

Patients perception related to pulmonary tuberculosis and adherence medication

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Abstract. Pulmonary tuberculosis is a global health problem that could impact on productivity and quality of life. Prevalence of pulmonary tuberculosis was 929 meanwhile only 48.87% with taking medicine. The adherence of pulmonary tuberculosis patients in taking medication is the key for successful tuberculosis treatment. The aims of this study to explore the perception of patients related to pulmonary tuberculosis and adherence medication. This is a qualitative study with a phenomenological approach. Data collection using in-depth interviews and then analyzed by content analysis. The informants in this study consisted of 10 tuberculosis patients. The results of this study found three themes, namely (1) Prolonged disease, (2) Disease transmission, (3) Adherence medication. It was concluded that a better understanding about tuberculosis disease and adherence treatment could contribute to the successful of treatment. It was suggested that patient could be aware and encourage to take adherence medication.

1 Introduction

Pulmonary *Tuberculosis* (TB) is a global health problem that could impact on productivity and quality of life. *Tuberculosis* is one of the top 10 causes of death and the primary cause of infectious agents in the world. The prevalence of *tuberculosis* patients in 2020 amounted to 929 patients who took regular medication for less than 6 months amounting to 48.87% [1]. *Tuberculosis* is a disease caused by the bacterium *Mycobacterium tuberculosis* and until now it is still a disease with a high burden for the Indonesian people. The increasing burden of *tuberculosis* is caused by poverty, the failure of TB activities which have been caused by inadequate political commitment and funding, the unavailability of services in the community has led to reduced problem innovation and inappropriate diagnosis enforcement, reduced supply of medicines and reduced reporting of *tuberculosis* patients, lack of surveillance, lack of discourse on recording and reporting cases, treatment management and the existence of unreported people's movements [2]. The World *Tuberculosis* Control Program aims to reduce the burden of *tuberculosis* and create a healthy and free global *tuberculosis*, WHO has launched a new strategy that accompanies the SDGs with the name End TB Strategy (World Health Assembly 2014). The strategic principles used by WHO are

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to include the role of the government in evaluating and monitoring the course of this art of management; Utilizing coalitions with existing community and community social organizations; Ensure the protection of human rights and promote equality among citizens; Adapting tactics and targets in each country, with global cooperation.

Various kinds of programs, methods and approaches have been carried out by the government, including the drug swallowing supervision program (PMO), the door knocking event, the find cure until healed event (TOSS). DOTS has been recommended to ensure drug compliance and requires trained health care workers or treatment advocates to observe daily drug consumption [3]. In accordance with the 2016 Regulation of the Minister of Health for TB control, namely the implementation of TB control needs support by sharing and strengthening coordination procedures, as well as partnerships between *tuberculosis* program managers and government agencies across sectors and across programs, stakeholders, health insurance also uses community organizations. According to the 2018 North Sumatra Regional Work Meeting, there were 73,488 *tuberculosis* patients (6.5%) from the total number of Indonesian *tuberculosis* patients, namely 1,020,000 *tuberculosis* cases. Of the 73,488 *tuberculosis* patients in North Sumatra, only 34,898 people were found (March 2018). There are many factors that influence the success of *tuberculosis* treatment, including compliance, education, perception, socio-economic status of patients, health workers at the health center [4].

Achieving or not healing is caused by irregularities or non-adherence to treatment so that efforts to increase treatment adherence mean a priority dilemma in the prevention of pulmonary *tuberculosis*. [5] The knowledge factor has a significant effect on the regularity of taking medication for TB patients. [6] Psycho-emotional (PE) and socio-economic (SE) interventions given to TB patients and to assess the effect of this hegemony on medication adherence and treatment. [7] The proportion of *tuberculosis* sufferers to take routine medicine for less than 6 months in the Serdang Bedagai area is 48.87% or lower than North Sumatra Province, which is 72.6%). As for the reasons for *tuberculosis* patients not routinely taking medication, the most common are drugs not available at health facilities 5%, often forgetting 6.54%, unable to buy TB drugs regularly 12.4%, not routinely seeking treatment 27.28% and others such as not being able to stand the side effects, the treatment period feels long and already feeling healthy. This study aims to explore the patient's perception of pulmonary *tuberculosis* and medication adherence.

