

Original Research

The Relationship of Self-Efficacy with Diet Compliance in Type 2 Diabetes Mellitus Patients in Puskesmas Gumawang, OKU Timur Regency

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ABSTRACT

Dietary compliance in diabetes patients is vital to developing good outcomes for better health. One of the biggest problems in managing diet for patients is feeling bored and pressured with the menu that has been provided. The impact is that they show unwillingness and inability to follow a diet program. Adherence to this diet emphasizes the role and self-efficacy that requires awareness and intention from people who manage diabetes mellitus. This study aimed to determine the relationship between self-efficacy and dietary compliance in patients with Diabetes Mellitus type 2 at the Gumawang Primary Health Center, East OKU district. This study used a cross-sectional approach with 53 respondents. The sampling technique used is purposive sampling. Data collection using research instruments in two questionnaires, namely the Diabetes Management Self Efficacy Scale (DMSES) and Dietary Compliance by Haryono modified by Permatasari (2014). The results of the univariate analysis showed that self-efficacy was in the reasonably good category and diet compliance was in the good category. Based on bivariate analysis, it is known that the p-value is $0.000 < 0.005$ with a correlation coefficient of 0.773, which means that there is a solid significant correlation between the self-efficacy variable and dietary compliance. It is recommended to create a program to improve patient self-efficacy, one of which is to create a Self-Help Group program for patients with Diabetes Mellitus.

Introduction

Diabetes Mellitus (DM) is a significant problem in Indonesia, with the fourth rank of national research priorities for degenerative diseases (Adaikalakoteswari *et al.*, 2012). DM is a chronic disease because the pancreas cannot produce enough insulin for the body and cannot effectively use the insulin it produces (World Health Organization, 2016). The International Diabetes Federation (IDF) estimates that at least 463 million people aged 20-79 years worldwide suffering from DM in 2019, equivalent to 9.3% of the total population at the same age. Indonesia is ranked seventh among ten countries with the highest number of DM patients and is the only country in Southeast Asia included in the list. Riskesdas (2018) stated that Indonesia has a population prevalence diagnosed with DM at approximately 15 years which tends to increase from 5.7% in 2007 to 6.9% in 2013 and increased to 8.5% in 2018 (Indonesian Ministry of Health, 2018).

Diabetes Mellitus requires serious treatment by planning diabetes mellitus control behavior (Haskas, 2017). DM's self-care management components include blood glucose self-monitoring, a low-fat diet, daily exercise, and checking one's foot. This process is essential to improve glycemic control and prevent serious complications such as foot ulcers, glaucoma, and mortality. Most patients feel that this self-management practice is complex and demanding; therefore, the majority of the patients find it challenging to integrate it into daily life and increase non-adherence behavior in self-management.

Diet management is the most self-management component neglected by the patient. Compliance with carbohydrate consumption, especially by the recommended type, amount, and consumption schedule, is the most often neglected by patients (Kartika, Wiyatuti & Rekawati, 2021). The highest risk factor for DM in Indonesia is due to an unbalanced diet, namely, people who still often consume sweet foods or drinks (53.1%), fatty (40.7%), and salty (26.2%) more than once per day (Riskesdas, 2018). Dietary adherence is essential to developing routines or habits that help patients achieve a better degree of health.

Patient adherence to the diet program emphasizes the role and self-efficacy that requires awareness and intention from patients to manage DM disease. Self-efficacy is each individual's belief in his ability to organize and perform specific tasks needed to get the desired results. Self-efficacy convinces oneself to think, feel, behave, and motivate to achieve the expected goals. It is measured by the likelihood of suffering from being tempted back into unhealthy or problematic behaviors in high-risk situations. (Rustika, 2016).

Every DM patient needs self-efficacy to motivate the patient to obtain a good degree of health by arranging a balanced diet under the diet being followed. Research by Rizqah and Basri (2018) on type II DM patients at the Mandani Health Center, Maros Regency, stated that there was a relationship between self-efficacy and dietary compliance in type II DM patients. The results of a study by Junaidin (2020) of 76 respondents in type II DM patients at the Makassar City Hospital also showed a relationship between self-efficacy and dietary compliance ($p = 0.000$). DM patients who adhere to a diet can minimize complications, increase satisfaction, increase self-confidence and independence and improve patients quality of life (Pemata *et al.*, 2019).

