

The Relationship between Concordance Behaviour with Treatment Compliance and Quality Of Life of Patients with Pulmonary Tuberculosis in Medan

Pandiaman Pandia^{1*}, Tamsil Syafiuddin¹, Adang Bachtiar², Kintoko Rochadi³

¹Department Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Sumatera Utara, Jalan Bunga Lau 17, Adam Malik General Hospital, Medan, Indonesia; ²Department of Health Administrations and Policy, Faculty of Public Health, University of Indonesia, Jakarta, Indonesia; ³Faculty of Public Health, Universitas Sumatera Utara, Medan, North Sumatera, Indonesia

Abstract

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***Correspondence:** Pandiaman Pandia, Department Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Sumatera Utara, Jalan Bunga Lau 17, Adam Malik General Hospital, Medan, Indonesia. E-mail: pandiaman.pandia@usu.ac.id

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BACKGROUND: Indonesia is the country with the second highest number of tuberculosis in the world. Patient compliance with tuberculosis treatment is still very low. Thus the success rate of treatment is also unsatisfactory. Concordance behaviour is a model of the doctor-patient relationship that combines aspects of the partnership, sharing decision making and trust. It is considered better than adherence to improve compliance and quality of life in patients with pulmonary tuberculosis.

AIM: This study aims to assess the relationship between concordance and the level of adherence to pulmonary tuberculosis treatment along with the quality of life in Medan.

METHODS: A cross-sectional study was conducted on 259 tuberculosis patients from several clinics and hospitals in Medan from 2015 to 2017, by asking patients to fill out questionnaires that had been tested for validity and reliability first. The concordance behaviour questionnaire contains 56 questions covering aspects of knowledge, partnership, sharing decision making, trust, and support. While compliance was measured by 14 questions covering attitude and behaviour. Statistical analysis was performed by Chi-Square test in SPSS v20.

RESULTS: This study shows that most TB patients (75.7%) have a good concordance, in which the aspect of knowledge, partnership, sharing and support were all good. However, the component of trust in the most patient (75.7%) was still low. Based on the level of compliance, 84.2% of patients had good compliance. However, the level of behaviour in 55.2% of patients was still low. Statistical analysis showed that there was a significant relationship between concordance and compliance ($p = 0.009$), in which patient with good concordance had 2.6 higher probability for good compliance. However, there was no significant association between concordance and quality of life ($p = 0.63$).

CONCLUSION: Concordance behaviour is a good concept to be applied to improve treatment compliance of pulmonary TB patients.

Introduction

Pulmonary tuberculosis (TB) is a chronic infectious lung disease caused by *Mycobacterium tuberculosis*. Currently, Indonesia is listed as the second highest country with tuberculosis in the world. In 2015, there were more than one million new cases of tuberculosis in Indonesia, of which 1 in 7 cases was multi drugs resistant tuberculosis. Epidemiological reports state that 274 people die from tuberculosis every day [1].

TB is a health challenge in Indonesia, not only because of the high morbidity and mortality rates, but also the difficulty in handling TB cases. TB treatment takes at least 6 months every day without interruption. Also, the side effects caused by TB drugs also make patients reluctant to take TB drugs. These two things make boredom appear in patients to take the drug until the end, which ultimately results in low compliance and quality of life for TB patients [2].

So far, the model of physician-patient relations in TB treatment is limited to the concept of

compliance and adherence only. Both models tend to be one-way in which patients must carry out doctor's orders throughout their treatment without establishing mutual trust and understanding between physicians and patients. The concept of concordance is a new pattern of the doctor-patient relationship that combines aspects of the partnership, sharing decision making and trust [3].

Thus, the concordance concept is considered better than adherence to improve compliance and quality of life in patients with pulmonary tuberculosis. This study aimed to assess the relationship between concordance and the level of compliance to pulmonary tuberculosis treatment along with the quality of life in Medan.

Methods

A cross-sectional study was conducted on 259 tuberculosis patients from several clinics and hospitals in Medan from 2015 to 2017. Sample collecting procedure was carried out by consecutive sampling methods. The inclusion criteria includes patients aged more than 15 years old, staying in Medan and able to communicate with the researcher. Patients with multidrug resistant tuberculosis and with life-threatening comorbidities were excluded from this study.

