

The Influence of Using Medication Calendar on Driving Compliance In Patients with Diabetes Mellitus in Meninting Village

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Abstrak

Kalender pengobatan atau biasa dikenal dengan kalender fungsional merupakan suatu media yang dirancang khusus untuk meningkatkan kepatuhan minum obat dengan menambahkan beberapa fitur khusus seperti nama pasien, nama obat, dan jam minum obat. Tujuan penelitian ini adalah untuk mengetahui pengaruh penggunaan kalender pengobatan dalam meningkatkan kepatuhan minum obat pada pasien diabetes melitus. Penelitian ini menggunakan desain penelitian pre-eksperimental dengan pendekatan one group pretest and posttest design. Teknik pengambilan sampel yang digunakan adalah simple random sampling. Sampelnya berjumlah 30 responden. Kepatuhan dalam minum obat diperoleh dengan menggunakan kuesioner MMAS-8. Data kepatuhan pengobatan pasien sebelum dan sesudah menggunakan kalender pengobatan dianalisis dengan menggunakan Wilcoxon Signed Rank Test. Hasil penelitian menunjukkan terdapat perbedaan tingkat kepatuhan minum obat sebelum dan sesudah intervensi kalender pengobatan dengan nilai $p = 0,000 < \alpha = 0,05$. Penggunaan kalender pengobatan terbukti mampu mempengaruhi kepatuhan pengobatan pada pasien diabetes melitus. Alat ini dapat menjadi salah satu alternatif untuk meningkatkan kepatuhan pengobatan, sebagai bagian dari pilar penting dalam penatalaksanaan Diabetes Melitus.

Kata Kunci: Kalender pengobatan; ketaatan; diabetes; kepatuhan; obat anti diabetes.

Abstract

Medication calendar or commonly known as functional calendar is a media that specifically designed to improve adherence to taking medication by adding several special features such as patient names, drug names, and hours of taking medication. The purpose of this study was to determine the effect of using the medication calendar in increasing medication adherence in diabetes mellitus patients. This research used a pre-experimental research design with one group pretest and posttest design approach. The sampling technique used was simple random sampling. The sample was 30 respondents. Compliance in taking medication was obtained using the MMAS-8 questionnaire. The data of patients' medication adherence before and after using medication calendar, was analyzed using the Wilcoxon Signed Rank Test. The results showed that there was a difference in the medication adherence level before and after the medication calendar intervention with a value of $p = 0.000 < \alpha = 0.05$. The use of medication calendar is proven to be able to influence the medication adherence in diabetes mellitus patients. This tool can be an alternative way to increase medication adherence, as part of an important pillar in the management of Diabetes Mellitus.

Keywords: Medication calendar; adherence; diabetes; compliance; anti-diabetic medication.

INTRODUCTION

Health problems will always be a dominant issue in the course of life until the end of the human life cycle. The most common health problem lately is chronic disease, including diabetes mellitus

(Ardian, 2016). Diabetes mellitus is a serious public health problem facing the world. The incidence of diabetes has increased drastically in developing countries, including Indonesia (Ardian, 2016). International Diabetes Federation (IDF) explained that Diabetes Mellitus is one of the most common chronic diseases in the world, occurring when insulin production in the pancreas is insufficient or when insulin cannot be used effectively by the body (Saedi, et.al., 2019). Diabetes Mellitus is a degenerative disease that concerning because it is part of the four priority non-communicable diseases which are always increasing every year and are a threat to the global health in the current era.

According to Riskesdas (2018) for West Nusa Tenggara Province (NTB), the prevalence of diabetes mellitus in the NTB region was recorded at 1.61% of the population has a history of diabetes mellitus with a total of 2,062 people. According to data from West Lombok Health Office (2021), Meninting Health Center ranks 1st out of 10 health centers in the West Lombok region. From the records of Meninting Health Center, people with diabetes mellitus served by Meninting Health Center in 2019 were 3195 people, in 2020 there were 688 people, and in 2021 there were 611 people.

