

The Relationship of Knowledge of Diabetes Mellitus Patients with Diabetes Mellitus Diet Adherence at RSUD.Rantau Prapat, Labuhan Batu District, North Sumatra Province in 2022

¹ Ali Asman Harahap, ²Aureliya Hutagaol, ³Basuki
^{1,2,3} Universitas Imelda Medan

ARTICLE INFO

Keywords:
Knowledge
adherence to the diet of
diabetes mellitus,
Diabetes Melitus.

Email :
aliasmanharahap99@gmail.co
m

ABSTRACT

Diabetes Mellitus (DM) is a chronic disease characterized by blood glucose levels exceeding normal and impaired carbohydrate, fat and protein metabolism caused by relative and absolute lack of the hormone insulin. If this is left uncontrolled it can become an acute metabolic complication as well as a long-term vascular complication of both microangiopathy and macroangiopathy (Darmono in Hasdianah, 2012). Method: This study aims to determine the relationship between diabetes self-management and the level of stress undergoing a diet of DM sufferers at the Rantau Prapat Health Center. This study used a *cross sectional* design. Respondents were selected from five Puskesmas in Puskesmas Rantau Prapat using the *purposive sampling* method. A total of 37 DM sufferers participated in the study. Data were collected using DM knowledge questionnaire, then data were analyzed using *Chi Square test* with significance level <0.05 . Results: The results showed that and there was a relationship between knowledge of diabetes mellitus patients with DM diet adherence ($p = 0.017$), which Conclusion: There was a relationship between *diabetes self-management* and the level of stress undergoing a diet of diabetics in Puskesmas Rantau Prapat. Future research is expected to use respondents with a wider area and use better measuring instruments.

Copyright © 2023 JUK-Medifa

All rights reserved is Licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License \(CC BY-NC 4.0\)](#)

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. This usually leads to hyperglycemia in DM patients. Hyperglycemia in DM that is not well controlled can cause serious damage to body systems, especially nerves and blood vessels (World Health Organization, 2017). In addition to causing severe complications, DM also makes sufferers unable to move or work as usual, and provides a burden on the family, as well as economic harm, because it requires lifelong care and treatment. DM can be successfully managed and its complications prevented, especially when detected early. Even better, take prevention by making lifestyle changes, such as increasing diet and physical exercise (International Diabetes Federation, 2017).

The International Diabetes Federation (IDF) in 2017 reported that the number of DM sufferers in the world in 2017 reached 425 million adults aged between 20-79 years. More than 79% of sufferers live in developing countries and it is estimated that by 2045 the number of DM sufferers will increase to 629 million people. IDF also reported that Indonesia is in the top 10 countries with the highest number of DM with 10.3 million people and is expected to increase to 16.7 million people by 2045. Regional Health Research Data (Riskesdas) shows that the prevalence of diabetics in East Java province is in the top 10 in Indonesia with a prevalence of 6.8% (Kominfo, 2015).

The most important treatment of diabetes is to change lifestyle, especially managing a healthy and balanced diet. The application of diet is one of the main components in the success of diabetes management, but it is often an obstacle in diabetes services because it requires compliance and motivation from the patient himself (Setyorini, 2017). Compliance with DM sufferers to dietary arrangements and planning is one of the obstacles in diabetic patients. Many diabetics feel bored

Diabetes Mellitus Diet Adherence at RSUD.Rantau Prapat, Labuhan Batu District, North Sumatra Province in 2022. Ali Asman Harahap, et.al

and stressed because they have to obey the recommended diet program during their lives (Widodo, 2012) This was experienced by the six respondents involved in stress research on patients with type-2 Diabetes mellitus in implementing a diet program at the Internal Medicine Clinic of Dr. Kariadi Hospital Semarang conducted by Widodo in 2012. The stress that arises and the duration they experience stress, is determined by various factors of difficulty experienced by sufferers, such as food restrictions, the amount of food that must be measured, and the wrong eating habits before illness. The way of handling that sufferers do in dealing with stress when running a diet can affect their success in complying with the diet program and controlling blood sugar levels (Widodo, 2012)