2 Methods

This research was conducted in the working area of the Serdang Bedagai Health Office in 2022. This study used a qualitative approach with data analysis techniques using *qualitative content analysis*. Collecting data using in-depth interviews. The sampling technique used was purposive sampling. The informants were 10 people with *tuberculosis* and were taking DOTS medication.

The researcher first produces a framework of the subject that will be conveyed to the informants in the form of interview guidelines. Interview questions addressed to the subject are open-ended and do not lead personally to research questions. The process of collecting data through interviews was carried out using a voice recorder.

Recording is done with the consent of the subject. The results of the interviews were in the form of voice recordings and then converted into written form (transcripts). The designed transcripts were analyzed using *qualitative content analysis*. *Qualitative content analysis* is carried out by means of elaboration or filtering of text or word terms into a number of categories that represent certain contents. The result of content analysis is a method for flexibly analyzing the content of the text. The qualitative results of the content analysis can be used to evaluate the findings resulting from the analysis itself.

3 Results

This study used 10 informants of *tuberculosis* patients. In detail, the demographic data of the informants shown in table 1.

Table 1. Informant demographic data.

Partisipan	Gender	Age (Year)	Education	Work
P1	Male	24	Junior High School	Construction workers
P2	Male	30	Vocational High School	Construction workers
P3	Female	35	Junior High School	Housewife
P4	Female	28	Junior High School	Housewife
P5	Female	22	Senior High School	Housewife
P6	Female	48	Primary School	Housewife
P7	Male	32	Junior High School	Entrepreneur
P8	Female	26	Junior High School	Fried food seller
P9	Male	33	Primary School	Unemployment
P10	Female	28	Primary School	Housewife
P11	Female	26	Junior High School	Housewife

The results of the analysis and verbatim transcripts found 3 themes and 13 categories. The details can be seen in table 2.

Table 2. Theme and category.

Theme	Category
Prolonged Illness	<ol style="list-style-type: none"> 1. Knowledge of <i>tuberculosis</i> patients is not optimal 2. Family perception about <i>tuberculosis</i>
Disease transmission	<ol style="list-style-type: none"> 1. Applying cough ethics 2. Wearing a mask 3. Make regular medical visits 4. Maintain social interaction
Adherence medication	<ol style="list-style-type: none"> 1. Schedule medication 2. Family support 3. Self motivation to heal

3.1 Prolonged illness

Tuberculosis is a disease that requires a minimum of 6 months to take medication regularly. Long enough time, side effects, taking medicine every day and feeling healed make *tuberculosis* sufferers leave their treatment or drop out in the middle of the road. This happens because the knowledge of *tuberculosis* sufferers is not optimal about their disease and the family's perception is still low.

Knowledge of *tuberculosis* patients is not optimal. Knowledge of *tuberculosis* patients about the pain experienced is still not optimal.

"...I was sick like this about 4 or 5 months ago. At that time there was a slight cough. Continue to take treatment but never routine, if it hassubsidedor less continue keep going. At first it was probably because of work. I started the work as a building sir, rough worker sir so much dust naughtiness, do not wear a face mask or the term is now

a mask yaa.. sir ya... maybe because that's why the dust into the lungs, continue to cough..." P2

"... When it was said to be positive, I also became confused myself, how could it be positive, even though we were at home, but yaa, I have gone to the health center to take medicine and they said don't break up, taking the medicine must be routine, so he said. This is 6 months of medicine, don't break up, yes, I said so. So I got the medicine at night, it was taken directly, is that it was about 2 or 3 months the body was already good, the cough was not there, the body was already good, eating was already tasteful so the medicine I stopped halfway..." P3

Family perception of *tuberculosis* disease. The family is the most affected part when there are family members affected by *tuberculosis*. Motivation and family support are needed by people with *tuberculosis* in terms of compliance. Compliance with *tuberculosis* patients to be obedient in taking medication will increase success in the treatment of *tuberculosis*.

