

DESCRIPTION OF THE ROLE OF DRUG SWALLOWING (PMO) SUPERVISION ON THE SUCCESS OF TUBERCULOSIS TREATMENT AT THE SIKUMANA PUBLIC HEALTH CENTER IN KUPANG CITY

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Abstract

Tuberculosis (TB) is an infectious disease caused by the bacteria *Mycobacterium tuberculosis* and can be fatal if not treated properly. This qualitative study with a phenomenological approach aims to determine the role of Drug Supervisors (PMO) in the success of TB treatment at the Sikumana Community Health Center in Kupang City. This study involved 16 informants selected using a purposive sampling technique. The results of the study indicate that PMOs play an important role in the success of TB treatment through several roles, namely the role of supervision by monitoring the medication schedule, ensuring the availability of drugs and supervising it is important, especially for children, the role of motivation by knowing and addressing the side effects of OAT, motivating patients to comply with taking medication, reaffirming the symptoms and impacts of not taking OAT, the role of reminders by helping and reminding patients to take OAT at the community health center and sputum examination to monitor the progress of treatment, by helping or accompanying PMOs to discuss with health workers and the role of education by providing education about TB, treatment methods, and prevention of transmission.

Keywords: TB, Role of PMO, OAT

Introduction

Pulmonary tuberculosis (TB) is a disease caused by infection of the *Mycobacterium tuberculosis* bacteria in the lungs. This bacteria can also infect other organs in the body through the blood vessels, such as the lymph nodes, meninges, bones, and joints. The disease is spread through the air when an infected person spits, coughs, or sneezes (Sondang, Asrifuddin, and Kaumang 2021).

Indonesia's health profile states that 821,200 TB cases were detected, a significant increase compared to all TB cases detected in 2022, which amounted to 677,464 cases (Ministry of Health, 2023). The number of pulmonary tuberculosis cases in East Nusa Tenggara (NTT) Province in 2022 was 7,268 cases and in 2023 increased to 9,535 cases. Kupang City contributed the highest number of tuberculosis cases compared to other areas in NTT, with 757 cases in 2022 and 1,253 cases in 2023 (BPS, 2023). The number of TB cases at the Sikumana Community Health Center in 2020 was 102 people, in 2021 it was 81 people, in 2022 it was 137 people, in 2023 it was 153 people and up to September 2024 it was 115 people.

TB treatment success rates and case detection rates are used to measure the success of TB case detection efforts. If pulmonary tuberculosis treatment is unsuccessful, patients can potentially transmit the disease to others. The success rate for all cured and completed TB cases among all treated and reported TB cases nationally in 2023 reached 86.5%, but fell short of the national target of 90%. The treatment success rate for tuberculosis patients in East Nusa Tenggara Province in 2023 was 89.7%.

(Ministry of Health, 2023b) and the treatment success rate in Kupang City for all tuberculosis cases in 2021 was 88.6%, in 2022 it was 91.2% and in 2023 it was 88.5%. Sikumana Community Health Center is one of the community health centers in Kupang City that had a treatment success rate of 90.0% in 2021, then decreased in 2022 to 77.8% and in 2023 increased to 95.4% (Kupang City Health Office, 2023) .

Tuberculosis sufferers must take Anti-Tuberculosis Drugs (OAT) regularly for 4-6 months to be declared cured (WHO, 2023). To ensure regular treatment, support from various parties is needed to assist sufferers during the treatment phase. WHO's recommendation in the *Directly Observed Treatment Shortcourse* (DOTS) strategy for TB control is the involvement of a Drug Supervisor (PMO) (Dedy, Sagita, and Artawan 2022) . Successful tuberculosis treatment requires direct supervision by a PMO to ensure that patients take all medications as directed to prevent transmission and avoid drug resistance. A PMO is a designated person and preferably close to the sufferer, such as family, neighbors, or respected health cadres, to be responsible for ensuring that tuberculosis sufferers take their medications according to the recommendations of health workers (Nyoman et al. 2019) .

