Analysis of Medical Compliance Factors Following MMAS-8 Score in Patients with Type-2 Militus Diabetes

Asnil Adli Simamora(✉), Nanda Suryani Sagala, and Natar Fitri Napitupulu

Universitas Aufa Royhan Di Kota Padansidimpuan, Padang Sidempuan City, Indonesia
asniladli@gmail.com

Abstract. Diabetes mellitus is a group of metabolic diseases with characteristics of hyperglycemia that occurs due to abnormalities in insulin secretion, insulin action or both. insulin produced by pancreatic cells. The purpose of this study was to determine the factors of medication adherence in patients with type 2 diabetes mellitus with an MMAS-8 score at Batunadua Health Center, Padangsidimpuan City. This type of research is a quantitative study with a cross-sectional approach, which is a cross-sectional study on research objects that are measured and collected simultaneously at one time, and there is no follow-up from the researchers. Respondents were selected through the Probability Sampling technique with the Total Sampling technique, ie all members of the population were taken to be used as research samples. The respondent's medication adherence level was measured using the MMAS-8 questionnaire adopted from Morisky's study. The results showed that the majority of respondents who received treatment at the Batunadua Health Center in Padangsidimpuan City were in the obedient category. The factors that influence medication adherence include age, gender, education level, and duration of treatment. Further research is needed to determine the effect of these factors on the level of adherence to treatment for Type-II Diabetes Mellitus patients.

Keywords: DM type-II · Medication Adherence · MMAS-8

1 Introduction

Diabates mellitus is health problems in the community that in know the world which has become one brood such as kidney diseases and blindness (1). Diabetes militus membership tipe-2 90% of the total diabetics worldwide, where 17,7% in the united, 4,6% in brazil, 6,8% in japan and % 20,8 in china (2). Meanwhile in indonesia pravalensi diabetes militus tipe-2 as many as % 8,4 (3). Control blood sugar levels it is important in the diabetes mellitus. Patients need to understand diabetes factor affecting control blood sugar levels one compliance medicine (4).

Someone who had diabetes mellitus because the direction factors that affect her, one of them for lack of compliance diabetes mellitus type-2 in taking the drug anti diabetes (5). This is in accordance with research by Srikartika (2014) shows that the

S. H. Ritonga et al. (Eds.): TIHC 2022, AHSR 50, pp. 13–18, 2023.
https://doi.org/10.2991/978-94-6463-032-9_4

compliance medicine influence in blood glucose lower the levels. It is also evidenced by research Nanda (2018) that there is compliance on the drink blood sugar retinopathy and regulations in patients diabetes militus.

Compliance is a phenomenon similar to. Adjustments The difference lies in terms of legitimacy (the opposite by coercion or other social pressure), and there is always an individual, namely the of authority. As a behavior, aspects of patient compliance in taking medication can be known from the method used to measure it. Horne (2006) summarizes several methods to measure medication adherence as follows (Pratiska et al., 2017). Morisky et al. developed MMAS to determine patient compliance by using a questionnaire. MMAS was first applied to determine compliance in hypertensive patients at pre and post interviews. Morisky et al. published the latest version in 2008 namely MMAS-8 with higher reliability of 0.83 and higher sensitivity and specificity as well. Morisky specifically created a scale to measure adherence to taking medication called the Morisky Medication Adherence Scale (MMAS), with 8 items containing statements that indicate the frequency of forgetting to take medication, intentionally stopping taking medication without the doctor's knowledge, the ability to control himself to take medication. Keep taking medication (Morisky and Munter, 2009).

Currently the Morisky Scale questionnaire has been modified to 8 questions with modifications to several questions so that it is more complete in adherence research (Morisky et al., 2009). The modified Morisky Scale questionnaire can now be used to measure adherence and non-adherence to treatment of diseases that require long-term therapy such as diabetes mellitus, coronary heart disease.

2 Method

This research is a quantitative study with a cross-sectional approach which is a cross-sectional study on research objects that are measured and collected simultaneously at one time, and there is no follow-up from the researcher (Setiadi, 2007). The independent variable in this study was medication adherence following the MMAS-8 score. The results of changes in uric acid levels in the two groups were compared.

The population in this study were patients with type 2 diabetes mellitus regarding treatment adherence at Batunadua Public Health Center, Padang Sidimpuan City. The population was obtained by looking at the number of cases of type-2 diabetes mellitus patients in 2020. The population in the working area of the Batunadua Health Center was 29 people. In this study, the researcher used the Probability Sampling sampling method with the Total Sampling technique, namely all members of the population were taken to be used as research samples, namely as many as 29 respondents.

This research was conducted by distributing questionnaires to respondents and asking respondents to answer all the questions in the questionnaire correctly and honestly

3 Results

The distribution of the demographic data of respondents in this study from 29 respondents can be seen in Table 1.

Table 1. Characteristic Respondents

Characteristics of Respondents	F	%
Age		
46–55 Year	9	31
56–65 Year	13	45
>65 Year	7	24
Gender		
Male	13	45
Female	16	55
Education Level		
JUNIOR HIGH SCHOOL	16	55
SENIOR HIGH SCHOOL	4	14
	7	24
Diploma/Bachelor	2	7
Treatment Duration		
<6 Month	2	7
6–12 Month	21	72
>1 Year	6	21

Based on the characteristics of respondents with type II diabetes mellitus at Batunadua Public Health Center, Padangsidimpuan City, who were involved in this study were 29 respondents and consisted of 3 age groups according to the Ministry of Health 2009 namely early elderly aged 46–55 years as many as 9 people (31%), late old age 56–65 years as many as 13 people (45%), and the elderly aged over 65 years as many as 7 people (24%).

