

The Effect Pharmacy Counseling Satisfaction and Compliance Taking Medication Type 2 DM Patients with Hypertension Complications Tebet Hospital

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Abstract

Pharmacist counseling is intervention that can increase patient satisfaction and compliance with treatment. This study aims to analyze the effect of pharmacist counseling on the level of patient satisfaction and adherence to taking medication in patients with type 2 diabetes mellitus complicated by hypertension. This research uses a one group pretest-posttest design. The research subjects were 95 patients who met the inclusion criteria and were taken using the MMAS-8 method and the satisfaction method. Satisfaction and compliance measurements were carried out before and after pharmacist counseling. Data analysis was carried out descriptively, Wilcoxon signed-rank test with a significance level of 5%. The results of the analysis showed that the average patient satisfaction score increased from 0.40 before counseling to 0.76 after counseling, with a difference of 0.36. The Wilcoxon test showed $p = 0.00$ ($p < 0.05$), which indicates there is a significant difference in the level of patient satisfaction. In the medication adherence variable, the average score increased from 27.94 to 51.27 with a difference of 23.34. The Wilcoxon test results obtained $p = 0.00$ ($p < 0.005$), which shows that there is a significant difference in the level of adherence to taking medication before and after counseling. Analysis based on the compliance category after counseling experienced an increase marked by the dominance of the high compliance category with an average of 51.27. Analysis based on satisfaction categories after counseling experienced an increase marked by the dominance of the high satisfaction category with an average of 6.07.

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INTRODUCTION

The World Health Organization (WHO) in 2022 stated that diabetes mellitus (DM) is one of the diseases most commonly suffered by people throughout the world and is in fourth place among the research priorities for degenerative diseases in all countries. WHO estimates that more than 346 million people worldwide suffer from diabetes(1).

According to the International Diabetes Federation (IDF), in 2021, as many as 537 million adults, 1 in 10 people worldwide will suffer from diabetes. Diabetes also causes 6.7 million deaths, or one in every five seconds. China, India, Pakistan, the United States and Indonesia are ranked in the top 5 countries with the highest population of diabetes mellitus sufferers in the world(1).

According to Riskesdas data in Indonesia, diabetes mellitus sufferers in 2023 will be 11.7% and in 2024 it will be 11.2%. Riskesdas data regarding type 2 diabetes mellitus in DKI Jakarta sufferers of type 2 diabetes mellitus are 3.9%. In 2021, more than half a billion people in the world live with diabetes, or to be precise 537 million people and this number is projected to reach 643 million in 2030 and 783 million in 2045. Apart from the large number of people with

diabetes, it is estimated that the number of people with blood glucose levels that are starting to increase or in the prediabetes phase, that is, impaired glucose tolerance, in 2021 will number around 541 million (2). Impact type 2 diabetes mellitus is at risk of disease complications such as hypertension, heart attack, stroke, nerve damage (diabetic neuropathy), sexual function disorders (1). Compliance is an important issue in undergoing therapy for people with type 2 diabetes mellitus complicated by hypertension because it will last a lifetime. The level of compliance with medication consumption in type 2 diabetes mellitus sufferers complicated by hypertension is still not optimal because there are still sufferers who do not regularly consume medication. Previous research at RSUP M Djamil Padang showed that the level of medication adherence was classified as low (60%), medium (31%), and high (9%) (3).

The clinical impact of type 2 diabetes mellitus is divided into acute and chronic. Acute clinical impacts are the impact of uncontrolled blood sugar, for example hyperglycemia with symptoms of polyuria, polyphagia, weakness, weight loss and hypoglycemia with symptoms of sweating, tremors, confusion, and decreased consciousness, usually due to insulin therapy and oral medication. Chronic clinical impacts, namely long-term complications, are divided into two microvascular complications, for example diabetic retinopathy, diabetic nephropathy, diabetic neuropathy. Macrovascular complications of coronary heart disease, stroke, peripheral arterial disease (4).

Medical complications in clinical practice include late diagnosis, many patients are not diagnosed until complications appear and type 2 diabetes mellitus often has no early symptoms. Low medication compliance, patients do not regularly take medication or are not controlled by education, costs and access to services. Unhealthy lifestyle, diet high in sugar and fat, lack of physical activity. The economic burden is high, the costs of treating complications, dialysis, surgery, and hospitalization are very large. Lack of patient education, minimal understanding about preventing complications (5).

