

The Relationship Between Family Medicine Supervisors And Compliance Medication In Tuberculosis Patient In The Pace Community Health Center Nganjuk

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ABSTRACT

Medicine Supervisor plays a very important role in the treatment of pulmonary TB (Tuberculosis) patients. One of the factors that affects compliance with pulmonary Tuberculosis treatment is the fairly long treatment period, so that many patients feel cured and stop taking their medication. Non-compliance with treatment causes a high rate of treatment failure in pulmonary Tuberculosis patients. The purpose of this study was to analyze the relationship between the role of medication supervisors and medication compliance in tuberculosis patients aged 45 to 60 years. The design used in this study was Cross Sectional with a simple random sampling technique of 44 respondents. Data was be analized by Chi-Square test. The results of the study found that in measuring the Role of Family PMOs that almost all respondents had an active family PMO role with a prevalence of 81.81% of 36 respondents, and in Medication Compliance, it was found that almost all respondents were compliant with taking medication with a prevalence of 77.27% of 34 respondents. The results of the Chi-Square Test statistical test found a value ($p < 0.05$) it can be said that there is a Relationship Between the Role of Family Medication Supervisors and Medication Compliance in Tuberculosis Patients Aged 45 to 60 Years. Meanwhile, the contingency coefficient value of 0.293 shows a relationship between variables, but its strength is not too strong (the coefficient value is close to 0.3). If the role of the Family Medicine Supervisor is carried out well, Tuberculosis patients have a great chance of completing treatment without obstacles and reducing the risk of complications.

I. Introduction

Tuberculosis, or TB, is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*. Tuberculosis usually attacks the lungs, but it can also affect other organs (Siska Sibua et al., 2022). Symptoms include a cough lasting more than two weeks, weight loss, fever, and fatigue. Tuberculosis can spread through the air when an infected person coughs or sneezes. Anyone can contract or be exposed to the tuberculosis bacteria, especially if they have close contact with someone with tuberculosis.

The WHO reports that the estimated number of people diagnosed with TB has increased, with an estimated 10 million cases globally in 2020, an increase of approximately 600,000 cases from the estimated 10.6 million cases in 2021. Indonesia ranks second in the world for TB morbidity after India, with an estimated 969,000 TB cases. This figure represents a 17% increase from 2020 (Notoatmodjo 2022).

A preliminary study conducted by researchers at the Pace Community Health Center in Nganjuk Regency on June 25, 2024, showed that the number of TB patients changes every year. In September 2023, there were 40 sufferers, while in January 2024, there were 9 sufferers. From 2023 to 2024, there were 49 TB sufferers, some of whom were declared cured, and 3 died due to complications. Interviews



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with three mothers and fathers of a PMO whose patients were in the advanced stage said that sometimes they forget to always remind them to take their medication and have regular check-ups, due to the busy schedules of each PMO, so that TB patients do not comply with the treatment schedule.

Pulmonary TB patients can be cured if treatment is carried out diligently according to the prescribed schedule. This requires long-term treatment, which can lead to patients discontinuing treatment. Discontinuing treatment can cause the bacteria to reactivate and even develop drug resistance. The dropout rate in Indonesia is 31% (WHO, 2018).

A medication supervisor (PMO) is someone who lives near the patient's house or who lives in the same house as the patient so that they can supervise the patient until they actually take the medication every day so that there is no withdrawal from the medication and this is done voluntarily. The task of a PMO is to ensure that TB patients comply with their treatment, therefore the PMO must supervise TB patients to take their medication regularly until the treatment is completed, encourage patients to take their medication regularly, and remind patients to re-examine their sputum at the appointed time (Wiranata, 2019).

This disease is an infectious disease that can affect all groups of people, from infants and children to adolescents to the elderly, and can cause illness and death in more than one million people each year. According to the WHO, one-third of the world's population is infected with tuberculosis bacteria (Wiratma et al., 2020). Treatment for tuberculosis requires continuous antibiotic therapy for several months to eliminate the bacteria that cause tuberculosis. Despite increased efforts to control and treat tuberculosis, this disease remains a major global health problem.