Actually, many DM patients already know the dietary recommendations, but many do not obey them. Many DM patients consider that diet foods tend to be unpleasant so they eat as desired if they have not shown serious symptoms (Setyorini, 2017). Therefore, knowledge is needed that must be possessed by the patient (PERKENI, 2015), because knowledge is the basis for carrying out an action, so that every patient who will perform an action is usually preceded by knowing, then has the initiative to take an action based on his knowledge. Behavior based on knowledge will be better than behavior that is not based on knowledge (Notoatmodjo, 2003).

The results of a study conducted by Hassan et al (2013) on 36 DM sufferers, most (55.6%) did not adhere to the diet. Another study conducted by Phitri (2013) on 54 DM sufferers at AM Hospital. East Kalimantan parikecytes were found to be mostly (57.4%) non-adherent to the diet. The results of the study mentioned above show that dietary compliance of DM sufferers is mostly in the category of lacking. Hence the importance of knowledge about diet and motivation for adherence to the application of diet. DM sufferers who adhere to the diet then blood sugar levels are in the normal range, reduce the impact of complications and better quality of life (Purwitaningtyas et al, 2015).

Complications that are often experienced by DM sufferers include stroke with a prevalence of 5.30%, foot ulcers 8.70%, blindness 1-2%, kidney disease 20%, heart failure 2.70%, neuropathy 54.00% and even 50% experience death (Ministry of Health RI, 2013; Smeltzer & Bare, 2010). These complications can be prevented if DM sufferers are obedient to the diet. The cause of sufferers not complying with the diet because they do not understand the benefits of diet (Reach, 2011). Therefore, knowledge about DM diet plays an important role in the process of forming behavior in the form of adherence to running a diet in DM sufferers (Kemenkes, 2013; Phitri, 2013).

METHOD

This research is a quantitative research using a correlational analytical design, which is research that aims to reveal the correlative relationship between independent variables and dependent variables and test based on existing theories. This study used a *cross sectional approach* that emphasized the time of measurement or observation of data of independent variables and dependent variables carried out once at a time. The research began to be carried out from the beginning of the preparation of the proposal to the preparation of research results in May to August 2022 at the hospital. Rantau Prapat Kab.Labuhan Batu North Sumatra Province. Populations that meet the sampling criteria and are subjected to research at the hospital. Rantau Prapat Kab.Labuhan Batu North Sumatra Province in 2022 as many as 37 people. The number of samples in this study was 37 people.

Before carrying out the data collection process, the initial stage that must be done is to make preparations for the smooth implementation of research, in the form of a research permit and an initial survey to the place that will be used as a research location. In addition to conducting a survey first, researchers must also approach diabetes mellitus patients at the hospital. Rantau Prapat Kab.Labuhan Batu North Sumatra Province who will be used as respondents in the research to be carried out.

This study used an analysis of:

Diabetes Mellitus Diet Adherence at RSUD.Rantau Prapat, Labuhan Batu District, North Sumatra Province in 2022. Ali Asman Harahap, et.al

1. *Univariate* is an analysis carried out on each variable from the results of the study. This univariate analysis is to look at the frequency distribution of data: age, gender, religion, ethnicity, education, occupation.
2. *Bivariate* is an analysis used to explain the close relationship between two variables that are suspected to have a relationship between knowledge of people with diabetes mellitus with diabetes mellitus diet compliance in hospitals. Rantau Prapat, Labuhan Batu District, North Sumatra Province." The data obtained is analyzed using a computer.

RESULTS AND DISCUSSION

Results

Table 1. Distribution of respondents' characteristics based on age in people with diabetes mellitus

No	Characteristics	Frequency	Percentage %
1	26 - 35 Tahun	18	48,6
2	36-45 Tahun	15	40,5
3	46-55 Tahun	4	10,8
Total		37	100

Based on table 1, it can be seen that the majority of respondents whose age interval is 26-35 years are 18 people (48.6%), while the minoritas of respondents whose age interval is 46-55 years are 4 people (10.8%).