Subjects were asked to fill out questionnaires that had been tested for validity and reliability first. The concordance behaviour questionnaire contains 56 questions covering aspects of knowledge, partnership, sharing decision making, trust, and support. While compliance was measured by 14 questions covering attitude and behaviour. The quality of life of subjects was measured by internationally-standardised SP-36 questionnaire, regarding 36 questions about daily activities.

Bivariate and multivariate analysis was conducted to assess the association between concordance and the level of compliance to pulmonary tuberculosis treatment along with the quality of life in Medan. Statistical analysis was performed by Chi-Square test in SPSS v20.

Result

Demographic Characteristics

A total of 259 tuberculosis patients were sampled in this study from 2015 to 2017. Demographic characteristics of patients can be seen in Table 1.

Table 1: Demographic Characteristics of Research Subjects

Characteristic	n	%	
Age (years old)	≤ 30	78	30.1
	31-40	52	20.1
	41-50	53	20.5
	51-60	49	18.9
	≥ 60	27	10.4
Gender	Male	171	66.0
	Female	88	34.0
Occupation	Unemployed	54	20.8
	Housewife	42	16.2
	Entrepreneur	134	51.7
	Civil worker	18	6.9
	Other	11	4.2
Marital status	Married	182	70.3
	Unmarried	77	29.7
Family history of TB	Yes	42	16.2
	No	217	83.8
Drugs availability	Always available	221	85.3
	Sometimes not available	38	14.7
Attending physician	General physician	186	71.8
	Pulmonologist	73	28.2
Home to health-care distance	Short	28	10.8
	Moderate	188	72.6
	Far	43	16.6
Total	259	100	

The majority subject of this study was 41-50 years old (20.5%) and male (66%). Based on occupation, most patients worked as entrepreneur (51.7%). More than two third of them had been married. As many as 14.7% of patients stated that tuberculosis drugs are not always available in the nearest health care. This certainly needs to be a concern for the government because every health care should always provide TB drugs so that treatment is not interrupted in the middle of the treatment. As many as 16% of patients also have a home far away from health care which definitely will increase the risk of non-compliance in treatment.

The concordance and compliance level of TB patients

Table 3 describes the concordance and compliance level of TB patients along with their all components.

Table 2: The concordance and compliance level

Aspect	High		Low	
	n	%	n	%
Overall concordance	196	75.7	63	24.3
Knowledge	240	92.7	19	7.3
Partnership	147	56.8	112	43.2
Sharing	188	72.6	71	27.4
Trust	63	24.3	196	75.7
Support	252	97.3	7	2.7
Compliance	218	84.2	41	15.8
Attitude	193	74.5	66	25.5
Behaviour	116	44.8	143	55.2

Based on Table 2, most patients (75.7%) have high concordance level. However, one of the aspects that build up a concordance, the trust of patients to doctors was still low (24.3%). Other aspects including knowledge, partnership, sharing and support were all mostly at high level. The compliance level of 84.2% of patients was high. However, the behaviour aspects of more than half of the patients were still low (55.2%).

Association between concordance, compliance and quality of life

Table 3 and Table 4 describes the association between concordance, compliance level and quality of life among tuberculosis patients.

Table 3: Association between concordance and compliance

Concordance	Compliance				p-value	OR	95% CI
	High		Low				
	n	%	n	%			
High	172	78.9	24	58.5	0.009*	2.6	1.31-5.34
Low	46	21.1	17	41.5			
Total	218	100	41	100			

*) significant with Chi-Square test.

There was a significant relationship between concordance and compliance ($p < 0.009$), in which patient with good concordance had 2.6 higher probability for good compliance.

Table 4: Association between concordance and quality of life

Concordance	Quality of Life								p-value
	Very Good		Good		Moderate		Poor		
	n	%	n	%	n	%	n	%	
High	20	83.3	77	77.8	72	73.5	27	71.1	0.63
Moderate	4	16.7	22	22.2	26	26.5	11	28.9	
Total	24	100	99	100	98	100	28	100	

Chi-Square test.

However, there was no significant association between concordance and quality of life ($p = 0.63$). This may be because many factors could affect the quality of life and not only limited to treatment alone.