Low adherence to treatment can result in an increased risk of treatment costs, an increase in complications and the risk of hospitalization (Mahdiaty et al., 2021). Identifying patients who were non-adherent in outpatient treatment is important in order to guarantee that the therapy management, is implemented effectively. The researcher in this study developed a medication calendar that is specifically designed to improve patients' adherence in taking medication. This calendar containing specific details to help patients manage their therapy such as patients' names, drugs' names, the rules of using the medicine and the time of taking the medicine. Finally, this research aims to determine the influence of the use of this medication calendar on driving the compliance of diabetes mellitus patients in managing their therapy program effectively.

METHOD

This research was conducted in the working area of Meninting Health Center. The research design used was pre-experimental with pretest and posttest group design. The population in this study were all diabetes mellitus sufferers with a total of 89 people. The sample was 30 respondents who were chosen using purposive sampling technique. Data on the characteristics of the respondents including Age, gender, education, occupation was obtained by direct interview using a questionnaire. The respondents were given the medication calendar, for about two weeks. Data on patients adherence of taking medication was collected before and after the medication calendar intervention was given, using the MMAS-8 questionnaire. Data on respondents' medication adherence before and after the medication calendar intervention was analyzed using the Wilcoxon Match Pair Test, with a significance level of 95%.

RESULTS

Respondents by age, gender, education level, occupation

Table 1. Respondents by age, education level, gender, occupation

No	Age (Years)	n	Percentage (%)
1.	36-45	1	3
2.	46-55	12	40
3.	56-65	15	50
4.	>65	2	7
Total		30	100
Education level			
1.	No school	3	10
2.	Elementary School	19	63
3.	Junior High School	5	17
4.	Senior High School	3	10
Total		30	100
Gender			
1.	Male	12	40
2.	Female	18	60
Total		30	100
Occupation			
1.	Trader/merchant	8	27
2.	Farmer	3	10
3.	Private employees	1	3
4.	Unoccupied/housewife	18	60
Total		30	100

Table 1 showed that the majority of respondents are in the age range of 56-65 years (50%). There were more female respondents (60%) than male respondents (40%). Most of the respondents were elementary graduates (63%) and only 10% of them who graduated from senior high school. Most of the respondents were unoccupied or a housewife, and most of the respondents who were working, works as a trader (27%).

Medication adherence before and after using the medication calendar

The respondents' adherence in taking medication before and after using the medication calendar is shown in the table 2.

Table 2. Respondents' Adherence in Taking Medication Before and After Using The Medication Calendar

No	Patients' Adherence	Pretest		Posttest	
		n	(%)	n	(%)
1	Low	27	90	2	7
2	Moderate	3	10	22	73
3	High	0	0	6	20
Total		30	100	30	100

Table 2 showed that patients' adherence before using medication calendar was mostly low (90%). While after using the medication calendar, most patients showed moderate level of adherence (73%) and there were 6 patients (20%) who has a high level of adherence.

Analisis of the influence of medication calendar on patients' adherence

Table 2. Wilcoxon signed ranked test on Respondents' Adherence in Taking Medication Before and After Using The Medication Calendar

Patients' adherence	n	<i>Asymp. Sig.(2-tailed)</i>
Adherence on pre test-post test	30	0.000

The Wilcoxon Sign Rank Test for patients' adherence before and after using the medication calendar showed a significance value of 0.000. This result indicate that medication calendar influence the increase in patients' adherence.

DISCUSSION

Patients' adherence before using medication calendar was mostly low (90%). Compliance in taking medication plays a very important role in the successful treatment of diabetes mellitus to maintain blood glucose levels within normal limits (Fatmawati, 2022). Disobedient behavior in general can increase the risks health problems and further exacerbation of the illness (Anggraini & Rahayu, 2022). Factors influencing adherence in taking medication can include education, age, self-efficacy, modification of environmental and social factors (Anggraini & Rahayu, 2022).