"... So every day before my husband goes to work he is the one who prepares the food, right, sir, it's a pity to see it, sir, but if I help him he is angry, he says that the important thing is to be healthy first. So before he works, he cooks first, sir, prepares food, sir, and when he comes home from work, he brings goat's milk, sir, boils eggs..." P4

"... My husband takes the medicine every day. So if it's late after dinner we usually sit around and tell stories and my husband always told do not forget to take the medicine, that's so sir..." P4

"... Apparently my son also set an alarm on that person's cellphone. So if it was 9 o'clock, he would have asked, Sir. Indeed, on your cellphone there is also an alarm, sir. Then my husband from that night, sir, often calls to give encouragement so you don't forget to take your medicine, sir. It's like this now who is delivering my child, sir, that's the part of the train parking lot..." P5

3.2 Disease transmission

In this theme, there are two sub-themes, namely applying cough ethics, wearing masks, conducting regular treatment visits, maintaining social interaction. The government program seeks to eliminate *tuberculosis* by 2030 with its motto *Tuberculosis-free* starting from Us.

Apply cough ethics. Health center tries to increase the awareness of *tuberculosis* patients to comply with the rules that have been given to *tuberculosis* patients, one of which is by teaching how to cough properly and correctly when conducting contact investigations or when *tuberculosis* patients make a medical visit.

"... If the phlegm is thrown into the bathroom, sir, in the closet, it continues to be watered a lot. So, Mrs. Fitri said, said that my phlegm should not be thrown in the yard, sir, she said that my children could get it too. You can't spit carelessly, then if you talk to my son, you have to be a bit far away if you can tilt it, he said sir..." P5

“... Now, my husband and son sleep together, but if I go to a different room, sir, because they say it can be contagious, sir, and if you cough, the phlegm is thrown into the toilet or into a ditch, you say, sir...” P4

Use masks. Health center officers also always advise people with *tuberculosis* to always use a mask during interaction with the surrounding environment. The purpose of using this mask is to prevent the spread of *mycobacterium tuberculosis* germs to other people.

“... So when I'm at home, I'll tell my wife to take care of me, so they don't catch me if I'm at home wearing a mask...” P7

“... So if I have a normal cough, sir, I just have to wear a mask, sir. Yesterday, it was suggested by the mother from this health center, she said she was wearing a mask, at first she was breathless, sir, if she was wearing a mask, but what about it, sir, rather than being infected with the family, right... ?” P1

Make regular treatment visits. Regular treatment visits for *tuberculosis* patients are very important in the successful treatment of this *tuberculosis* disease. The impact of visits for people with *tuberculosis* will increase treatment, but irregular visits from people with *tuberculosis* will have an impact on increasing *tuberculosis* patients. The purpose of the treatment visit will have an impact on the adherence of *tuberculosis* patients in the treatment of *tuberculosis*.

“... So the first time I was told to take the red medicine, I took it straight away, sir, even though it was a large amount of medicine, sir. That's the first time I've taken such a big amount of medicine, sir, that's my age, sir, but yes, sir, I just have to get well, sir. Yes, until now, Alhamdulillah, sir... this is already a yellow medicine, so you only take it 3 times a week, sir. Then the medicine is already a bit small, sir...” P10

“... Even this kind of thing is now delivering my child, sir, that's the parking lot for the train. He always accompanied his mother every time to the health center, sir. The father also sometimes reminds him to keep telling his son so he can meet me, sir...” P5

“... I've been taking this TB medicine for 4 months, sir. It's been taken for the yellow one, but the yellow one is 2 pills and the medicine is taken every 2 days, sir. Before taking the medicine, my weight was only 36 kilos, sir, but I have weighed 40 kilos for 4 months...” P8

Maintain social interaction. Maintaining social interaction as an effort by *tuberculosis* patients not to transmit *mycobacterium tuberculosis* germs to others.