Data from the Gumawang Primary Health Center, the three largest non-communicable diseases (PTM) at the Gumawang Health Center were hypertension (46%), DM (32%), bronchial asthma (13%). DM disease from 2020 showed that the number of DM patients in 2020 was 991 patients while the number of patients who visited the Gumawang Primary Health Center for routine examinations was only 467 patients. The results of interviews and observations in the Gumawang Primary Health Center area showed that most people only go to the puskesmas occasionally if there are complaints, the low awareness of treatment is followed by unhealthy eating patterns of the people who are ingrained and cannot be separated from crackers that must be present at every meal. There is also a habit of residents eating breakfast by eating *pempek* typical of Palembang, as it is known that the vinegar made from sugar. There are various kinds of typical Palembang food, which use processed wheat

such as *pempek*, crackers, and *tekwan*. These cause people to be increasingly unable to control the intake of food consumed.

Although previous studies have revealed the relationship between self-efficacy and dietary compliance, the effect of self-efficacy on a diet, especially in a society that is influenced by eating habits related to culture, especially in Sumatra, which is inseparable from the various kind of traditional food basic on sugar and wheat (*pempek*, crackers, and *tekwan*) is not yet known. Based on the phenomenon described above, the present study is interested in conducting a study entitled "the relationship between self-efficacy and dietary compliance in patients with type 2 diabetes mellitus."

Method

This research was conducted in Gumawang Primary Health Center in December 2021 using a cross-sectional approach to describe the relationship between self-efficacy and diet compliance in type 2 diabetes mellitus patients. The selection of respondents was conducted by purposive sampling. The inclusion criteria for the sampling are (1) history of DM for more than three months; (2) willingness to be a respondent; (3) ability to read and write; and (4) residing in the working area of the Gumawang Primary Health Center. The sample of this study was 53 respondents, which was calculated as 25% of the total population. Respondents were given informed consent beforehand as a legal and ethical requirement in data collection. Once a patient was recruited and signed informed consent, we explained the benefits and risks of the study. Next, we scheduled appointments for the patients who agreed to participate in completing the study questionnaire. The patient's demographic information was collected, including age, gender, education, history of DM, marital status, and number of family members living together. The self-efficacy questionnaire was measured

using the Diabetes Management Self Efficacy Scale (DMSES) questionnaire from Sturt, Hearnshaw, & Wakelin in Ratnawati, (2016), which has an r-value of 0.34-0.71 with an alpha coefficient 0.89. Dietary compliance was measured using a questionnaire created by Haryono (2009) and modified by Permatasari (2014), which has Cronbach's alpha value of 0.926 ($p < 0.05$). All quantitative data were analyzed using SPSS version 22. The statistical test used in this study is the Spearman Rank Correlation Test (Rho).

Results and Discussion

Based on table 1, it is known that the number of respondents amounted to 53 people, with the majority of respondents aged 45-59 years, totaling 24 people (45.3%), 31 women (58.5%), the latest education level is high school with a total of 22 people (41.5%), almost all of the respondents have high school status. Married respondents as many as 45 people (84.9%), the most occupations are farmers as many as 21 people (39.6%), patients with the most prolonged duration of suffering from DM are 5-9 years with a total of 27 people (50.9%), and most of them live with their families, amounting to 47 people (88.7%).

Table 2 shows the independent variable, namely self-efficacy, from 53 respondents, most of whom are in the fairly good category, amounting to 33 people (62.3%). Table 3 shows that the dependent variable is DM diet compliance with respondents amounted to 53 respondents, with the largest distribution of respondents, respondents who had good DM diet adherence, namely 41 people (77.4%). From these data, it was found that most of the respondents had good dietary compliance because the patient considered that he had the opportunity to be healthy again, but when the patient was out of control in the form of being tempted by the environment around the patient, he could not obey his diet.

