

# Analysis of Concordance of Medication-Taking Behaviour in Tuberculosis Patients in Medan, Indonesia

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## Abstract

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**AIM:** This study aimed to analyse tuberculosis (TB) medication-taking behaviour based on the concept of concordance between health workers and TB patients in Medan, Indonesia.

**METHODS:** This study was an analytical study with a cross-sectional design. A total of 100 patients undergoing TB treatment at several public health centres in Medan City participated in the study.

**RESULTS:** The results showed that there was a relationship between the concordance behaviour of the health workers with the attitude and medication-taking behaviour of the patients ( $p < 0.05$ ). However, there was no relationship found between concordance and knowledge of the patients ( $p > 0.05$ ).

**CONCLUSION:** The results showed that most of the concordance behaviour, knowledge, attitude, and behaviour in the sample were good.

## Introduction

In the 2016 Global Tuberculosis Report, WHO estimated that there were 10.4 million new TB cases worldwide in 2015. Six countries in the world accounted for 60% of the new cases, one of which was Indonesia [1]. Therefore, the tuberculosis treatment at the public health centres has gained more attention from the Indonesian government in recent times. To date, every health centres in Indonesia, especially those in Medan, have special health workers in providing services to TB patients [2]. However, the role of the health workers in the treatment of tuberculosis was still poor. This might cause the patients to be disobedient in the advanced-phase treatment that can result in the Multi-Drug Resistance (MDR). Based on that, concordance between patients with their doctors and health workers is needed. A concordance is a form of

harmonious cooperation between doctors, health workers, and patients in carrying out treatment action which focuses on consultation. In the consultation, the doctors or health workers and the patients agree to make decisions about the treatment process and combine each of their views based on the principle of partnership [3]. To date, the number of studies about the concept of concordance in TB treatment is very few. Moreover, its implementation in public health centres in Indonesia is also still limited [4].

Therefore, this study aimed to analyse the concordance behaviour of health workers with the characteristics of TB patients such as knowledge, attitude, and behaviour towards the treatment.

## Methods

This research was quantitative with an explanatory survey using a cross-sectional design

aimed to explain the relationship between the independent variables and the dependent variable. The study was conducted from March to August 2016 at seven public health centres in Medan. This research has been approved by Health Research FK USU/RSUP H Adam Malik No. 305/KOMET/FK USU/2016.

The population in this study were patients with category I pulmonary TB (new patients) aged  $\geq 18$  years. The samples were populations who fulfilled the inclusion and exclusion criteria. The inclusion criteria were patients of category I pulmonary TB with positive smear, aged 18-60 years, willing to sign an informed consent and had undergone an intensive phase of treatment whereas the exclusion criteria were TB patients with chronic comorbidities (e.g. cancer, HIV, Diabetes Mellitus) or currently being treated with steroids.

The minimum sample size (100 people) was calculated based on the hypothesis testing formula of one population for a cross-sectional design with a value of alpha 5% and beta 20% for stage I [5]. Participants were interviewed with structured questionnaires that have been validated, namely questionnaires about knowledge on TB and its treatment, attitude toward TB treatment, behaviour or adherence to TB treatment, and interpersonal communication of the health workers based on the concordance principle. Data were analysed using SPSS 19. The analysis used was frequency distribution for descriptive analysis, chi-square test for bivariate analysis, and logistic regression.

## Results

The characteristics of respondents consisted of gender, age, education, income, occupation, ethnicity, and marital status, which is given in Table 1.

**Table 1: Characteristics Distribution of Patients with Pulmonary Tuberculosis in Medan**

Characteristics	Total	Percentage
<b>Gender</b>		
Male	69	69
Female	31	31
<b>Age</b>		
Young (< 40 years)	45	45
Middle (40-59 years)	42	42
Old ( $\geq 60$ years)	13	13
<b>Education</b>		
Low (Elementary, Middle School)	47	47
High (High School, D-III, Bachelor)	53	53
<b>Income</b>		
Less (<2 million)	83	83
Sufficient (>2 million)	17	17
<b>Occupation</b>		
Unemployed	36	36
Employed	64	64
<b>Ethnicity</b>		
a. Bataknese	57	57
b. Javanese	29	29
c. Others	14	14
<b>Marital Status</b>		
a. Married	68	68
b. Not in a marriage	32	32

The results showed that most of the respondents were male (69%) and aged < 40 years (45%). Based on their education level, 53% of respondents had a high educational background (high school and university). In general, respondents had an income of below 2 million (83%). Furthermore, 64% of respondents had a job or currently in employment. The most ethnicity found in the study was Bataknese (57%), and most of the respondents were married (68%).