The role of the PMO is to supervise patients undergoing treatment to ensure they take their medication regularly, motivate patients to regularly take OAT, remind them of their medication schedule and accompany them to have sputum tests at the community health center at the appointed time, inform patients of the dos and don'ts; such as wearing a mask at home or outside and having to cover their mouth when coughing, and provide counseling to families if anyone has suspicious symptoms (Alisa 2023) .

Based on the background, the researcher feels the need to conduct in-depth research on the role of PMO at the Sikumana Community Health Center so that the researcher is interested in conducting research on the description of the role of PMO in the success of tuberculosis treatment in the Sikumana Community Health Center work area.

Method

This study was a qualitative study with a phenomenological approach. The study was conducted in the Sikumana Community Health Center (Puskesmas) in Kupang City, which had the highest TB treatment success rate among 11 community health centers. The study was conducted from October 2024 to December 2024.

The population in this study was all tuberculosis PMOs in the working area of the Sikumana Health Center in Kupang City, with the research sample being *purposive sampling*. The informants interviewed were 16 people, five main informants, namely PMOs who successfully accompanied until the completion of treatment and supporting informants consisting of five TB patients who completed treatment, five family members living in the same house and one person in charge of the TB program.

The data in this study consists of primary and secondary data. Primary data were obtained from interviews with informants, covering the identity of the PMO and its role in monitoring, motivating, reminding, and educating. Secondary data were obtained from health institutions, namely the Kupang City Health Office and the Sikumana Community Health Center in Kupang City, as well as websites that provide data related to the research topic.

This study used in-depth interview techniques. The instruments used were the researcher herself as the primary instrument, an interview guide, and a *mobile phone* for voice recording. The data obtained was documented in a questionnaire. photo form. Data processing was carried out by transcribing the data, the data was collected and changed from recording form into writing then made into an interview matrix for data analysis by conducting data reduction, data presentation and drawing conclusions. The analyzed data was presented using narrative text supplemented by quotes from the results of informant interviews using local languages and the views of the research informants.

Results

Description of Informant Characteristics

The informants in this study were 16 people. The main informants of this study were PMOs in the working area of the Sikumana Health Center who successfully accompanied five TB patients until they completed their treatment, with supporting informants from the PMO consisting of five patients who completed their treatment and five family members living in the same house, as well as one person in charge of the Sikumana Health Center TB program who also served as supporting informants in this study.

Table 1Characteristics of Key Informants

Name	Age	Gender	Address	Last education	Work	Relationship with the Sufferer	PMO Experience
IT	28	Woman	Oepura	S1	Private employees	Child	April - September 2024
YL	44	Woman	Fatukoa	SENIOR HIGH SCHOOL	Housewife	Mama	November 2023 – April 2024
VA	25	Woman	Sikumana	SENIOR HIGH SCHOOL	Housewife	Wife	December 2023 – May 2024
ML	33	Woman	Sikumana	S1	Housewife	Mama	2015, 2016 and 2023
HN	40	Man	Belo	SENIOR HIGH SCHOOL	Fish Seller	Husband	March – August 2024

Table 2Characteristics of Supporting Informants

Name	PMO Name	Age	Gender	Address	Last education	Work
KN	IT	58	Woman	Oepura	Elementary School	Housewife
DT	IT	22	Woman	Oepura	SENIOR HIGH SCHOOL	Student
IO	YL	21	Woman	Fatukoa	SENIOR HIGH SCHOOL	Student
CO	YL	48	Man	Fatukoa	SENIOR HIGH SCHOOL	Driver
YP	VA	26	Man	Sikumana	Vocational School	Guard the Shop
MP	VA	30	Man	Sikumana	Vocational School	Seamstress
PF	ML	12	Woman	Sikumana	Elementary School	Students
JF	ML	35	Man	Sikumana	S1	Private
JM	HN	42	Woman	Belo	SENIOR HIGH SCHOOL	Store Cashier
BN	HN	21	Woman	Belo	SENIOR HIGH SCHOOL	Student
RA	-	29	Woman	-	S1	TB Program Manager

PMO knowledge and experience

The results of this study indicate that all informants knew the recommended dosage of ATD for patients, ranging from two to four tablets, adjusted based on body weight and the patient's medication schedule. The average patient took the medication at night, and some took it in the morning. The following are excerpts from the interviews:

"I know, sis, take it once a day, three tablets each time, it says to be adjusted to your body weight, right? The dosage is also written on the card you get from the health center... that was at six in the morning." (IT)

"He took the medicine dose of 2 tablets... at seven o'clock in the evening" (VA)

"It's given based on body weight... if it's PF, it's different. At that time, he drank four doses at a time, if the probe was wrong, it would be for six months" (ML)

The research results showed that informants stayed with TB patients until they finished their medication because they wanted them to recover and felt sad when a family member became ill. The following is an excerpt from the interview:

"What's certain is that my husband gets better, Sis, he's sick, so I feel sad when I see him in that condition, so I'm going to try to get better" (VA)

"What is certain is that my mother is healthy, I accompany her so that I can provide support, who wants to see their wife sick like that, there is no hope, right, in this house, the parents are healthy, so if someone is sick, the parents will help each other so that they can get well" (HN)

"This is the case, everyone in the house is healthy, but there is only one who is sick, this is a contagious disease, as a parent it is sad so you have to encourage them to keep reminding them, so the child will also be enthusiastic about taking the medicine, right?" (YL)

During treatment, PMOs encountered challenges in managing their time to directly monitor patients' medication intake, remind them of their medication schedules, and had difficulty taking patients to treatment because they were afraid of needles, making it difficult to persuade them to seek treatment. The following is an excerpt from an interview:

"...in the morning I have to get ready for work, I'm always busy with my own affairs, so in the morning I have to always remember to ask if someone has taken their medicine, that's what keeps reminding me" (IT)

"... at the beginning of the treatment, sis Awii ketong pung babujuk, why did you take him to check him and he was half dead, he was afraid of injections so he wanted to get a pi even though his condition was serious..." (VA)

Interviews with informants revealed that willingness or awareness of taking medication was the most influential factor in successful treatment. Furthermore, remembering to take medication regularly also contributed to TB treatment success. The following are excerpts from the interviews:

"The one who reminded me to take the medicine and the parents to take the medicine was the one who reminded me" (IT)

"Self-awareness to take medication" (ML)

"The wish to recover from my aunt, so if I forget, please remind her that she drank it herself because she is conscious and wants to get well quickly." (HN)

The role of PMO

Supervise

All informants monitored medication schedules by asking patients directly. Furthermore, some also monitored by checking the clock to remind them and provide medication on time. Informants ensured the availability of anti-TB drugs by checking the medication and medication cards. The following are excerpts from the interviews:

"I usually ask and usually when it's close to nine o'clock, the cellphone alarm will ring so I already know when it's time for my aunt to take her medicine" (HN)

"I take the medicine every morning, so when I'm getting ready for work, I look at the clock. If it's six o'clock, I ask if you've taken the medicine yet. If not, I'll take it for you." (IT)

Nearly all informants monitored TB patients' medication adherence by directly observing them while they took their medication. In addition, informants used other methods such as providing anti-TB drugs (OTC), asking family members for help, checking medication packages, calling patients when they were away, setting alarms, and directly asking patients about medication adherence. The following are excerpts from interviews:

"Check if the medicine box is still intact, it means I haven't taken it yet, I'll keep looking at the clock" (YL)

"Anyway, if it's past six o'clock, he's never far from his cell phone. He always has to have his cell phone with him when he wants to check the time. When the time comes, he has to drink. After he's in the house, he checks the time and reminds him, everyone helps him to remember him so he's healthy." (VA)

Informants believe that monitoring TB patients' medication intake is crucial to ensure they take their anti-TB drugs on time, especially among children. The following is an excerpt from the interview:

"I think it's very important, especially for PF, who is still a child. Even though he is obedient in taking his medicine, sometimes when he is playing he forgets the time and I have to supervise him so that he takes his medicine on time." (ML)

Motivation

The PMO motivates TB patients to remain compliant with their treatment by understanding and managing the side effects of OAT, ensuring they don't give up and continue their fight for recovery. The following is an excerpt from the interview:

"My parents complained of feeling weak after taking the medicine and losing their appetite." (IT)

"He once complained that his stomach hurt..." (VA)

"Initially, there were complaints of stomach pain... my aunt was able to eat chilies, so that was also an effect, but at the beginning, when she started taking the medicine, she urinated red." (HN)

The statement regarding side effects experienced by TB patients during treatment was also corroborated by a supporting informant from the TB program manager, who explained the most common side effects experienced by TB patients during treatment and the solutions offered. The following is an excerpt from the interview:

"The most common thing is something like nausea, if suddenly after drinking the body feels weak, it turns out that he is suffering from what, because he is not eating enough, eating little, most of the time it is about that... we tell him that he has to improve his pattern, maybe his eating pattern has to be more regular, education about that with his lifestyle has to change, if he is not getting enough rest, what should he do, basically education is like that, so what we change his lifestyle, what his eating pattern should be, what should he not do" (RA)

The research results showed that informants immediately took TB patients to the hospital in response to complaints of side effects, demonstrating a high level of concern and motivation to help. The following is an excerpt from the interview:

"...ketong immediately took Pi to the hospital, so he got treatment so he was good. It happened only once, when Pi was getting the medicine, he met the officer and I told him about it, Untung, it was nothing." (VA)

Motivation by the PMO is necessary because patients can experience discouragement during treatment. Research has found that some patients have felt discouraged about taking OAT due to the large dosage. The following is an excerpt from an interview:

"He did, there were times when he would definitely do that. Once he said, 'Adih ma, this medicine is too much because it's four,' at first, but as the months went by, he became less and less, maybe he was used to it so he wasn't too much..." (ML)

The methods used by informants to motivate TB patients to continue taking their anti-TB drugs regularly include reminding them of the symptoms they experience, providing them with information, and explaining the consequences of not taking their anti-TB drugs. The following is an excerpt from the interview:

"I said you have an illness, take medicine, this illness, if you don't take medication, it will be fatal, remember, you'll be half dead, you don't feel comfortable, so follow the rules, take the medicine, in the middle you'll get bored, there's only a little left, so keep drinking it and you'll be cured" (YL)

The informant's response when a TB patient missed a medication appointment was to provide the patient with OAT, scold the patient, tell the patient to take the OAT immediately, and remind them not to miss the OAT appointment. The following is an excerpt from the interview:

"Hey, I was angry with him at that time. He was used to drinking and then found out that he had gone out and brought medicine or came home before eight o'clock and took medicine. I called him and was shocked when I saw the time, so he had been drinking for almost half an hour." (YL)

"...but when I got home, I immediately drank it, I said that even though the time was over, he had to take the medicine, because I didn't ask anything, the important thing was that the medicine wouldn't be over a day even though the time was a bit different, but it wouldn't be over a day, I had consulted him and said it was okay" (ML)

Remind

Informants were found to remind patients to take their OAT by placing reminders on wall clocks, setting alarms, and reminding them at every opportunity. The following is an excerpt from the interview:

"On the wall clock at home, there's a note to take medicine at six in the morning, then I remind you at night, I remind you in the morning, I also tell you that you have to take it on time so that the treatment is successful. If you want to get well, you have to take the medicine on time." (IT)

"That's what I said earlier, keep reminding you and oh, that's right, I also use a cellphone alarm, set it five minutes before seven o'clock" (VA)

Informants considered it important to know the OAT intake schedule to ensure continued availability and for sputum tests to track treatment progress. The following is an excerpt from the interview:

"It's very important for you to make sure that the medicine is always available so that you don't have to stop treatment because the medicine runs out... the schedule for taking the medicine is also written on the card you get, so always check it and you also need to know the schedule for checking sputum so that you can bring the sputum to the health center so you know the progress of the treatment and where it is going." (VA)

Informants felt it was important and necessary to assist or accompany patients taking OAT at the community health center because it provided an opportunity to discuss with health workers, as patients were afraid to go to health services alone and saw this as a form of support. The following is an excerpt from the interview:

"It's necessary, so I can know the progress of this treatment, because if you take the medicine, you can also discuss it with the staff, but sometimes I can't accompany you because there's work, so my parents-in-law will do it alone or with my younger sibling, but tonight I'll ask you about the progress, sis." (IT)

The research results show that all informants believe that all family members living together need education to understand TB, prevent transmission, and remind each other. The following are excerpts from the interviews:

"It is necessary, everyone in the house must know so they can remind each other" (IT)

"In this house, I told you at the beginning that I got it from the health center. AB also asked me every time she took the medicine and she would tell me that sometimes her husband or her younger sibling would also hear it." (YL)

"Yes, according to Beta, it is necessary to make it known to everyone who lives with the ketong so that they can understand where TB is going," (VA)

"You have to tell me about that, so that you can prevent me from getting infected again." (ML)

"Beta rasa is also necessary so that we all know about this TB disease" (HN)

The research results showed that all informants provided various TB-related education, including information on anti-TB drug (OTC) schedules, TB treatment, dietary restrictions, and how to prevent TB transmission. The following are excerpts from the interviews:

"I explained the importance of regular medication to recover and prevent drug resistance. I explained this so everyone at home could help monitor the treatment. I also explained how to prevent the spread of the virus to others who live with me: wear a mask, stay away from coughing, and maintain personal and household hygiene." (VA)

"I told you to wear a mask, then I told PF that when he was sick, he didn't cough, but if he wanted to play with his little brother, he couldn't kiss him, he couldn't get too close, he couldn't breathe with his little brother. If he wanted to get close to his little brother, he took a mask, so I put it on, then I told everyone, remember to open the window so the air and the sun can come in, don't be like before, it's stuffy, or I'll catch everyone." (ML)

Discussion

Supervisory Role

The role of the PMO in monitoring is to ensure that TB patients take their medication according to the instructions from the start to the end of treatment. The patients' OAT schedule in this study was generally in the evening, with some taking it in the morning. The OAT schedule was determined jointly by the patient, the PMO, and the health worker at the time of initial OAT administration. This schedule is valid until the end of treatment. The schedule should not be changed, as this will lead to a habit of not taking OAT on time, which can increase the risk of treatment failure. Previous research has shown that non-adherence to treatment in pulmonary tuberculosis patients is caused by patients forgetting to take medication, reducing or stopping treatment when unwell, and patients not taking medication on time, which can lead to TB treatment failure and the development of drug resistance (Ahdiyah, Andriani, and Andriani 2022).

Informants in this study monitored medication schedules by asking patients directly. Furthermore, some informants also monitored medication by checking the clock to remind them and provide medication on time. Informants ensured the availability of OAT by checking the medication and medication card. This aligns with previous research, which found that providing medication and reminding patients were considered sufficient factors in determining the success of TB recovery (Aris, Dian Nurafifah, and Novi Sagita 2021). However, some informants reported that TB patients sometimes reminded them about OAT availability. TB patients who were aware and had a desire to recover, thus reminding informants about OAT availability, were those with a history of TB in their household and those who had previously taken multiple medications due to their numerous pre-existing illnesses. Previous research has shown that respondents' knowledge or experience regarding pulmonary TB influenced their willingness or motivation to undergo treatment; they tried to follow recommendations carefully so they could recover quickly (Mawarti, Asumta, and Annisa 2024).

Informants monitor TB patients' medication adherence by directly observing them when they take their medication. In addition, informants also use other methods such as providing OAT, asking family members for help, checking medication packaging, calling patients when they are away, setting alarms, and asking patients directly about medication adherence. Previous research has shown that more than half of patients who demonstrate high adherence can be influenced by good supervision, both from family and health workers, who ensure patients adhere to the correct medication schedule, dosage, and frequency, and family support. can increase patient compliance in

taking medication because they have an emotional closeness to the patient and can provide direct support and carry out more intensive supervision. (Agustin, Sihura, and Rizal 2025).

Supervision of TB patient compliance in taking medication is important because informants in this study can ensure that TB patients take OAT on time, especially since there are patients who are still children who sometimes play until they forget the time so that supervision from informants as PMO is important to do and other informants added that supervision is important so that informants can know the development and complaints of patients.