Counseling is a way of providing information that includes education, understanding, and training regarding knowledge in diabetes management that can overcome the problem so that counseling can also control blood sugar levels. Counseling is also a form of intervention in medication use to increase compliance, so that there is an influence of pharmacist counseling on the level of compliance with medication use in type 2 DM patients. Good and correct counseling regarding medication can increase knowledge and lead to good medication behavior (6).

Indra D.'s 2022 research shows that there is an influence of counseling on therapy compliance in type 2 diabetes mellitus patients at community health centers. With the high number of type 2 diabetes mellitus sufferers complicated by hypertension, it can be concluded that the severity or severity of a disease can influence medication compliance and patient satisfaction with treatment. Other research shows that there is an influence of counseling on therapy compliance in type 2 diabetes mellitus patients at community health centers. The high number of sufferers of type 2 diabetes mellitus with complications of hypertension, can be concluded from the severity or severity of the disease can influence compliance with taking medication and patient satisfaction with receiving treatment(7). This research is different from previous research, namely by using a questionnaire to analyze the level of patient compliance and satisfaction before and after providing counseling. This research is expected to show a significant increase in patient satisfaction and medication adherence in type 2 diabetes mellitus patients complicated by hypertension after being given pharmacist counseling.

Analyzing pharmacist counseling to increase compliance and satisfaction in medication therapy in type 2 DM patients with hypertension complications at Tebet Hospital May – June 2025.

METHODS

The design used in this research is a type of experimental research with prospective data collection designed with One Group Pretest - Posttest. Limitations in the pretest - posttest design which does not have a control group, so that external factors may occur, namely education from other health workers, information from the environment, and the effects of repeated measurements that can influence the research results. In addition, natural changes in respondents during the study period also potentially contributed to this increase.

The counseling method is carried out face to face with a duration of 30 minutes by a pharmacist, the material of which is information on symptoms of DM and complications of hypertension, information on drugs for diabetes mellitus therapy with hypertension, how to use drugs, actions if a dose is missed, potential side effects of drugs, self-monitoring, potential drug interactions, potential interactions between diabetes mellitus drugs, potential interactions between diabetes mellitus drugs and hypertension drugs, potential drug and food interactions, how to store and dispose of drugs.

This research was conducted at Tebet Hospital from May to June 2025. Data collection was carried out through questionnaires. The study population was all data on patients diagnosed with type 2 diabetes mellitus complicated by hypertension obtained from 95 patients undergoing treatment at the internal medicine clinic at Tebet Hospital. Samples were taken from type 2 DM patients with hypertension complications who had been on treatment for at least 2 months. The research period was May - June 2025 at Tebet Hospital before and after receiving pharmacist counseling regarding patient satisfaction and level of compliance with type 2 DM medication use. Judging from the inclusion and exclusion criteria.

Data was collected through a satisfaction questionnaire from Hening P (8). and a compliance questionnaire from Miftakhul J. before and after pharmacist counseling.

This research has received ethical approval from the Ethics Committee of Muhammadiyah University, Prof. Dr. Hamka (Perscension Number: 335/B.04.02/2025). All patients provided written informed consent before their participation. Patients are guaranteed confidentiality of their information which is only used for research purposes. In addition, patients were informed of their right to withdraw from the study at any time and were assured that this would not incur any sanctions.

Data analysis used univariate in the form of type 2 DM patients with hypertension complications from sociodemographics to determine the data results from the questionnaire. Apart from that, bivariate analysis is in the form of compliance analysis before counseling and after counseling, satisfaction analysis before counseling and after counseling to find out the results of the data from the questionnaire.

RESULTS AND DISCUSSION

Data collection was carried out from May to June at Tebet Hospital in the internal medicine clinic. The purpose of this research is to know that pharmacist counseling can influence satisfaction and compliance with taking medication in type 2 DM patients with complications of hypertension including the variable of respondents who have not received counseling regarding satisfaction and compliance, after receiving counseling regarding satisfaction and compliance. This research has received approval from the Non-Medical Health Research Ethics Committee (KEPK), Muhammadiyah University, Prof. Dr. Hamka (UHAMKA). Data collection was carried out using a direct interview method with the subject which began with filling out the Informed Consent as a form of agreement to become a subject. The method for taking subjects uses the One Group Pretest - Posttest method. The number of subjects obtained in the study was 95 subjects who met the inclusion criteria.