Half of respondents in this study was 56-65 years of age (50%). This is in line with a research result conducted by Rif'at, Hasneli, & Indriati, (2023), that found most diabetes mellitus patients were at >45 years of age. This is because at that age, a person will experience physical weakness (without any illness), resulting in decrease in physiological function that commonly due to unhealthy lifestyles at a younger age (Rif'at, Hasneli, & Indriati, 2023). Patients who have unhealthy lifestyles or bad habit, may still carry the bad habits of their youth and not really care about the treatment program and thus have very poor compliance rates, as shown in this study result. Moreover, it can be assumed that adherence in taking medication among diabetic patients can be influenced by the process of degeneration. Degeneration process of the organs of the human body can also affect patients' memory. (Rif'at, Hasneli, & Indriati, (2023). The older the patient, the more their memory, hearing, and vision will decrease. Therefore, forgetting to take medication in the elderly is common and is often complained by elderly patients, resulting in a low level of medication adherence.

Based on gender, diabetes mellitus patients in Meninting village were mostly women, accounted for 18 people (60%). Gender relates to different life roles and behaviors between men and women. In terms of maintaining health, women usually pay more attention to their health than men (Sailan et al, 2021). However, although most of the respondents were female, this study result seems to show no

correlation between gender and compliance with diabetes mellitus treatment. Despite the common fact that women pay more attention to their health, they show a low level of adherence just as male respondents.

Considering the 60% of respondents who were unoccupied, Tambuwun, et al. (2021) said that the work does not affect medication adherence in chronic disease patients. In their study on hypertension patients, it was shown that there is no significant correlation between occupation and the level of adherence to taking hypertension medication (Tambuwun, et al. 2021).

After using the medication calendar, most patients showed moderate level of adherence (73%) and there were 6 patients (20%) who has a high level of adherence. Medication adherence is the extent to which a person's behavior takes medication, follows a diet, and/or makes lifestyle changes, according to agreed recommendations from health care providers (Fatmawati, 2022). Compliance is a very important factor in the success of therapy for a diabetes mellitus patient (Fatmawati, 2022). Compliance levels may change due to changes in therapy models (Abarca, 2021). Changing the way of taking medication for diabetes mellitus patients by using a calendar can be a form of support or tool that can be used to carry out integrated monitoring so as to increase compliance.

Nugraheni (2017) stated that one of the methods in health education is flipchart that resembles an album or calendar containing pictures, on the back of which contains health information making this media easy to use and well understood by the target audience. Notoatmodjo (2012) suggested that media in the form of flipcharts or calendars is a medium used in health promotion practices because it can convey information with words and images that are able to motivate the behavior of those who see it.

Based on the results after 2 weeks of using medication calendar, showed a significant increase in patients' adherence in taking medication ($p = 0.000$). This result was in line with similar research on patients' adherence conducted by Mahdiaty et al. (2021). This study found that the compliance of hypertensive patients before receiving functional calendar was very low, while after receiving functional calendar, the level of adherence increased. Moreover, a research conducted by Andriani et al. (2019) found that there was an increase in medication adherence in hypertensive patients who use medication diaries. The patients were taking medication according to medication diaries that used as an alarm.

Nurses as one of the health workers plays an important role in the medication process. Nurses can actively participate in helping improve patient compliance in taking medication through health promotions. Nurses can also promote health by providing effective media such as medication calendars or medication reminder cards, brochures, pamphlets, that help patients understand the disease and the treatments. Moreover, Nurses can also provide additional information or large and clear writing on medication labels for patients who have difficulties in hearing or seeing as well as providing support, increasing motivation and facilitating treatment (Dewanti, et al., 2015).

According to (Rif'at, Hasneli, & Indriati, (2023) medication adherence can affect blood sugar control in patients with diabetes mellitus, patients who comply with treatment have a much better prognosis than patients who do not comply with treatment because it can worsen their condition. The

research results, proves that the medication calendar positively influence the adherence of taking medication in patients with diabetes mellitus. When someone uses the medication calendar as a reminder for taking medication, it will make that person familiar with the hours of taking medication and if they forget what medication has been taken, the patient can see the medication calendar that was previously filled in.

CONCLUSION

Medication calendar was proven to be having a positive influence in increasing patients' adherence on taking anti diabetic medication. This calendar used as a reminder and as a supporting tool for diabetic patient to keep maintain their therapy management effectively.

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