The concordance results of the health workers and patients based on the knowledge, attitude and behaviour of treatment can be seen in the following Table.

**Table 2: Concordance analysis between the health workers and patients Based on the medication-taking behaviour**

	Concordance				p-value*
	Good		Poor		
	n	%	n	%	
<b>Knowledge</b>					
Good	32	59.3	19	41.3	0.954
Poor	22	40.7	27	58.7	
<b>Total</b>	<b>54</b>	<b>100</b>	<b>46</b>	<b>100</b>	
<b>Attitude</b>					
Good	34	63	19	41.3	0.031
Poor	20	37	27	58.7	
<b>Total</b>	<b>54</b>	<b>100</b>	<b>46</b>	<b>100</b>	
<b>Behaviour</b>					
Good	37	68.5	18	39.1	0.003
Poor	17	31.5	28	60.9	
<b>Total</b>	<b>54</b>	<b>100</b>	<b>46</b>	<b>100</b>	

Chi-Square.

The results found that most of the good concordance behaviour of the health workers showed a good attitude (63%) and a good medication-taking behaviour (68.5%) in the TB patients. There was a relationship between the concordance of treatment with the attitude and behaviour of the patients ( $p < 0.05$ ), but there was no relationship found with the knowledge of the patients ( $p > 0.05$ ).

**Table 3: The analysis results of the relationship closeness of concordance with attitude and behaviour**

Variable	Constant	B	p-value	PR	95% CI PR
Concordance-Attitude	-1.413	0.882	0.032	2.416	1.078-5.408
Concordance-Action	-1.997	1.220	0.004	3.386	1.484-7.725

Logistic Regression.

The logistic regression analysis found that concordance was correlated 2.4 times to the medication-taking attitude of the patients and 3.4 times to the medication-taking behaviour of the patients.

## Discussion

The study results showed that 54% of respondents had a good concordance during the TB service in the public health centres in Medan. This result is in contrast to Patriani's study (2013) which

found only 35.1% of concordance among the patients in Mataram Hospital [4]. In this study, the concordance includes the establishment of effective communication based on the principle of partnership, openness, empathy, and support between health workers and TB patients [6]. Several conditions that must be fulfilled in a concordance are a power-sharing consultation, discussion at every opportunity, adequate information, fair and balanced discussion, and adequate time [3]. After the patients hand their health problems to the health workers, the health workers evoke concordance with a partnership communication and facilitate patients to participate with clear goals [7].

This study found that there was a good concordance associated with the attitude and behaviour of the TB patients in undergoing their treatment. This result is consistent with several previous studies [4] [8] [9]. However, this study did not find any correlation between concordance and the patients' knowledge because the patients might have obtained information from various sources, not only from the health workers. Several other studies explained that the reasons patients stopped using medication were because they felt recovery and did not understand the importance of completing the treatment. In other words, there was a low level of patients' knowledge related to the concordance level [10]. A good concordance will improve 3.4 times of the medication-taking behaviour of the patients in a good direction. This will lead to higher adherence or compliance of the patients than the poor concordance behaviour. Thus, patients have the commitment, motivation, and sense of responsibility for the disease and its treatment. It is needed during the treatment of chronic diseases, such as tuberculosis. The patients should understand and be responsible for their disease. This sense of responsibility and high commitment will simultaneously prevent the surrounding environment from contracting tuberculosis, and the patients will also be prevented from MDR, a difficult treatment which requires a very long time (2 years) [11] [12].

In conclusion, the results showed that most of the concordance behaviour, knowledge, attitude, and behaviour in the sample were good. There was a relationship between concordance with the attitude and medication-taking behaviour of the TB patients. However, there was no relationship found between concordance and the knowledge of the patients about their disease and its treatment.

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