Table 1 Subject characteristics in this study included age, gender, and occupation. The research results showed that the majority of respondents were women (55.79%), age group 60 - 64 years (31.58%), and private employees (40.00%). So the increase in fat levels in women is higher than the increase in fat levels in men, so that the factors that cause type 2 diabetes mellitus with complications of hypertension in women are 3-7 times higher than in men, namely 2-3 times (9).

Occupation, the subject with the largest number of private employees, obtained a percentage of 4.00%. This is because stress is one of the contributing factors in the pathogenesis of type 2 diabetes mellitus. Stress conditions can trigger activation of the hypothalamus – pituitary – adrenals. This activation leads to stimulation of the release of

adrenocorticotrophic hormone (ACTH) (10). ACTH plays a role in inducing the adrenal glands to secrete the hormone cortisol. Cortisol, as the main glucocorticoid hormone, has hyperglycemic effects (1).

Table 1. Percentage of Demographic Subject

Characteristics	Characteristics	Frequency	Percentage
Age	Less Than 40 Years Old	1	1.05
	40-44 Years	8	8.42
	45-49 Years	8	8.42
	50-54 Years	19	20.00
	55-59 Years	24	25.26
	60-64 Years	30	31.58
	More than 65 years old	5	5.26
Gender	Male	42	44.21
	Female	53	55.79
Work	Private sector employee	38	40.00
	Housewife	36	37.89
	Retired	15	15.79
	Informal Workers	1	1.05
	Not Working	5	5.26

Table 2 Category analysis, before counseling the majority of patients were in the moderate satisfaction category, with an average value of moderate satisfaction of 2.12. After counseling, there was a shift in the distribution of satisfaction categories, where the majority of patients were in the high satisfaction category with an average value of 6.07.

Table 2. Analysis of Satisfaction Categories Before and After Counseling

Analysis	Average before Counseling	Average after counseling
Low satisfaction	0	0
Medium satisfaction	2.12	0
High satisfaction	0	6.07
Average	2.12	6.07

Table 3 Analysis of Compliance Categories Before Counseling and After Counseling. Analysis of compliance by category shows that before counseling, patients were dominated by the low compliance category with an average value of 23.51 and the moderate compliance category with an average value of 30. After counseling, patient compliance increased as indicated by the dominance of the high compliance category with an average of 51.27.

Table 3. Analysis of Compliance Categories Before and After Counseling

Analysis	Average Before Counseling	Average After Counseling
Low compliance	23.51	0
Moderate compliance	30	0
High compliance	0	51.27
Average	26.75	51.27

Table 4 Analysis of Satisfaction Elements Before Counseling and After Counseling. Subject data related to analysis of satisfaction before counseling and after counseling showed an increase. In table 4.2, a significant increase in data was obtained regarding responses to patient questions, language used, counseling time and how to interact with patients. More complete data can be found in the following table:

Table 4. Analysis of Satisfaction Elements Before Counseling and After Counseling

Analysis	Before Counseling	After Counseling
How to discuss medicines	37	72
History & related allergy questions	40	72
Maintaining patient privacy	46	76
Response patient questions	40	77
Language used	49	79
During	32	78
How to interact with patients	36	75
Information provided	37	75

Subject data analysis of satisfaction before counseling and after counseling showed an increase, significant data was obtained regarding responses to patient questions from before counseling by 40% and after counseling 77%. The pharmacist's response can be seen from the responsiveness and speed of the service provided. The more responsive the pharmacist is, the more satisfied the patient's perception of the service will be. Pharmacist responses can be seen when patients are allergic to drugs or have side effects from drugs (11). When a patient experiences an allergy or side effect from a drug, the pharmacist will immediately document it and carry out further treatment. Further treatment needs to be carried out to produce safe and effective drug therapy (8).