The Role of Motivation

PMO motivates TB patients to remain compliant in undergoing treatment by understanding and managing the side effects of OAT they experience, so that patients do not give up and continue to fight for recovery. This is necessary because patients experience different OAT side effects during TB treatment, namely abdominal pain, loss of appetite, weakness, stomach pain and red urine. Side effects are divided into severe side effects that must be immediately referred to a higher level of health facility and mild side effects. Severe side effects include skin rashes with or without itching, dizziness, vertigo, visual disturbances, deafness while mild side effects include anorexia, nausea, abdominal pain, joint pain, drowsiness, red urine, burning and tingling sensations (Ministry of Health 2019).

As a form of support for patients, informants demonstrated concern and motivation by responding to side effects, such as immediately taking TB patients to the hospital. Informants also provided an understanding of how to deal with side effects, such as explaining that red urine is a normal effect of OAT and encouraging more frequent meals to prevent weakness during OAT consumption, as well as discussing with health workers to get appropriate treatment and ensure the patient's recovery. This is supported by the results of interviews with health workers who emphasized the importance of a regular diet to avoid the side effect of weakness after OAT consumption. Previous research explained that drugs that have side effects of nausea, digestive disorders, and decreased appetite are rifampicin and isoniazid. Treatment for these side effects of nausea and digestive disorders is by taking OAT at night before bed (Rahayu and Putri 2022) . In the national guidelines for medical services for the management of tuberculosis, it is explained that the side effects of anorexia, nausea, and abdominal pain are likely caused by the drugs pyrazinamide, rifampicin, and isoniazid and the way to overcome this is to give the drug with a little food or swallow OAT before bed, and suggest swallowing the pill slowly with a little water (Ministry of Health, 2019).

Informants in this study stated that patients who did not feel bored and remained enthusiastic about taking OAT during TB treatment because even though they received a lot of medication, they were afraid of the pain they suffered and wanted to recover. Furthermore, there were also patients who had felt unenthusiastic about taking OAT, so motivation from the PMO was needed to keep patients enthusiastic about undergoing TB treatment until they recovered. Previous research explained that the better the motivation to recover, the higher the patient's level of compliance in taking medication. With a strong will to live or a strong desire to recover from a person, it can increase a person's motivation to recover from their illness (Kusmiyani, Hermanto, and Rosela 2024) . Informants also explained that patients who were bored and unenthusiastic about taking OAT because they saw the large amount of OAT received and the dosage of medication tablets were also high. Other research also explained that patients felt disturbed or bored with the schedule for taking anti-tuberculosis medication. This is because the TB treatment program is quite long, so most respondents felt bored with the treatment (Harahap, Amalia, and Listia 2020).

The method used by informants as PMOs in this study to motivate TB patients to continue taking OAT regularly was by reminding them of the symptoms experienced by TB patients, providing understanding, and explaining the impact of not taking OAT. Previous research stated that the role of

PMOs who support tuberculosis patients in tuberculosis treatment has a 36 times greater chance of being more compliant compared to PMOs who do not support tuberculosis patients in treatment (Veronica and Kurniasih 2024) . However, informants also said that the form of motivation carried out was by asking about conditions, developments, and accompanying patients to treatment. This is in line with previous research which explains that PMOs who have good motivation are PMOs who help patients recover from TB, are very concerned about whether patients have taken their medication, remind them of medication schedules, medication pick-up schedules, and help or accompany patients in taking OAT (Ningsi, Kasim, and Yasir 2020).

The informant's response when a TB patient misses a medication schedule is to provide OAT for the patient, scold the patient, tell the patient to take OAT immediately and explain to them not to miss the OAT schedule. Previous research explains that inappropriate medication schedules can cause OAT to not function optimally in the healing process of TB patients and can result in resistance to the drug, patients who are resistant to the drug will experience repeated doses and even additional OAT doses (Kusmiyani et al. 2024).

