Patients Medication Adherence in Tuberculosis Treatment: A Qualitative Study

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Abstract

Indonesia still considered as one of eight high-burden countries in Tuberculosis (TB). World Health Organization (WHO) committed to end TB through WHO's End TB strategy that targeted to reduce the absolute number of TB deaths and TB incidence rate. In 2017, the successful treatment in Indonesia was reported beyond the global standard. Several factors such as lack of knowledge, loss of income, stigma and lack of social support, drug side effects and long treatment duration contributed to the treatment adherence and can lead to a low success treatment rate. A deep understanding of TB patients adherence is essential to provide information in order to develop further strategies for more effective treatment. This study was aimed to assess the factors influencing TB patients adherence in health facilities in Surabaya. An in-depth interview to 10 TB patients was conducted to observe their medication adherence. The results showed that being too busy and simply forgetting were two main reasons for non-adherence. However, family support and the habit of setting alarms were found to make patients easier to adhere to their treatment. Further patients family empowerment to support the medication treatment process and further development of medication reminders or application which functioned as alarms might be a considerable strategy to improve TB patients adherence.

Keywords: Adherence, tuberculosis, health service, community

1. Introduction

Tuberculosis (TB) is a global treat airborne infectious disease caused by *Micobacterium tuberculosis* [1]. In 2020, it was reported that 9.9 million people suffered from TB and 1.5 million of them died [2]. Indonesia still considered as one of eight high-burden countries in TB that contributed 8.4% of the total case globally [2]. World Health Organization (WHO) committed to end TB through WHO's End TB strategy that targeted to reduce the absolute number of TB deaths up to 75% in 2025 and 95% in 2035 and to lower the TB incidence rate in 50% in 2025 and 90% in 2035 [2].

The standard TB treatment takes six months for sensitive TB and up to two years for resistant TB. The long antibiotics course in TB treatment frequently lead patients to the potential side effects and inadequate success treatment rate [3]. The successful treatment in Indonesia was reported beyond the global standard in 2017 (84.7% to 85.1%; <90%) [2,4]. A qualitative study conducted in Asmara reported that factors such as lack of knowledge, loss of income, stigma and lack of social support, drug side effects, and long treatment duration contributed to treatment adherence and can lead to the low succeess treatment rate [5]. However, relatively little deep understanding of TB patients adherence has yet to be studied in Indonesia. In this context, this study was carried out to assess the factors influencing TB patients adherence in a health facility in Surabaya. The findings may provide information in order to develop further strategies for more effective TB treatment

2. Methods

The data was collected using established structured interview with TB patients [6–8]. All the interview was conducted in Bahasa Indonesia, onetime, one-to-one format and took time about 30-40 minutes. The beginning questions "Apakah Anda pernah lupa minum obat TB?, Mengapa demikian? (*Have you ever forgot to take your medications? Why?*)" was asked to the participants before exploring participants response. All the participants posed with questions in a neutral manner that participants did not shown of approval or disapproval of what their answer. All the interviews was audio-recorded.

The recordings were transcripted and then analyzed verbatim. The interpretations of the data were relay on patients' descriptions of their experiences in how they took their medication which the researchers checked against the verbatim transcripts for accuracy and consistency

3. Result and Discussion

A total of 10 patients were agreed to participate in this study. Eight of them were female and five were aged 25-

45 years old. Seven of them were at intensive phase and the rest were at the continuation phase. Three of them had diabetes comorbid. The background profile of participants showed in table below.

Table 1. Background profile of the participants

Characteristics		N	%
Gender	Female	8	80.0
	Male	2	20.0
Age (years)	<25	3	30.0
	25-45	5	50.0
	46-65	1	10.0
	>65	1	10.0
Educational Background	Primary school	3	30.0
	Secondary school	2	20.0
	High school	5	50.0
Occupation	Student	3	30.0
	House wife	3	30.0
	Others	4	40.0
Comorbids	Diabetes	3	30.0
	None	7	70.0
Treatment phase	Intensive	3	30.0
	Continuation	7	70.0
Duration of treatment	< 1 month	1	10.0
	1-2 months	1	10.0
	3-6 months	6	60.0
	>6 month	2	20.0

3.1 Experience in missing the medications

Among 10 patients interviewed, 4 of them reported that they have experience in missing their dose because of simply forgetting or being too busy.