3.3 Adherence medication

This theme has three sub-themes, namely making alarm reminders of medication schedules, family support, self-motivation to recover, the Government strongly supports programs to reduce the *tuberculosis* rate in Indonesia. The government strives to make it easier for

tuberculosis patients to be able to access their treatment and ensure the availability of drugs on an ongoing basis. In addition, the government also increased cooperation with health facilities in the form of government and private hospitals, clinics and private practices that accept BPJS facilities and are spread throughout the region.

Set a schedule of taking medications. The schedule of taking the drug largely determines the success of *tuberculosis* treatment. This is because by taking medication on a scheduled basis, it is hoped that the patient's adherence to taking the drug regularly and increase success so that the patient can recover and be free from *tuberculosis*.

"... That's why until now, sir, it's been about 5 months that I've never been late to take my medicine. My wife, who always reminds me every morning, opens the medicine, sir, so I just drink it. Yesterday, the red one was drunk 3 times, sir and taken in the morning before breakfast, an hour before breakfast..." P2

"... I took the red medicine yesterday, sir, 4 pills at night when I was going to bed, sir, and now I drink 4 pills, but not every day, sir, for example, today I drink it and the next day it's a day off, sir, and the next day I drink again, sir... So if 1 week is 3 times taking the medicine..." P4

"... So it is recommended to take 3 pills, so because this is fasting, right... you take the medicine after sahur, doc..." P6

"... Like this, I've been taking the medicine for several months, the red one is 4 pills at a time, I take it in the morning before breakfast. Even now, I take this yellow medicine now, I drink it every day, once I drink 4 seeds, I don't have a cough anymore, the shortness of breath has reduced a lot, I can work, eat okay, then I gain weight..." P7

Family support. The success and compliance of *tuberculosis* patients in consuming their medicines is largely determined by the support of the family. The family plays a role in motivating people with *tuberculosis* because of the long treatment.

"... Every morning, when I arrived at the workshop, I was immediately asked if I had taken the medicine. Every day bro. If that's the case, then I'll make food and then I'll have breakfast..." P7

"... Then sometimes the mother is also the one who often remembers to take her medicine. Every day the mother kept asking questions. Sometimes it's taken too, sometimes it's also seen by the mother. If you have money, sometimes I will buy eggs too..." P1

"... Since I was told that the health center has TB, my wife was immediately alert, sir. Every day it was never too late to give me medicine. I take the medicine every morning, sir, that's why early in the morning, the children were still sleeping... my wife had already prepared food for breakfast and then boiled eggs, it was ready, just woke me up..." P2

Self-motivation to heal. Treatment of *tuberculosis* will take a long time and patience from the sufferer. For this reason, in addition to support from the family, also the most needed is the intention or motivation of *tuberculosis* patients to recover. The high intention of a *tuberculosis* sufferer will motivate him to obey for treatment.

"... Yaaa...follow it doc, the important thing is that the medicine doesn't break, doc, let it work fast..." P6

"... the wife also understands, bro, she also understands if her husband issick like this, don't try it, we are both okay, who will take care of my child later, right. I'm sorry my son. Even this is about to finish treating it bro..." P7

"... Because we've been married for 3 years, sir, but we don't have childrenyet. So that's why every time I want to take medicine, I'm excited to have achild. Excited to have children..." P8