Table 2 Distribution of respondent characteristics by sex in people with diabetes mellitus

No	Characteristics	Frequency	Percentage %
1	Man	29	78,4
2	Woman	8	21,6
Total		37	100

Based on table 2. Above it can be seen that the majority of respondents are men as many as 29 people (78.4%)

Table 3. Distribution of respondent characteristics by occupation in people with diabetes mellitus

No	Characteristics	Frequency	Percentage %
1	Civil Servants	8	21,6
2	Self-Employed Work	15	40,5
3	Farmer	14	37,8
Total		37	100

Based on 3. Above, it can be seen that the majority of respondents based on self-employed work are 15 people (40.5%) while the minority are civil servants as many as 8 people (21.6%).

Table 4. Distribution of knowledge respondent characteristics in people with diabetes mellitus.

No	Knowledge	Frequency	Percentage %
1	Good	20	54.1
2	Enough	10	27,03
3	Less	7	21,88
Total		37	100

Based on table 4, above can be seen good knowledge as many as 20 people (54.1%), sufficient knowledge as many as 10 people (7.03%) and less knowledge as many as 7 people (21.88).

Diabetes Mellitus Diet Adherence at RSUD. Rantau Prapat, Labuhan Batu District, North Sumatra Province in 2022. Ali Asman Harahap, et.al

Table 5. Distribution of Characteristics of Compliance Respondents Conducting routine control in patients with diabetes mellitus

No	DM Diet Adherence	Frequency	Percentage %
1	Obedient	20	54,1
2	Disobedient	17	45,9
Jumlah		37	100

Based on table 5, above can be seen respondents who are adherent to the diabetes mellitus diet as many as 20 people (54.1%) and respondents who are not compliant as many as 17 people (45.9%).

Bivariate Results

Table 6. The Relationship of Knowledge with Diabetes Mellitus Diet Adherence in Hospitals. Rantau Prapat, Labuhan Batu District, North Sumatra Province

Knowledge	DM Diet Adherence		Total	Chi-Square
	Obedient	Disobedient		
Good	15	5	20	0.017
Enough	3	5	8	
Less	3	6	9	
Total	21	16	37	

From the results of the analysis using the SPSS system, the Chi-Square test showed that there was a positive and significant relationship between knowledge and compliance with Diabetes Mellitus Diet Adherence in the Hospital. Rantau Prapat Kab.Labuhan Batu North Sumatra Province with the result $p = 0.017$, so it can be concluded that H_a is accepted that there is a relationship between Knowledge of Diabetes Mellitus Patients with Diabetes Mellitus Diet Adherence at the Hospital. Rantau Prapat Kab.Labuhan Batu North Sumatra Province.

Discussion

The Relationship of Knowledge of Diabetes Mellitus Patients with Diabetes Mellitus Diet Adherence in Hospitals. Rantau Prapat Kab.Labuhan Batu North Sumatra Province.

From the results of the analysis using the SPSS system, the Chi-Square test showed that there was a positive and significant relationship between knowledge and compliance with routine control at the hospital. Rantau Prapat Kab.Labuhan Batu North Sumatra Province with the result $p = 0.017$, so it can be concluded that H_a is accepted that there is a relationship between Knowledge of Diabetes Mellitus Patients with Diabetes Mellitus Diet Adherence at the Hospital. Rantau Prapat Kab.Labuhan Batu North Sumatra Province.

The meaning of closeness is very low or very weak, which means that if DM sufferers have good knowledge, it will affect the dietary compliance of DM sufferers. This is in accordance with the concept of behavior which states that behavior will be more sedentary if it is based on knowledge so that it has the awareness to act (Hassan, 2013; Lestari, 2012; Gultom, 2012).