Based on gender, they are grouped into two categories, namely male and female. Of the 29 respondents, the majority were female as many as 16 respondents (55%), and the minority were male as many as 13 respondents (45%).

Based on the education level of the respondents, the majority of the 29 respondents had an elementary level education of 16 people (55%), 4 people with junior high school level education (14%), 7 people with high school education (24%), and 2 people with a Diploma/Bachelor level (7%).

Based on the length of treatment time the respondents were divided into 3 groups, the majority of the duration of treatment that the respondents had taken was between 6–12 months as many as 21 people (72%), the duration of treatment <6 months was 2 people (7%), and the length of treatment was >3 months as many as 6 people (21%).

Data on medication adherence of respondents with diabetes mellitus can be seen in the Table 2.

Based on Table 2, it can be concluded that from 29 respondents, 22 respondents (76%) were found in the obedient category and 7 respondents (24%) (Table 3).

Table 2. Medication adherence

medication adherence	F	%
Obey	22	76
Not obey	7	24
Total	**29**	**100%**

Table 3. Characteristic Demographics

Characteristic demographics	Obey		Not Obey		Total	
	n = 22	%	n = 7	%	n = 29	%
Age						
46–55 year	7	78	2	22	9	100
56–65 year	10	76	3	24	13	100
>65 year	5	71	2	29	7	100
Gender						
Male	10	77	3	23	13	100
Female	12	75	4	25	16	100
Education Level						
Primary school	11	69	5	31	16	100
Junior High School	3	75	1	25	4	100
Senior High School	6	86	1	14	7	100
Diploma/Bachelor	2	100	-	0	2	100
Treatment Duration						
<6 month	2	100	-	0	2	100
6–12 month	18	86	3	14	21	100
>1 Year	2	33	4	67	6	100

The percentage of the results of the analysis of medication adherence factors based on the demographic characteristics of the respondents was obtained based on the age factor, the level of adherence to treatment at the age of 46–55 years was 78%, the age 56–65 years was 76%, and age >65 years as much as 71%. Based on the gender factor, the level of adherence to treatment for female respondents was 75%, and male respondents were 77%. Based on the level of education, the level of adherence to treatment

of respondents with elementary education level is 69%, SMP is 75%, SMA is 86% and Diploma/Bachelor education is 100%. Based on the length of treatment that the respondent has undergone, the level of adherence to treatment by the respondent with the length of treatment that has been taken <1 year is 100%, 1-3 years is 86% and >3 years is 33%.

4 Discussion

The results of the analysis of adherence factors in treatment including factors of age, gender, level of education, and length of time of treatment can be concluded that the age factor does not affect the level of adherence in treatment with statistical results pValue $= 0.110$, gender factors affect the level of adherence in treatment with statistical results pValue $= 0.004$, Education level factor affects the level of adherence in treatment with statistical results pValue $= 0.000$, the length of treatment factor affects the level of adherence in treatment with statistical results pValue $= 0.001$.

5 Conclusions

Compliance with treatment for type-II diabetes mellitus patients is influenced by the motivation of each individual, but can also be influenced by environmental conditions such as age, gender, level of education, length of treatment, number of drugs consumed, complications of other diseases, and psychological as well as support from the family can all affect the level of compliance of respondents in undergoing treatment therapy for diabetes mellitus.

Acknowledgements. Adherence to therapy has a major impact on the success of treatment and controlled treatment, although there have not been many studies on adherence, especially the approach to patients in increasing adherence to lifestyle changes.

It is hoped that this research can be carried out by respondents as well as their families and people around who need it to be able to apply and understand type II Diabetes Mellitus, the benefits of undergoing treatment by complying with doctor's instructions or other health workers, and knowing the bad effects of not undergoing treatment and doctor's instructions or other health workers.

References

American Diabetes Association. (2017). Diabetes Care The Journal Of Clinical And Applied Research and Education: Standard Of Medical Care In Diabetes. Vol. 40.

World Health Organization (WHO). (2015). A Global Brief On Uric Acid. Geneva.

INFODATIN (2018). *Pusat data dan informasi Kmentrian Kesehatan RI*. Jakarta Selatan.

Soegondo, S. Nefropati Diabetik, dalam Soegondo S, Soewondo P, & Subekti I. (1995). Integrated management diabetic FKUI. Jakarta.

KEMENKES RI (2014). Analysis of the situation and diabetic. Pusat Data Dan Informasi Kementerian Kesehatan RI.

Srikartika, Valentina Meta., Cahya, Annisa Dwi., & Hardiati, Ratna Suci Wahyu. (2016). Analysis of factors affect compliance the use of a drug type 2 diabetes mellitus patients. Jurnal Manajemen dan Pelkayanan Farmasi, 2443–2946.

Nanda, et al. (2018). Relationship between Antidiabetic Drugs Consumption and Blood Glucose Level Regulation for Diabetes Mellitus Female Patients. Amerta Nutr. 340–348 DOI: https://doi.org/10.2473/amnt.v2i4.2018.340-348