In connection with the research background, the researcher is interested in examining the relationship between the role of medication supervisors and medication adherence in tuberculosis patients aged 45 to 60 years in the Pace Nganjuk Community Health Center area

II. Methods

This study uses a quantitative research design with a cross-sectional method. With a simple random sampling technique of 44 respondents, the independent variable is the role of family PMO using a questionnaire and the dependent variable is medication adherence. The Chi-Square statistical test was used to determine the relationship between the two variables. Analysis using the Chi-Square statistical test obtained the result $p = 0.042 < 0.05$, so it can be concluded that H_0 is rejected and H_1 is accepted, which means there is a relationship between the role of family medication supervisors and medication adherence in tuberculosis patients aged 45 to 60 years in the Pace Community Health Center area, Nganjuk Regency.

III. Results and Discussion

Table 1 Distribution of Respondent Characteristics and Variables

Family Supervisor Medication	Frequency	Percentage (%)
Age		
45 – 50 years	21	47,72
51 – 60 years	15	34,09
>60 years	0	0
Sex		
Male	27	61,36
Female	9	20,45
Education Status		
Elementary School	0	0
Junior High School	7	15,90
Senior High School	25	56,81
College	4	9,09

Source: Research Questionnaire, dated October 24, 2024

Table 2 Cross Tabulation Between Variables

		Frequency	Percentage (%)
Family Supervisor	Active	36	81,81
	Passive	8	18,18
Total		44	100
Medication Compliance	Compliant	34	77,27
	Non-compliant	10	22,72
Total		44	100

Source: Research Questionnaire, dated October 24, 2024

Based on the table above, the analysis of the Relationship between the Role of Family Medication Supervisors and Medication Compliance in Tuberculosis Patients Aged 45 to 60 Years with 44 respondents. The results of the analysis obtained from the measurement of the Role of Family PMOs showed that almost all respondents had an active role in family PMOs, namely 36 people with a percentage of 81.81%. And respondents on Medication Compliance. The results showed that almost all respondents were compliant with taking medication, namely 34 people with a percentage of 77.27%.

Analysis of Research Statistical Test Results

Based on the results of the chi square test, it is known that Asymp. Sig. (2-sided) is 0.042. Because the value of $0.000 \leq 0.05$, it can be concluded that H_0 is rejected and H_1 is accepted, which means there is a Relationship between the Role of Family Medication Supervisors and Medication Compliance in Tuberculosis Patients Aged 45 to 60 Years in the Pace Community Health Center Area, Nganjuk Regency.

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.141 ^a	1	.042		
Continuity Correction ^b	2.461	1	.117		
Likelihood Ratio	3.634	1	.057		
Fisher's Exact Test				.064	.064
Linear-by-Linear Association	4.047	1	.044		
N of Valid Cases ^b	44				

a. 1 cells (25,0%) have expected count less than 5. The minimum expected count is 1,82.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.293	.042
N of Valid Cases		44	

The Role of Family Medication Supervisors

Based on table 4.1 The Role of Family Medication Supervisors, it was found that out of 44 respondents, 8 people did not support the role of family medication supervisors, namely 18.18% with ages 51-60 years, and 4 of them had a high school education. 36 respondents who supported the role of family medication supervisors amounted to 81.81% with ages 41-50 years and 7 of them had a junior high school education.

The PMO plays a crucial role in treatment, and its success also depends heavily on the patient's belief and self-confidence. If the patient has low confidence in their ability to recover from their illness, treatment failure is likely, even if the PMO provides maximum assistance. Therefore, in addition to

assistance from the PMO, patients must also build strong belief and self-confidence for successful treatment (Sondang, 2021).

The role of the family in preventing the transmission of pulmonary tuberculosis is crucial, as one of the family's responsibilities is to care for sick family members and prevent transmission to healthy family members. Furthermore, the family is viewed as an interacting system, with a focus on internal family dynamics and relationships, as well as the interdependence of the family subsystem with health, and the family with its external environment (Ali, 2018).

The results of the questionnaire on the role of family medication supervisors indicate that almost all respondents actively participate in the role of family medication supervisors. This is due to several key factors, such as the active involvement of the medication supervisor (PMO) in reminding patients to take medication and the PMO's ability to provide motivation and education regarding the importance of medication adherence. This support is also reinforced by the PMO's consistent presence throughout treatment, increasing the patient's sense of responsibility for their recovery.

The research found that a small number of respondents considered the role of family medication supervisors (PMOs) inactive. This perception stems from a lack of closeness or communication between the PMO and the patient, limited time for PMOs to monitor directly, and a lack of motivation or education perceived by patients. Several respondents also expressed that they felt more comfortable managing their own medication without PMO support. This highlights the need for improved communication and active involvement from PMOs to support patients more effectively.