4 Discussion

In this study, it shows that the knowledge of *tuberculosis* patients about the disease is still low, this is because the patient's understanding of the signs and symptoms of *tuberculosis* disease is not understood by patients. The average patient will visit a health facility after several months of continuous coughing pain, even the patient does not expect to be exposed to this TB disease. This ignorance will cause patients to choose the wrong treatment and result in an increasing spread of TB germs. Based on the research Ariani et al stated that knowledge is the most dominant variable in influencing the regularity of taking medications [6]. The existence of a wrong understanding of the procedures and treatment that is long enough and the presence of infection causes TB patients sometimes do not want to drink their oats anymore. Patients usually decide on their own to stop taking the medication. Due to undisciplined in taking medication resulting in various side effects, complications and drug resistance. When family members are exposed to *mycobacterium tuberculosis* germs and cause TB disease, it will have implications for the health of family members. Families are required to participate in motivating and supporting patients to comply with treatment. Based on research Acuna Villaorduna, states that of the 894 household contacts of 160 patients found 464 people (65%) infected by TB germs. Family support will motivate the patient until finally the patient can take his medication regularly until he recovers [8].

This study also shows that the application of cough Ethics in *tuberculosis* patients is very important as an effort to suppress the transmission of *mycobacterium tuberculosis* germs to others. Closing your mouth when sneezing or coughing, tilting your head is also an effort to prevent transmission. Things that can be done to prevent transmission to family members is to make sure that the air circulation in the House remains good, check into the health center or other health services, limit contact with vulnerable groups, do not throw phlegm carelessly, take medication regularly. The use of masks is highly recommended for use for *tuberculosis* patients to avoid droplets coming from TB patients. According to Williams M.C *et al.*, stated that there were 86% of *mycobacterium tuberculosis* germs in face mask samples worn on TB patients [9]. Research Yani, D.I *et al.* also stated that 63.5% of TB patients have bad behavior when coughing when one of cough trnsmission is through droplets [10]. TB patients who take regular treatment can reduce the transmission of pulmonary TB. In the treatment of pulmonary TB takes a long time as a result of treatment of pulmonary TB patients prone to drop out, while irregular treatment threatens drug retention and cause problems.

In addition to the implementation of good cough ethics and using masks to avoid transmission, the success of the treatment of *tuberculosis* patients is the patient's compliance with regular medical visits. According To Marahatta S.B et al in qualitative research barriers to access to health centers are long distances, poor road conditions, and costs associated with travel that hinder sufferers to comply and complete the DOTS treatment [11]. Maintaining social interaction during treatment aims to prevent further transmission of *mycobacterium tuberculosis* germs. According to Classen C.N. *et al.* state that as many as 58% of transmission contacts occur while drinking in social groups [12]. Research Anggeria E, *et al.* stated that 25 out of 33 *tuberculosis* patients still interact socially with their communities [13].

Compliance is an individual's behavior (for example: taking medication, adhering to a diet, or making lifestyle changes) according to therapeutic and health recommendations. The level of compliance can start from following every aspect of the recommendation to complying with the plan. Adherence to treatment is a behavior that indicates the extent to which the individual follows health-related or disease-related recommendations [14]. Family can be a very influential factor in determining an individual's health beliefs and values and can also be decisive about the treatment program they can receive. Families also provide support and make decisions about the care of sick family members. According To Fang X.Y, Dan, Liu, Jun et al, achieved or not healing is caused by irregularity or non-compliance with treatment so that efforts to improve adherence to treatment is a priority issue in pulmonary TB control programs [15].

5 Conclusion

This study shows that the knowledge of patients and family perceptions about *tuberculosis* is very important in the success of *tuberculosis* treatment. The use of masks, applying cough etiquette and maintaining social interaction are needed to prevent transmission of *mycobacterium tuberculosis* germs to others. Medical visits of *tuberculosis* patients in health facilities will increase patient compliance in taking medication which has implications for the healing of patients and reduce the incidence of *tuberculosis* in Indonesia. The success of treatment of *tuberculosis* patients needed to be encouraged with family support as a reminder in taking medication.

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