Table 1. Characteristics of Respondents

Characteristics	Total	%
Age		
25-44 years (adult)	13	24.5%
45-59 years (pre-elderly)	24	45.3 %
>60 years (elderly)	16	30.2 %
Gender		
Male	22	41.5 %
Female	31	58.5 %
Education		
Not completed in primary school	4	7.5 %
Primary school	5	9.4 %
Junior high school	12	22.6 %
Senior High School	22	41.5 %
College	10	18.9 %
Marital status		
Not married yet	1	1.9 %
Marry	45	84.9 %
Widower widow	7	13.2 %
Profession		
Civil servant	7	13.2 %
Private	12	22.6 %
Farmer	21	39.6 %
Etc	13	24.5 %
History of DM		
<5 years	8	15.1 %
5-9 years	27	50.9 %
>10 years	18	34.0 %
Reside in		
Own	0	0
Together with wife/husband	6	11.3 %
Family	47	88.7 %

Table 2. Self-efficacy of Type 2 DM Patients

Characteristics	Total	%
Bad	2	3.8 %
Fairly good	33	62.3
Good	18	34%

Table 3. Dietary Compliance of Type 2 DM Patients

Characteristics	Total	%
Bad	0	0 %
Fairly good	12	22.6 %
Good	41	77.4%

Table 4. Cross-Tabulation of Self-Efficacy with Dietary Compliance of Type 2 DM Patients

Self-efficacy	DM Diet compliance						Total	P-value	Correlation coefficient	
	Bad		Fairly good		Good					
	n	%	n	%	n	%				
Bad	0	0	2	100	0	0	2	100	0.000	0.773
Fairly good	0	0	9	27.3	24	72.7	33	100		
Good	0	0	1	5.6	17	94.4	18	100		

Based on table 4 shows that the majority of respondents with sufficient self-efficacy tendencies and good DM diet compliance are as many as 24 people (72.7%). The results of the

Spearman's rho correlation test show that the significance value is 0.000, which means the significance value obtained is 0.000 < 0.005, and it means that there is a significant relationship

between the self-efficacy variable and the DM diet compliance variable. The correlation value in this study is 0.773 which means that the level of strength of the relationship between self-efficacy variables and DM diet adherence is very strong. In addition, it is also known that the correlation coefficient is positive so that the relationship between the two variables is unidirectional, which means that if self-efficacy increases, then DM diet compliance will also increase.

The results showed that most of the respondents were in the category of self-efficacy with enough indicators in the good direction based on the scoring done on type 2 DM patients at the Gumawang Primary Health Center, East OKU Regency. Self-efficacy can be said to be sufficient if the respondent can examine the feet independently, do a DM diet well, and do sports according to the advice of health workers. One of the self-efficacy factors is age. The results of this study indicate that the majority of respondents are 45-59 years old. This respondent is still in the age range of 40-65 years; where according to the opinion expressed by Ngurah and Sukmayanti (2014) that the age of 40-65 years is the age of success, where a person can maximally guide himself, evaluate himself, get a significant influence.

Gender is considered a factor related to self-efficacy. According to Ariani's research (2011), women have good self-efficacy. This is in line with research conducted by Ngurah and Sukmayanti (2014), which explains that women have better self-efficacy than men because women are more obedient in controlling and treating their disease. In this study, the majority of respondents are women. Most of the self-efficacy in this study has good values because the number of female respondents influences it.

Knowledge becomes the basis for decision-making, especially the practice of self-management. The level of knowledge is related to a person's level of education. Most of the respondent-level study was in senior high school in this study. Education is a learning process that is able to change a person's behavior to achieve a quality of life. A person with a high education will more easily understand and comply with dietary behavior than a person with a low education because it

will be easier for someone to absorb information and implement it in daily life (Gustina *et al.*, 2014). This explains that the higher the education, the higher the patient's self-efficacy because education is identical to a person's ability to absorb the information received. The level of education plays a role in the patient's ability to receive, understand and apply the information received so that it can affect a person's lifestyle (Rahman *et al.*, 2017).

The results of this study state that work is also one of the self-efficacy factors where most respondents work as farmers. These results are in line with research by Ngurah & Sukmayanti (2014), which states that someone who has a job will have good self-efficacy compared to those who do not work because someone who works will have the confidence and ability to control and treat his illness. This opinion is in line with the research of Wantiyah, Sitorus, and Gayatri (2010), namely, work is a significant factor to affect self-efficacy because someone who has a job will have the ability and also better self-confidence in overcoming health problems.

The history of DM is one of the reasons for good compliance. In this study, most respondents suffered from DM 5-9 years. Long-suffering from DM affects self-efficacy where patients who have long had experience and can learn good things to treat their disease so that the patient's self-efficacy increases along with the length of suffering from DM (Diani *et al.*, 2013). This opinion is also supported by Ningsih, Rahmi, and Bayhakki (2018), who argue that patients with long-standing DM are better able to adapt to the environment and manage stress well to increase self-efficacy.