Analysis of satisfaction before counseling was 49% and after counseling 79% regarding the language used. The thing that needs to be considered to produce good communication is the use of appropriate language. Choosing the right language can be adjusted to several factors, including age and occupation. Apart from that, the use of appropriate language can be adjusted to the situation during the conversation. Using regional languages that suit the patient's background will create a sense of comfort and the patient will feel familiar (8).

Analysis before counseling related to counseling time was 32% and after counseling 78%. The optimal duration of counseling ensures that patients do not get bored. When the patient is not bored with eating, the patient understands easily and does not require a lot of time so time is more efficient. Based on observations of the counseling process, the duration given by pharmacists during counseling was sufficient so that it did not interfere with rest and was not felt to be boring (8).

Analysis before counseling was 36% and after counseling 75% related to how to interact with patients based on observations of patients, pharmacists were friendly and polite so that the counseling process was comfortable. Hospitality can facilitate communication and collaboration with patients so that it can increase patient satisfaction. Effective communication between pharmacists and patients will have an impact on better health, so that patients feel comfortable and influence patient satisfaction in coming back to receive subsequent health services (8).

Table 5 Analysis of Compliance Elements Before Counseling and After Counseling. Subject data related to compliance before counseling and after receiving counseling, an increase in data was obtained related to stopping taking medication without consultation, forgetting to take medication when traveling and stopping taking medication when there were no complaints. For more complete data, see the following table:

Table 5. Analysis of Compliance Elements Before Counseling and After Counseling

Analysis	Previous Counseling	After Counseling
Alpha in taking medicine	3.68	6.66
Have not taken medication in two weeks	3.69	6.52
Stop taking medication without	3.14	6.17
Forgetting to bring medicine when	3.26	6.33
Take medicine the previous day	3.97	6.95
Stop taking medication when there are no complaints	3.2	6.2
Burdened to take medication	3.49	6.14
Difficulty remembering to take medication	3.47	6.26

Subject data analysis of compliance before counseling and after counseling showed an increase, significant data was obtained regarding stopping taking medication without consultation before counseling as much as 3.14 and after counseling as much as 6.17. Providing counseling helps patients to schedule medication, manage drug side effects and increase compliance (12)(13) Compliance analysis before counseling was 3.26 and after counseling 6.33 regarding forgetting to bring medication when traveling. Providing counseling on the factors of forgetting to take medication when traveling helps patients plan their medication needs before traveling and understand the importance of carrying medication consistently, even when traveling (14). Analysis of compliance before counseling was 3.2 and after counseling 6.2 regarding stopping taking medication when there were no complaints (15). Providing counseling regarding the factors of stopping taking medication when there are no complaints, pharmacists help patients provide a clear understanding of the importance of continuous treatment to control the disease (12).

Table 6 Wilcoxon Test of Satisfaction Before Counseling and After Counseling Patient Satisfaction. The results of the Wilcoxon Signed - Rank test showed that the average patient satisfaction score increased from 0.40 before counseling to 0.76 after counseling, with a difference of 0.36. The statistical value of the Wilcoxon test was -8.47 with a significant value of $p = 0.00$. Because the p value < 0.005 , the null hypothesis is rejected. This shows that there is a significant difference in the level of patient satisfaction between before and after counseling

Compliance with Medication

In the medication adherence variable, the average score increased from 27.94 before counseling to 51.27 after counseling, with a difference of 23.34. The Wilcoxon test statistical value is -8.48 and the significant value is $p = 0.00$. Thus, the null hypothesis is rejected, which means there is a significant difference in the level of adherence to taking medication before and after counseling.

Table 6. Wilcoxon Test Statistics

Factor	Mean		Differences before – after	Wilcoxon test statistics	Significance
	Before	After			
Patient satisfaction	0.40	0.76	0.36	-8.47	0.00
Adherence to taking medication	27.94	51.27	23.34	-8.48	0.00

CONCLUSION

Research conducted at Tebet Regional Hospital, analyzed previous satisfaction categories with an average satisfaction value of 2.12. After the counseling was carried out, there was a shift in the distribution of satisfaction categories where the majority of patients were in the high satisfaction category with an average value of 6.07. Analysis of compliance by category shows that before counseling, patients were dominated by the low compliance category with an average value of 23.51, medium compliance with an average value of 30. After counseling, patient compliance experienced an increase marked by the dominance of the high compliance category with an average of 51.27.

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