del apoyo familiar y el bienestar subjetivo, de modo que los pacientes con DM puedan desarrollar rutinas para establecer el horario de comidas adecuado para mantener niveles estables de glucosa en sangre.

Palabras clave: Diabetes, adherencia alimentaria diabética, apoyo familiar, bienestar subjetivo.

INTRODUCTION

The main treatment of diabetes mellitus (DM) is to change a person's lifestyle, especially by maintaining a healthy and balanced diet (1). Dietary adherence in DM is one of the most important components to its successful control, but it often has difficulty due to the low psychological condition of the patient and support from others (2). Physical and emotional health can be compromised when a person is diagnosed with DM (3). A person with DM will experience functional changes and psychological problems, such as stress and depression, that have an impact on a person's subjective well-being (4). A positive view of a person with DM towards themselves is an indication of the high subjective well-being (5).

Diabetes is certain to be one of the most challenging health problems in the 21st century because of its complications; heart disease is taking a huge toll on people with diabetes, and most people living with diabetes do not realize it (1). The latest data according to the 10th edition of the International Diabetes Federation (IDF), indicate that 537 million people around 20 - 79 age years old in 2021 have diabetes mellitus. IDF also reported that Indonesia is among the top 10 countries with the highest number of DM sufferers, with about 19.5 million people (1). The East Java Health Office recorded 75 909 DM sufferers throughout 2021 in Sidoarjo Regency with a total of 2 526 sufferers and increased in January-November 2022 with a total of 2 552 sufferers, reaching 152 people in March 2023 from the Krembung Health Center area (6,7).

DM patients' health issues encompass both physical and psychological aspects, as long-term treatment is challenging to manage successfully (2). Long-term treatment bores, tense, and even stresses patients (8). Implementing a diet is one of the keys to effective diabetes management, but it requires patient compliance and commitment (9). Family and society also play an important role in improving a person's well-being by supporting the implementation of dietary compliance and a person's quality of life (10).

A person diagnosed with DM will assess their life situation differently. This assessment is influenced by the characteristics of the psychological health of DM patients to describe subjective well-being in a person (5). Subjective well-being is considered a subjective valuation of a person's entire life, which includes an affective valuation of the existence of feelings and cognitive in the form of happiness and satisfaction in life (11). Family support improves overall psychological well-being and increases DM patients' compliance with the diabetic diet (12,13). Luthfa (14) revealed that family support has a big impact on improving the quality of life for the patients. Health workers recommend and encourage families to improve psychological health so that dietary compliance and quality of life of DM sufferers increase (14). Thus, this research aimed to explain the correlation between

family support, subjective well-being, and dietary adherence in DM patients.

METHODS

Study Design

This study applied a descriptive correlation with a cross-sectional approach.

Sample and Settings

This study used all DM patients in Krembung Health Center, Sidoarjo, East Java. Sampling was carried out using the proportional random sampling technique, which was carried out by taking subjects from each region in a balanced manner with the entire population in each region. Samples were taken randomly according to the inclusion criteria: 1) duration of diabetes mellitus > 1 year; 2) diabetes mellitus patients in productive age (35-55 years); 3) diabetes mellitus patients living with family. Exclusion criteria include: 1) DM patients who experience other diseases or complications of DM, such as diabetic ulcers, gangrene, cataracts, and coronary heart disease; 2) DM patients who cannot communicate well. The sample consisted of 110 respondents, 24 from Krembung Village, 20 from Rejeni Village, 18 from Tambak Rejo Village, 14 from Mojoruntut Village, 12 from Jenggot Village, 11 from Wangkal Village, seven from Ploso Village, four from Kandangan Village. Independent variable data include family support and subjective well-being, while dependent variable data are obtained from filling out a questionnaire on dietary compliance. The data collection process was conducted on March 20-April 2, 2023, in the Krembung Health Center work area.

Instruments

The family support research instrument was obtained from a study conducted by Putri (15) based on the Hensarling Diabetes Family Support Scale (HDFSS) by Hensarling (2009), which has been tested for validity and reliability, the results being that validity=0.4821 and reliability=0.940. The questionnaire consists of 25 questions and four domains, namely informational, emotional,

appreciation, and instrumental support, with two types of questions: favorable and unfavorable. The questionnaire uses a Likert scale consisting of 4 criteria, starting from the choices of never, rarely, often, and always (15).