"I forgot to take my medication once, I missed the second drug which should be taken around 5 minutes after the first one. It was because I fell asleep after taking the first one. However, I have taken the second drug when I woke up" (Patient 1)

"I recently forgot (taking the medication)*, it was because I was busy so that I had no time to come here* (in Community Health Centre)*"* (Patient 2)

The two reasons above corroborating the results of various study that forgetting, being too busy, away from home for work, and any social-activities were the factors contributed to non-adherence with TB medications [9,10]. On the other hand, the remains patients who never miss their dose mentioned that they set alarms on their dose schedule or have reminded by their family.

"I never forget to take my medication. My children reminded me (to take the medication) *so that I can get well soon"* (Patient 8)

"Never forget (to take the medication), *I set my own alarm"* (Patient 6).
Alarm setting and family support also help patients in taking their medication on schedule.

"I take my medication on time, because I set my alarms" (Patient 4)

"On time, at 9 or 8 pm. My childs remind me" (Patients 8)

Family support reported to be correlated with TB patients positive behaviour as the support would empower the patients to face the conditions emotionally and assist to complete the treatment [11]. Hence, recruiting family as care provider would increase patients adherence and treatment success.

3.2 Reasons in forgetting medication refill at community health center

As the reason in missing their dose, the two reasons contributed to the absent in medication refill were also simply forgetting or being too busy.

"I had (missed my medication refill), *because I forgot it"* (Patient 4)

"Yes, like today, I had so many things to do" (Patient 2)

The patients who never miss their medication refill reported that their strong driving force was their wish to get cured.
"Never, I always (refill my medications), *I want to be cured"* (Patient 5)

The reasons implied that a tighter reminder or a home medication delivery is needed to reduce the potential in forgetting or do not have enough time to refill the medication at health facilities. A study in Sleman, Yogyakarta, Indonesia stated that short message services (SMS) from mobile phone is an attainable reminder media for TB patients in order to improve adherence to treatment in low-resource facilities. A reminder, motivation, and information message could directly sent to the patients or relatives in order to facilitate TB patients to overcome the difficulties during their treatment [12]. During Covid-19 pandemic, a home medication delivery system has been used in several countries to decongest clinics and prevent the spread of the disease [13,14]. In Pakistan, home delivery of medication was one of implemented integrated TB treatment activity during Covid-19 [15]. However, the further implementation of the system must be analyzed for its strength, weakness, opportunity and threat related to its impact on the fulfillment of medication refill, the availability of the resources and the cost.

3.3 Experience in stopping the medication when get better or worse

All the respondents reported that they did not stop their medication when their condition get better or worse. The strong reason affected was their willingness to cure from TB.

> *"(Although I feel better) I continued, because I want to completely cure, it said I have to take my medication for 6 months"* (Patient 6)

> *"(Although I feel worse) I continued, because I want to cure"* (Patient 2)

The results above showed that high motivation could be a strong driving factor for not to stop or even default the treatment. This phenomenon confirmed the study by Putra et al that motivation correlated to medication adherence in TB patients while motivation have significant relationship with family support [16,17]. Hence, empower family member to participate in building patients motivation.

Regarding alarm setting, not all of patients have initiative to set their schedule so that it would be easier if patients have personal digital tools that automatically set for their schedule. Various mobile health applications specially designed and developed globally or specifically in Indonesia for TB patients and have potential impact on adherence improvement [18]. However, the applications would be greater if it is integrated with national TB information system (SITB) so that adherence monitoring could be done continuously and well recorded.

3.4 Knowledge on their medication long term benefits

All the patients understood that their medication was beneficial to complete their cure from TB.

> *"I want to completely cure as it was"* (Patient 8)

Several study stated that patients knowledge about their disease and medications correlated to their medication adherence [19,20]. However, in this study, although all the patients knew about their medication benefits, there were still non-adherence behaviour reported. This finding showed that we still need another strategy for improving adherence besides educating patients about their medication.

As the family support found to be a strong driving force for patients to comply with their treatment, empowering family member to join at drug monitoring process would help succession the treatment. In addition, the usage of reminder tools also showed a potential benefit to support patients in completing their medications.

4. Conclusion

Family support and habit of setting alarms found to make patients easier to adhere with their treatment. A further patients family empowerment to support the medication treatment process and further development of medication reminder or application which functioned as alarm might be a considerably strategy to improve TB patients adherence.

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