Based on Table 4.3, cross-tabulation of age regarding the role of family medication supervisors, almost all respondents aged 40-50 years supported the role of family medication supervisors, as many as 21 respondents (47.72%). This is in accordance with Dan McAdams' theory, which emphasizes the role of personal narratives in shaping identity. As individuals age, they continue to revise their life stories and past experiences with their current self-concept, whether based on personal experiences or the experiences of others. (Rahmasari, FA 2020).

Besides age, gender also influences the role of family medication supervisors in individuals. Based on table 4.3, a cross-tabulation of gender with the role of family medication supervisors, it was found that the majority of male respondents supported the role of family medication supervisors, as many as 27 respondents (61.36%), compared to only 9 female respondents (20.45%) who supported the role of family medication supervisors. This is influenced by many factors, one of which is that men, especially those who act as heads of families, often feel responsible for the health of their family members. This makes them more supportive of the role of PMO to ensure that treatment runs smoothly and is considered to have a role in directing or regulating the situation within the family. This can encourage them to support the family PMO in ensuring that patients are disciplined in taking their medication.

Based on the results of the research conducted, it was found that the role of PMO (Medication Supervisor) families in the 45-50 age group was almost all respondents with 21 respondents compared to the 51-60 age group. This can be caused by several factors, including, At the age of 45-50 years, patients tend to be more aware of the importance of regular medication, so more are actively involved in the PMO program to ensure adherence to taking medication. This difference in the number of respondents indicates the importance of a more specific approach in maximizing the role of family PMO, both by increasing understanding for older age groups and by strengthening social support around patients.

Medication Compliance

According to the US Food and Drug Administration (FDA) in Cureatr (2020), medication adherence is defined as the extent to which a patient takes medication as prescribed. This involves factors such as filling the prescription, remembering to take the medication on time, and understanding the instructions. Non-adherence can be seen in relation to dosage, method of administration, timing, and duration of medication that are not in accordance with the rules (Lailatushifah, 2012).

According to Hayers et al in Lailatushifah (2012) patient non-compliance in taking medication can cause several impacts, such as the occurrence of side effects of drugs that can be detrimental to the patient's health, increased medical costs, patients can also experience resistance to certain drugs. Based on the several definitions above, it can be concluded that medication compliance is the patient's behavior

in taking medication according to the type, dose, method of taking and number of days of taking the medication in accordance with the instructions given by the doctor or other medical personnel.

Compliance is the first step a patient takes to achieve recovery, following the recommendations and instructions provided by healthcare professionals. This includes taking medication regularly, following a recommended diet, and making necessary lifestyle changes. Good compliance can be achieved when patients consistently take their medication on time and at the prescribed dosage.

This is crucial in the treatment of pulmonary TB, as non-adherence to medication can result in ineffective treatment and a wider spread of TB bacteria, leading to increased resistance. Therefore, it is crucial for patients to understand the importance of adherence to treatment and to take the necessary steps to ensure recovery (Setyowati, 2022).

By recognizing that health is invaluable, TB patients will be strongly motivated to adhere to treatment and regularly, as well as to make the necessary lifestyle changes to ensure optimal recovery. This will help accelerate the healing process and prevent the spread of more widespread and resistant TB bacteria (Ministry of Health of the Republic of Indonesia, 2022).

The results of the study seen in table 4.2 show that the highest compliance with taking medication has almost all complied with a percentage of 77.27% with a frequency of 34 respondents. Based on the results of the description, it was found that compliance with taking medication was almost half of the respondents in the 45-50 year age group with 18 respondents more than the 51-60 year age group. At the age of 45-50 years, many individuals are still in a relatively more stable and healthy physical condition, so they are better able to follow the medication schedule with discipline. Conversely, at the age of 51-60 years, declining physical conditions or the presence of comorbidities can affect the ability to follow medication regularly.

And a high school education background: Most of the respondents, 23 in total, were more numerous than those with junior high or college education. Respondents with a high school education tended to have a better understanding of the importance of regular medication. They were better able to understand information about their illness and treatment, thus being more motivated to adhere to their medication schedule.