The subjective well-being questionnaire was adopted from Maulida (16) based on the research of Husna (17) which explains that there are four domains in the subjective well-being of diabetic patients: positive affect, negative affect, life satisfaction, and satisfaction in the domain itself. The questionnaire consists of 24 questions and has passed the validity and reliability test. The validity test result was 0.514, and the reliability test was 0.938. The scoring category uses a Likert scale consisting of very inappropriate, inappropriate, appropriate, and very appropriate, with favorable and unfavorable questions.

The instrument for measuring diabetes diet compliance is the Self-Management Dietary Behaviors Questionnaire (SMDBQ) by Nazir (18) and adopted from Sundari (19), has been tested for validity and reliability with the results: validity = 0.4821 and reliability = 0.968. The questionnaire consists of 16 questions and four domains, namely recognizing calorie needs, choosing healthy foods, making meal schedules, and managing dietary behavior challenges, with two types of questions: favorable and unfavorable. The questionnaire uses a Likert scale of 4 criteria, starting from the choices of never, rarely, often, and always.

Data Analysis

Data were analyzed by univariate test for descriptive data, and to compare the observed and expected results, Spearman's rho correlation test was used, with a significance level of $\alpha \leq 0.05$.

Ethical Considerations

The Ethics Commission of the Faculty of Dentistry, Airlangga University, Surabaya, approved this research with the number 271/HRECC.FODM/III/2023. This research upholds ethical principles ranging from autonomy to fidelity and other principles of human ethics.

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RESULTS

Table 1
Distribution of demographic characteristics of respondents

Characteristics	Category	f	%
Age	Late adulthood (35-45 years)	12	10.9
	Early elderly (46-55 years)	98	89.1
Gender	Man	31	28.2
	Woman	79	71.8
Marital status	Married	89	80.9
	Widow	14	12.7
	Widower	7	6.4
Education	Not yet graduated from elementary school	9	8.2
	Elementary school/equivalent	28	25.5
	Junior high school/equivalent	29	26.4
	High school/equivalent	43	39.1
Profession	Bachelor's degree	1	0.9
	Housewife	43	39.1
	Farmer	21	19.1
	Laborer	22	20.0
	Self-employed	18	16.4
	Civil servant	1	0.9
Long time suffering of DM	Retired	5	4.5
	1-2 years	63	57.3
	3-4 years	32	29.1
	5-6 years	15	13.6

Table 1 shows that the majority of the subjects were female: 79 people (71.8 %) with an age range of 46-55 years, 98 people (89.1 %), 89

people (80.9 %) with married status, and 63 people (57.3 %) who had suffered from DM for 1-2 years.

Table 2
The relationship of family support with dietary adherence in diabetes mellitus patients

Family support	Dietary adherence in diabetes mellitus patients				Total	
	Low		High		f	%
	f	%	f	%		
Low	30	27.3	1	0.9	31	28.2
High	10	9.1	69	62.7	79	71.8
Total	40	36.4	70	63.6	110	100.0

Spearman's rho $p = 0.0001$
Correlation value = +0.787

Table 2 indicated that the highest number of respondents with high family support are those who comply with a high DM diet, namely 69

people (62.7 %), while respondents with low family support comply with a high DM diet of 1 person (0.9 %).

Table 3

The relationship of subjective well-being with dietary adherence in diabetes mellitus patients

Subjective well-being	Dietary adherence in diabetes mellitus patients				Total	
	Low		High		f	%
	f	%	f	%		
Low	33	30.0	2	1.8	35	31.8
High	7	6.4	68	61.8	75	68.2
Total	40	36.4	70	63.6	110	100.0

Spearman's rho $p = 0.0001$

Correlation value = +0.823

Table 3 shows that the highest number of respondents who have high subjective well-being have high DM diet compliance, 68 people (61.8 %), while respondents who have low subjective well-being have high DM diet compliance, two people (1.8 %).

DISCUSSION

Diabetes diet compliance is defined as an effort to regulate food intake to suppress excessively high blood sugar levels (20). The present results indicate that most respondents have high family support and high values in implementing DM diet compliance. This is in accordance with Luthfa and Ardian (21), who stated that family is crucial for patients' success on the type 2 DM diet. Kencana et al. (22) also state that good family support will affect diet compliance in type 2 DM patients. Researchers argue that families can provide sufferers time, attention, and comfort so that they will encourage them to remain compliant in carrying out their diet. Sufferers must pay attention to the amount, type, and arrangement of diet patterns to control blood glucose levels (23).