The Role of Reminding

The method used by the informant as a PMO in this study to remind the patient to take OAT was by placing reminder notes on the wall clock, setting alarms and always reminding the patient at every opportunity. Previous research explained that based on the results of *the pretest* and *posttest*, there was an increase in knowledge, attitudes and behavior of adherence to taking medication from patients and their families as PMO after researchers provided intervention media in the form of a medication calendar, explained how to use it and encouraged patients to set alarms on *their mobile phones* (HP) so that patients would not forget to take OAT on time (Islamiah and Saftarina 2020).

The PMO in this study considered it important to know the OAT collection schedule so that OAT availability can continue. Assisting or accompanying patients to collect OAT at the community health center according to the PMO in this study is important because it provides an opportunity to discuss with health workers and as a form of support for patients so they do not feel alone and afraid to go to the community health center. Previous research conducted by Yuda et al. (2018) explained the role of Drug Supervisors, which 93.75% of respondents played a supporting role in TB treatment. The PMO's role demonstrated, among others, is that the PMO constantly monitors patient compliance in taking medication, reminds patients when medication is running out, and is willing to accompany patients to collect pulmonary TB medication at the community health center. Informants who said they would help or accompany patients to collect OAT at the community health center when asked for help, because PMOs are also busy working, so sometimes patients go to the community health center to collect OAT themselves.

However, other informants also stated that assisting or accompanying patients to take OAT at the community health center was not very important because they felt that the patients were already adults and capable of going to health services themselves. Patients interviewed stated that going to the community health center to get OAT did not take a long time, so there was no need for constant company. This is in line with previous research which explained that providing time for patients was not a factor supporting medication adherence in tuberculosis patients. This was because 46.9% of patients stated that their families did not make time to take them to treatment because 67.9% of families always considered it unnecessary to take patients for health checks when the TB patient was still well (Wijayanti, Pamangin, and Wopari 2023).

It is important for PMOs to know the sputum examination schedule to monitor the progress of treatment. However, some informants stated that patients are more aware of the schedule for repeat sputum examinations. Previous research has shown that tuberculosis patients' trust in tuberculosis officers at the Community Health Center in West Bandung Regency in conveying messages about

tuberculosis and the importance of sputum examinations at the end of the second month has a significant influence on the patient's compliance with sputum examinations at the end of the second month, which ensures that tuberculosis patients undergo repeat sputum examinations at the end of the second month (Kosasih, Setianti, and Wahyudin 2017).

The Role of Education

Education is an effort to improve a person's knowledge, attitudes, and actions from ignorance to knowledge with the aim of fostering good behavior in carrying out treatment (Dianti, Hasymi, and Wasalamah 2022) . All family members living together need to be educated to understand TB, prevent transmission, and remind each other. The family's role in providing preventive health care is to collectively care for sick family members. This includes providing care, including accompanying patients to take medication and accompanying them to health care visits (Gunawan and Ina 2017).

Informants in this study provided various TB-related education such as OAT schedules, TB treatment, dietary restrictions, and how to prevent TB transmission. This is in line with previous studies that explain that PMOs provide education on how to take medication properly and correctly, inform patients of the side effects of the medication taken, often ask about obstacles and progress felt by patients during treatment, often reprimand and advise patients when patients do not want to take medication and always remind patients about follow-up schedules and this increases the knowledge of family members who first got a score of 45.4 (poor) before being given health education, but after being given health education, knowledge increased by getting a score of 90.9 (Good) (Erwinskyah et al. 2023) . Therefore, it is important for PMOs to obtain correct knowledge about TB through training, counseling, and education from health workers, so that they can carry out their role as treatment supervisors effectively (Sofyani, Maryoto, and Cahyaningrum 2024).

Conclusion

This study shows that PMOs play a crucial role in the success of TB treatment through their roles of supervision, motivation, reminders, and education. PMOs monitor medication schedules, motivate TB patients to adhere to their medication regimens, remind them of the symptoms and consequences of not taking anti-TB drugs, and provide education about TB and transmission prevention to families. Furthermore, PMOs monitor treatment progress and provide emotional support to patients. Therefore, PMOs play a crucial role in supporting the success of TB treatment and preventing transmission, as well as increasing family awareness and participation in the treatment process.

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