The results showed that most respondents were in the category of good compliance. This shows that some DM patients comply with the recommendations or instructions of health workers in managing their diet. According to Green (Notoatmodjo, 2010) several factors that can influence a person's behavior change to obey or not to the treatment program include education and family factors. This is in line with research conducted by David (in Rohani & Ardenny, 2019) that the factors of compliance are education, family, and partner.

Respondents who suffer from DM in the long term will be better able to adapt to the environment. Most respondents suffered from the disease for 5-9 years in this study. This is in line with Walker's statement (in Bangun & Jatnika, 2020) that the longer a person is sick, the longer the patient's acceptance of the disease will affect the information obtained by the patient on the management of DM, including the management of the diet that must be carried out and also the patient has learned from the feeling of being sick. Pain is experienced, so that patient compliance increases over time.

Family is one of the supporting factors associated with DM patients' health behavior, especially in terms of self-management. In this study, most of the respondents live with their families. Respondents who have family support will always supervise the management of DM by following the advice of health workers, such as taking medicines and maintaining a diet and physical activity to avoid complications. The positive impact of family support is that it can remind each other and motivate family members, especially families, on a diet to improve their quality of life. So family support needs to participate in maintaining the recommended food and diet for family members who suffer from DM (Ilmah, 2015). Additionally, to the family, one of the factors is a partner; wherein this study, most respondents are married. According to (Nurhaliza *et al.*, 2021), the partner is the closest person to the sufferer, where the partner regulates dietary needs. Couples can provide support to respondents both psychologically or by actions such as reminding, motivating, and preparing a diverse and healthy menu to help DM sufferers follow the correct diet. Support from a good partner can directly impact people with DM.

The results of this study indicate that there is a significant relationship between self-efficacy and adherence to the DM diet. The results of this study indicate that the relationship between self-efficacy and dietary compliance in DM patients has a solid relationship. Based on the results of research and theory collected, a respondent who has high self-efficacy also tends to be obedient in his diet; this is due to a high desire to recover and pay attention to the advice given by health workers.

So, self-efficacy is very closely related to compliance, including the dietary compliance of DM patients. Most DM patients have sufficient self-efficacy, meaning that respondents have self-awareness in managing their own health to achieve better health. Moreover, the results revealed that the majority had good dietary compliance. A study conducted by Junaidin (2020) showed that respondents with high self-efficacy or self-confidence showed increased dietary compliance compared to respondents with high self-efficacy.

This study found that respondents who have high self-efficacy tend to be obedient in their diet. According to Yaqin (2018) self-efficacy has a vital role in changing a person's behavior about his health. Self-efficacy determines how much effort is made and how long a person can endure in the face of obstacles or unpleasant experiences. Self-efficacy or self-confidence can help in the process of implementing a diet for people with diabetes. This belief helps to determine what will be done with the knowledge and skills possessed, so it can be said that self-efficacy is the most influential in dietary compliance.

Conclusion

There is a significant positive relationship between self-efficacy and dietary compliance in DM patients at the Gumawang Primary Health Center. Nurses at primary health care centers can increase self-efficacy in patients by involving patients in decision-making in every nursing practice.

Limitations of the study

Data collection uses a subjective questionnaire so that the honesty of the respondents determines the data provided

References

- Adaikalakoteswari, A., Rabbani, N., Waspadji, S., Tjokropawiro, A., Kariadi, S. H. K. S., Adam, J. M. F., & Thornalley, P. J. (2012). Disturbance of B-vitamin status in people with type 2 diabetes in Indonesia-Link to renal status, glycemic control and vascular inflammation. *Diabetes Research and Clinical Practice*, 95(3), 415-424.
- Ariani, Y. (2011). Hubungan Antara Motivasi