This study demonstrated support from the family with good dietary compliance, but some respondents still needed to comply with the DM diet. The researchers argue that this is because the respondents have suffered DM for > 5 years, and it can affect a person's behavior when dieting. They believe they can do whatever they want and respondents feel bored and restricted because their families support their normal diet. In addition, respondents lost interest in maintaining

their health and became lazy to follow the diet recommended by health workers. According to Yulia (24), the longer you have diabetes, the more likely you are to eat unhealthy foods, ignore diet plans, and become bored. This is also aligned with Gupta et al. (25) who defined family and partner support as helping increase compliance with lifestyle interventions and pharmacotherapy needed to achieve optimal glycemic control and avoid complications related to the duration of suffering from DM. Fachrudin et al. (26) explain that the duration of suffering from diabetes affects the patient's quality of life. Meanwhile, Adhanty et al. (27), showed no meaningful distinction between the duration of DM and diet compliance, which is the opposite of this study.

This research indicates that most respondents have high subjective well-being and high values in implementing DM diet compliance. This is in accordance with Sari (28), who states that subjective well-being is very important for the success of type 2 DM complication-prevention behavior (28). The subjective well-being that must be improved is understanding the meaning and purpose of life as a motivation to remain compliant in following a diet and preventing complications (28,29). A positive view of DM sufferers towards themselves indicates high subjective well-being (5). This is supported by Holo and Suhita (30), who stated that the ability of gratitude therapy affects emotions, changes all negative thoughts to positive ones, and high blood sugar levels. This finding is also in line with Prabowo and Laksmiwati (31), who showed a high relationship between gratitude and happiness; namely, gratitude positively correlates with happiness and vice versa.

In this study, individuals who have low subjective well-being but can still comply with the DM diet well have a married status. If someone is happy with their life situation, the individual is considered to have a high level of subjective well-being (32,33). Living with a family who provides support for DM management has a positive impact on glycemic control related to patient medication. Medication adherence is reported to be higher, especially in married individuals (32). According to Benjamin et al. (34), married people and those who live in pairs have high levels of subjective well-being. Researchers argue that those who are married have social, moral, and economic support to help each other when experiencing difficulties. In addition, those who are married have a better level of social integration in the form of acceptance of their social environment compared to those who are single, which has an impact on subjective well-being (35,36).

Psychological disorders that affect subjective well-being include anxiety, anger, sadness, shame, guilt, confusion, depression, hopelessness, boredom, and non-compliance due to diet and physical activity, reduced activity, and inability to accept oneself (37,38). DM sufferers who experience anxiety or sadness will act less actively to avoid complications because it will increase blood norepinephrine levels through the sympathetic nervous system so that a person feels alert, unable to concentrate on problems, and causes increased stress (39). Research by Miles et al. (5) revealed that different gene sets can affect women's and men's happiness, impacting subjective well-being. A study by Batz and Tay (40) it was also stated that several gender equality indicators and women's status are associated with higher life satisfaction.

Another finding of this study was high subjective well-being with high diet compliance, but there were still respondents who did not comply with the DM diet. The researchers argued that the respondents had suffered from DM for more than five years so they were bored with the daily routine. Respondents were also reluctant to eat because they were afraid of complications that would cause them to feel hopeless and withdraw from their environment. This is in accordance with Tristianiana (2), who explained that psychological needs are very important because

the long-term treatment that DM sufferers must undergo is complex to manage successfully. The length of time a person suffers from illness can interfere with their ability to deal with the problems they face, which will ultimately affect their health condition (41). The psychological impacts of DM include feelings of helplessness, irritation, feelings of uselessness, and high anxiety to depression (42). According to Irawandi (43), a person's anxiety level will increase over time as diabetes progresses.

The researchers were aware of this research's limitations. The cross-sectional research design was used because of the location and the limitation of personnel, so our proposition for the following research can be expanded on the reason for the correlation of circumstances in this case with a cohort design. Therefore, there was the possibility that the respondents may have shifted their health behavior. Other benchmarks have not been broadly included in the objective assessment.

CONCLUSION

Family support and subjective well-being have a one-way relationship with dietary compliance in DM patients. Respondents' high value of family support and subjective well-being is followed by an increase in the value of diabetes diet compliance. The Health Center must be able to provide educational media and information for DM patients to increase the value of family support and subjective well-being so that DM patients can develop a proper meal schedule routine to maintain stable blood glucose levels.

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Conflict of interest

There is no conflict of interest.

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