Niven (2010) also explained that patients who suffer from a disease with less knowledge will cause sufferers to be non-compliant in carrying out the recommendations of health workers. Knowledge is also influenced by experience, environment and socio-culture. The experience gained is perceived, believed, so that it gives rise to motivation, intention to act and finally yes becomes behavior (Hassan, 2013). Diabetics who have good knowledge and have a positive attitude can prevent complications of DM disease (Garcia-Perez et al, 2013). Therefore, knowledge of a diabetic diet is very important for discipline in carrying out a healthy lifestyle and free from complications (Gultom, 2012; Magurova et al, 2012).

DM sufferers who have less knowledge about DM diet become an inhibiting factor towards adherence behavior and find it difficult to follow the recommendations of health workers (Gultom, 2012). Odili et al (2011) explained that knowledge about diabetes management is a component needed to obtain success in diabetes management. Similarly, it is explained by Bloom (1956) that knowledge becomes a mediator for a person to perform actions. The results of this study are in line with research conducted by Odili (2011) at Stella Maris Hospital Makassar which explained that there is a relationship between knowledge and adherence in undergoing a diet with the value of closeness of the relationship shown by a p value of 0.009 (<0.05).

CONCLUSION

Based on the results of research and discussion, this study concluded that the relationship between knowledge of people with diabetes mellitus with diabetes mellitus diet compliance in hospitals. Rantau Prapat Kab.Labuhan Batu North Sumatra Province

REFERENCE

- International Diabetes Federation, 2015. IDF Diabetes Atlas. Edisi keenam diakses 24 Agustus 2016 dari <http://www.idf.org/diabetesatlas/5e/the-global-burden>.
- Smeltzer & Bare. (2010). Textbook of medical surgical nursing. Philadelphia: Lippincott.
- PERKENI. (2011). Konsensus Pengelolaan dan Pencegahan DM Tipe 2 di Indonesia. Jakarta: PB Perkeni
- World Health Organization. (2011). Definition, Diagnosis and Classification of Diabetes Mellitus and Its Complications. Report a WHO Consultation, WHO, Geneva diakses 7 Agustus 2016 dari <https://www.idf.org>
- Kementerian Kesehatan. (2013) Situasi dan Analisis Diabetes
- Niven, N. (2010). Psikologi Kesehatan. Jakarta : EGC
- Hassan, H.A., Tohid, H., Amin, R.M., Bidin, M.B.L., Muthupalaniappen, L., Omar, K. (2013). Factors Influencing Insulin Acceptance Among Type 2 Diabetes Mellitus Patients In A Primary Care Clinic: A Qualitative Exploration. BMC Family Practice, 14:164. Diakses tanggal 5 Desember 2015. <http://www.biomedcentral.com/1471-2296/14/164>
- Phitri, E. H., Widiyaningsih. (2013). "Hubungan antara sikap pengetahuan dan sikap penderita Diabetes Mellitus dengan kepatuhan diet Diabetes Mellitus di RSUD AM. Parikesit Kalimantan Timur". Diakses pada 21 November 2015. <http://jurnal.unimus.ac.id/index.php/JKMB/article/view/941/993>.
- Purwitaningtyas, Y. Z., Putra, A. E. I. W. G., Wirawan, D.N. (2015). "Faktor Risiko Kendali Glikemik Buruk pada Penderita Diabetes Mellitus Tipe 2 di puskesmas Kembiritan Kabupaten Banyuwangi". Diakses pada 10 Januari 2016. [file:///C:/Users/M%20Comp/Downloads/16677-31503-1-SM%20\(1\).pdf](file:///C:/Users/M%20Comp/Downloads/16677-31503-1-SM%20(1).pdf)
- Reach, Gerard. (2011). Obedience and Motivation as Mechanism for Adherence to Medication: A Study in Obese Type 2 Diabetic Patient. Patient Preference and Adherence 2011:5 523-531 diakses pada 24 Desember 2015 dari <http://www.ncbi.nlm.nih.gov/PMC/articles/PMC3218113/pdf/ppa-5-523.pdf>