Table 5: Multivariate analysis of factors related to high concordance level

Variables		P-value	Adjusted OR	95% CI
Gender	Male	0.62	1	1
	Female		1.18	0.6 – 2.31
Marital status	Married	0.35	1	1
	Not Married		1.48	0.64 - 3.38
Age	< 40 years old	0.30	1	1
	40 - 64 years old		1.50	0.69 – 3.29
	≥ 60 years old		0.72	0.27 – 2.46
Education	Low	0.70	1	1
	Moderate		0.86	0.39 – 1.85
	High		0.91	0.42 – 2.61
Funding Source	Personal funding	< 0.001	1	1
	Covered by insurance		4.23	1.81 – 9.85
Attending physician	Specialist	0.44	1	1
	General physician		1.30	0.66 - 2.57
Home to health care distance	Far	< 0.01*	1	1
	Short		2.9	1.51 – 5.57

*) significant with Logistic regression test.

Table 5 describes the multivariate analysis of factors related to high concordance level among TB patients. Of 7 variables, there are 2 factors that significantly influenced the concordance level, the funding source and home to health care distance. Patients covered by insurance for their medical findings were 4.2 times more likely to have a high concordance level and patients whose their homestay near the health care were 2.9 times more likely to build a good concordance. It is interesting to see that neither education nor attending physician affects the level of concordance.

Discussion

Treatment of tuberculosis especially in Indonesia often causes problems despite referring to the DOTs Directly Observed Treatment Shortcourse treatment (DOTS) strategy. The type of long-term treatment in tuberculosis often causes patients to be disobedient in undergoing treatment [2]. Many patients do not regularly take medication according to the dose of the drug that has been determined. Studies of compliance with TB treatment have been widely carried out in various regions in Indonesia. One of them is Nursiswati's research in several health care in Sumedang which shows the rate of treatment compliance for TB patients is only 37.3% [4].

Non-adherence to take anti-TB drugs is a serious problem because it can cause germs to become resistant, relapse and also increase morbidity and mortality. Non-compliance also presents a risk of transmission to the community and an increase in cases of Multi-Drug Resistance (MDR) [5].

Various models of doctor-patient relationships were developed in the treatment of TB, namely compliance, adherence and concordance. In the principle of compliance, patients are passive, and there is no patient involvement in undergoing treatment [6]. Adherence is different from compliance because it is accompanied by the patient's understanding of the ins and outs and management of the disease so that patients have a high commitment to following doctor's recommendations consistently [6].

A better concept of adherence is concordance. Concordance is the highest level of treatment because in addition to adherence there are similarities and mutual respect between doctors and patients (Figure 1). Concordance relationships have 3 important factors, namely partnership and sharing to make decisions in treatment and the occurrence of adherence to treatment [7].

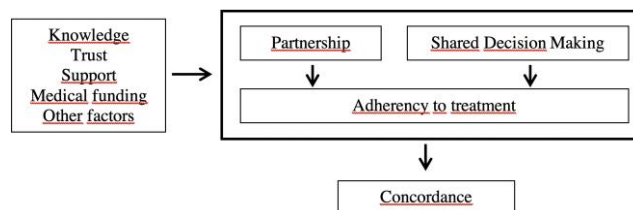


Figure 1: The concept of concordance

To build the partnership aspect, it is important to listen actively to the patient and communicate in every meeting. The implementation of a balanced communication aspect consists of patient explanations and approvals. While sharing decision aspects include good knowledge that the patient is an individual who has autonomy rights that need to be appreciated (understanding), discuss his illness and

make options treatment options and healing. Patients must also understand the side effects and risks that may occur for treatment options, then decide together the best management strategy (deciding), and ask for approval from the patient what might happen to him (monitoring) [7].

The concordance itself is determined by many factors including predisposing factors, supporting factors and driving factors. Predisposing factors include socio-demographic such as age, gender, education, ethnicity, values in society, work, income, trust and confidence. Supporting factors are the distance from home to health facilities, the availability of pulmonary TB drugs and the ability to pay. Another important driving factor is family support, effective communication and attitudes and behaviours of health workers serving [7].

In conclusion, the level of concordance is significantly related to treatment compliance but not to the quality of life in patients with pulmonary tuberculosis. Hence, concordance behaviour is a good concept to apply for better pulmonary tuberculosis management.

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