- dengan Efikasi Diri Pasien DM Tipe 2 Dalam Konteks Asuhan Keperawatan di RSUP. H. Adam Malik Medan. *Universitas Indonesia*, 76–78.
- Bangun, A. V., Jatnika, G., & Herlina, H. (2020). Hubungan antara Dukungan Keluarga dengan Kepatuhan Diet pada Penderita Diabetes Mellitus Tipe 2. *Jurnal Ilmu Keperawatan Medikal Bedah*, 3(1), 66–76.
- Diani, N., Waluyo, A., & Sukmarini, L. (2013). Pengetahuan Klien Tentang Diabetes Melitus Tipe 2 Berpengaruh Terhadap Kemampuan Klien Merawat Kaki. *Jurnal Keperawatan Indonesia*, 16(2), 120–127.
- Gustina, Suratun, & Heryati. (2014). Faktor-Faktor Yang Berhubungan Dengan Kepatuhan Diet Diabetes Mellitus Pada Pasien DM. *Jurusan Keperawatan Poltekkes Kemenkes Jakarta III*, 2(3), 97–107.
- Haskas, Y. (2017). Determinan Perilaku Pengendalian Diabetes Melitus Di Wilayah Kota Makassar. *Global Health Science (GHS)*, 2(2), 138–144.
- Ilmah, F., & Rochmah, T. N. (2015). Kepatuhan Pasien Rawat Inap Diet Diabetes Mellitus Berdasarkan Teori Kepatuhan Niven. *Jurnal Administrasi Kesehatan Indonesia*, 3(1), 60.
- Junaidin, J. (2020). Hubungan Self Efficacy Dengan Kepatuhan Terapi Diet Pasien Diabetes Melitus Tipe 2 Di RSUD Kota Makassar. *Jurnal Ilmiah Kesehatan Diagnosis*, 15, 208–211.
- Kartika, A. W., Widyatuti, W., & Rekawati, E. (2021). Diabetes Self-Management Education (DSME) Intervention to Improve Self-Care Management of Diabetes Mellitus Patients. *Journal of Nursing Science Update*, 9(2), 151–157.
- Ngurah, I. G. K. G., & Sukmayanti, M. (2014). Efikasi Diri pada Pasien Diabetes Melitus Tipe 2. *Keperawatan Politeknik Kesehatan Denpasar*, 21, 6–7.
- Ningsih, H. R., Bayhakki, B., & Woferst, R. (2018). Hubungan Self Efficacy Terhadap Kepatuhan Diet Pada Penderita DM. *Jurnal Online Mahasiswa (JOM) Bidang Ilmu Keperawatan*, 5(0), 212–219.
- Nurhaliza, S., Mulfianda, R., & Putra, Y. (2021). *The Correlation of Motivation and Family Support Towards Diet Compliance for Diabetes*. XII(2).
- Pemata, I. D., Andriani, L., & Granita. (2019). Pengaruh Penerapan Model Pembelajaran Student Fasilitator and Explaining (SFaE) terhadap Kemampuan Komunikasi Matematis Berdasarkan Self Efficacy Siswa SMP di Pekanbaru. *Juring (Journal for Research in Mathematics Learning)*, 2(4), 285–296.
- Rahman, H. F., Yulia, & Sukarmini, L. (2017). Efikasi Diri, Kepatuhan, dan Kualitas Hidup Pasien Diabetes melitus tipe 2 (Self efficacy, adherence, and quality of life of patients with type 2 diabetes). *E-Jurnal Pustaka Kesehatan*, 5, 108–113.
- Ratnawati, N. (2016). Hubungan Efikasi Diri Terhadap Kualitas Hidup Pasien Diabetes Mellitus Tipe 2 di RS PKU MUHAMMADIAH YOGYAKARTA. *Ilmu Kedokteran Dan Kesehatan*, 1–69.
- Kementerian Kesehatan Republik Indonesia. (2018). *Hasil Riset Kesehatan Dasar 2018*. Kementerian Kesehatan Republik Indonesia.
- Rizqah, S. F., & Basri, H. M. (2018). Hubungan Efikasi Diri Dengan Kepatuhan Diet 3J Pada Pasien Diabetes Melitus Di Puskesmas Mandai Kabupaten Maros. *Jurnal Ilmiah Kesehatan Diagnosis*, 12, 586–591.
- Rohani, R., & Ardenny, A. (2019). Analisis Faktor Yang Berhubungan Dengan Kepatuhan Diet Penderita Diabetes Melitus. *Jurnal Proteksi Kesehatan*, 7(2), 61–67.
- Rustika, I. M. (2016). Efikasi Diri: Tinjauan Teori Albert Bandura. *Buletin Psikologi*, 20(1–2), 18–25.
- Yaqin, A., Niken, S., & Dharmana, E. (2017). Efek Self Efficacy Training Terhadap Self Efficacy Dan Kepatuhan Diet Diabetesi. *JIKES (Jurnal Ilmu Kesehatan)*, 1(1).