The Relationship Between the Role of Family Medication Supervisors and Medication Compliance in Tuberculosis Patients Aged 45 to 60 Years

Based on the results of the chi square test, it is known that Asymp. Sig. (2-sided) is 0.042. Because the value of $0.000 \leq 0.05$, it can be concluded that H_0 is rejected and H_1 is accepted, which means there is a Relationship between the Role of Family Medication Supervisors and Medication Compliance in Tuberculosis Patients Aged 45 to 60 Years in the Pace Community Health Center Area, Nganjuk Regency. Meanwhile, the contingency coefficient value of 0.293 indicates a relationship between the variables, but the strength is not too strong (the coefficient value is close to 0.3).

Based on the data in Table 4.1, the majority of respondents indicated a supportive role for their families in the Family PMO (PMO) assessment. Of the 44 respondents, 36, or approximately 81.81%, demonstrated an active role in supporting patients in tuberculosis (TB) treatment. This indicates that most families have a strong commitment to ensuring patients undergo treatment properly, which is crucial for successful therapy and preventing drug resistance.

Furthermore, the results showing that 81.81% of respondents had supportive family roles in TB treatment programs also reflect the importance of health education received by patients' families. Families educated about the importance of adherence to TB treatment tend to be more proactive in providing the necessary support. Family involvement in ensuring patients take their medication regularly not only increases the cure rate but also reduces the likelihood of further transmission.

Family involvement in treatment supervision also positively impacts the emotional bond between patients and their families, which can increase patient motivation to undergo treatment. With psychological support from family, patients feel more valued and cared for, which in turn can increase their confidence in facing the challenges of TB treatment. This demonstrates that the family's role is not only as a supervisor of medication intake, but also as a source of emotional strength that significantly influences treatment success.

Based on Table 4.2, it can be seen that the majority of respondents, namely 34 people, or approximately 77.27%, demonstrated a high level of compliance with taking medication. This result indicates that the majority of patients understand the importance of taking regular medication to recover from Tuberculosis (TB). Adherence to treatment is a key factor in successful therapy, because by taking medication on schedule, the bacteria that cause TB can be effectively eradicated, drug resistance prevented, and the risk of transmission to others is reduced.

Achieving this high level of adherence can be influenced by various factors, one of which is family support, as reflected in the role of the family PMO. When families are actively involved in monitoring patients, patients are more motivated to adhere to the prescribed treatment schedule. This demonstrates the importance of the family's role in creating an environment conducive to successful TB therapy, both physically and emotionally.

Finally, accessibility and ease of obtaining medication also influence adherence levels. When patients have easy and regular access to the medications they need and experience no logistical barriers to obtaining them, they are more likely to take their medications according to the prescribed dosage and schedule. This suggests that an efficient and affordable drug distribution system is also crucial for achieving high levels of adherence in TB patients.

Furthermore, the success of this adherence rate is also influenced by the health education provided by healthcare workers. Clear information and effective communication between healthcare workers and patients helps improve patient understanding of the importance of regular medication adherence, while also reducing concerns about medication side effects.

IV. Conclusion

In this chapter, we discuss the conclusions and suggestions from research on the role of family medication supervisors in medication adherence in tuberculosis patients aged 45 to 60 years in the Pace Community Health Center area, Nganjuk Regency.

1. Of the 44 respondents in the measurement of the role of family medication supervisors, it was found that the majority of respondents supported this with a prevalence of 81.81%, namely 36 respondents.
2. Of the 44 respondents in the medication adherence measurement, it was found that almost all respondents were compliant with a prevalence of 77.27%, amounting to 34 respondents.
3. Based on the results of the chi square test, it is known that Asymp. Sig. (2-sided) is 0.042. Because the value of $0.000 \leq 0.05$, it can be concluded that H_0 is rejected and H_1 is accepted, which means there is a Relationship between the Role of Family Medication Supervisors and Medication Compliance in Tuberculosis Patients Aged 45 to 60 Years in the Pace Community Health Center Area, Nganjuk Regency over report positive behaviors. Future studies should consider a longitudinal design to observe how the impact of parental involvement evolves as children transition into primary school. It is also recommended to use mixed-methods approaches, incorporating qualitative interviews to gain deeper insights into the specific cultural barriers parents face in rural versus urban settings. Finally, expanding the sample to include a more diverse socioeconomic range would provide a more comprehensive understanding of the contextual factors influencing child development

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