Individual-Level Factors Associated with Quality of Life among TB Patients

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Abstract

Background: Due to the high incidence of tuberculosis (TB) in Indonesia, evaluating important factors of the TB patients' quality of life is crucial. Individual-level factors play an essential role in enabling TB patients to manage their perceived needs and treatments to sustain the Quality of Life (QoL). Yet little is known about the relationships between individual-level factors and the QOL of TB patients in Indonesia. This study aimed to evaluate the association between individual-level factors (physical health, emotional state, social support, spirituality) and quality of life in TB patients. **Methods:** A cross-sectional study was conducted using a simple random sampling strategy, 73 TB patients were chosen based on their availability during data collection, and consent to participate in the study. The data were collected from a community sample of Surabaya City, East Java, Indonesia. In the present study, the following instruments were used: Early Warning Score System (EWSS), Depression Anxiety Stress Scale (DASS)-21, MOS Social Support Survey-14, Daily Spiritual Experience Scale (DSES), and the World Health Organization Quality of Life (WHO-QoL). Spearman's rank correlation coefficient was used to discover the association between variables. **Results and Discussions:** The results showed that there were significant relationships between physical health ($p = 0.037$), emotional state ($p = 0.04$), social support, spirituality and QoL ($p = 0.001$). **Conclusion:** In conclusion, individual-level factors associated with TB patients' quality of life: physical health, emotional state, social support, and spirituality.

Keywords: *Individual-Level factors, Quality of Life, TB patients*

Introduction

Tuberculosis (TB) is a major public health problem worldwide, and the World Health Organization declared it as global pandemic with 1.4 million deaths in 2019[(1)]. Currently, Indonesia is considered as one of the 'high burden countries' with tuberculosis incidence of 1,020,000 cases annually and 110,447 deaths in 2018[(2-3)]. Due to the high burden of tuberculosis in Indonesia and its impact on biopsychosocial-spiritual aspects of patients, evaluating important factors of the TB patients' quality of life is crucial and challenging.

Quality of life (QoL) has been defined as a general concept of whole aspects of patients' life including physiological, mental, socio-economic, and spiritual wellbeing[(4)]. Studies showed that TB disease and its treatment influenced functional status, quality of life, and emotional responses to physical pain[(5-6)]. QoL is a primary outcome measure within TB management. Additionally, another study revealed that poor QoL in TB patients may be a predictor of poor treatment outcomes[(7)]. Many factors influenced the quality of life

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among TB patients: personal factors, TB pathogenesis, and the quality of medical treatments[4].

So far, individual-level factors also influence patients' life in various ways – the quality of life, adherence to treatment, and maintain healthy lifestyle changes. Individual-level factors represent a set of influences on quality of life through personal resources that require reinforcement from the environment, these include the following aspects: physical health, emotional state, social support, spirituality. Previous studies showed that poor physical conditions associated with low QoL[8-11]. In a study of QoL in asthma patients, poor QoL influenced disease self-management, physical activity levels, and other measurements[9]. Lower scores of QoL had been associated with certain mental health problems, such as depression, low-autonomy, stress, low self-control, poor self-esteem, hopelessness, and a sense of disconnection from others[12-14]. In other studies, adequate social support from the environment was recognized as an indicator of a better quality of life in patients with chronic diseases[15-16]. Spirituality is a higher aspect of human life that has significant values to promote good QoL. Studies showed that there were statistically significant correlations between QoL and spiritual well-being among respondents with chronic diseases[17-18].

Individual-level factors play an essential role in enabling TB patients to manage their perceived needs and treatments to sustain the quality of life. Yet little is known about the relationships between individual-level factors and the QOL of TB patients in Indonesia. This study therefore aimed to evaluate the association between individual-level factors (physical health, emotional state, social support, spirituality) and quality of life in TB patients.

Materials and Methods

A cross-sectional study was conducted using a simple random sampling strategy. The data were collected from a community sample of Surabaya City, East Java, Indonesia. 73 TB patients were chosen based on their availability during data collection, and consent to participate in the study. The respondents were informed that they had the freedom to withdraw their participation at any time during the study.

In the present study, the following instruments were used: Early Warning Score System (EWSS) to determine physical health based on vital signs; Depression Anxiety Stress Scale (DASS)-21 to measure depression, anxiety, and stress; MOS Social Support Survey-14 to evaluate social support; Daily Spiritual Experience Scale (DSES) to assess TB patients' spirituality aspects; and the World Health Organization Quality of Life Scale (WHO-QoL) to measure TB patients' quality of life. Spearman's Rank correlation coefficient was used to discover the association between variables.

Results and Discussion

This study first described the individual-level factors among TB patients using descriptive statistics. The association between individual-level factors related to the quality of life was analyzed by using Spearman's rank correlation coefficient, and the results were statistically significant if p-value < 0.05.

Table 1: Frequency Distribution of Individual-Level Factors among TB Patients (N = 73)

Individual-Level Factors (N, %)					
Physical health	**Good**	**Slightly bad**	**Bad state**	**Very bad state**	
	28 (38.4)	23 (31.5)	22 (30.1)	0 (0)	
Emotional state	Normal	Mild	Moderate	Severe	Very severe
	26 (35.6)	30 (41.1)	9 (12.3)	5 (6.8)	3 (4.1)
Social support	More frequent	Frequent	Sometimes	Rare	Very rare
	30 (41.1)	36 (49.3)	7 (9.6)	0 (0)	0 (0)
Spirituality	High	Medium	Low		
	51 (69.9)	16 (21.9)	6 (8.2)		

Table 2: Individual-Level Factors Associated with Quality of Life among TB Patients

Cross-tabulation (N, %)		Individual-Level Factors					p-value
		Physical health					
		Good	Slightly bad	Bad state	Very bad state		
Quality of Life	Poor	6 (8.2)	11 (15.1)	6 (8.2)	0 (0)		0.037
	Good	22 (30.1)	12 (16.4)	16 (21.9)	0 (0)		
		Emotional state					0.04
		Normal	Mild	Moderate	Severe	Very severe	
	Poor	7 (9.6)	6 (8.2)	6 (8.2)	2 (2.7)	2 (2.7)	
	Good	19 (26)	24 (32.9)	3 (4.1)	3 (4.1)	1 (1.4)	
		Social support					0.001
		More frequent	Frequent	Sometimes	Rare	Very rare	
	Poor	1 (1.4)	18 (24.7)	4 (5.5)	0 (0)	0 (0)	
	Good	29 (39.7)	18 (24.7)	3 (4.1)	0 (0)	0 (0)	
		Spirituality					0.001
		High	Medium	Low			
	Poor	6 (8.2)	12 (16.4)	5 (6.8)			
	Good	45 (61.6)	4 (5.5)	1 (1.4)			

In table 1, we see that more than one-third of respondents had a good (38.4%), slightly bad (31.5%), and in a bad state of physical health (30.1%) respectively. A study among TB patients in Korea found that lower physical health had a significant correlation with poor QoL ($p = 0.001$) and the successful treatment of TB[19], thus health professionals should motivate TB patients to maintain healthy lifestyle changes and adhere to a medical treatment plan. In addition, the highest percentage of respondents had a mild emotional state (41.1%). Chronic disease patients must cope with their condition and yet the adverse effects of prescribed treatment. In this perspective, certain emotional responses related to their conditions were frequently overlooked, therefore it might be difficult to diagnose mental health issues in the medically ill patients, but better mental health diagnosis and treatment are important, so TB patients can maintain healthy coping skills. Previous studies described patients with chronic diseases commonly suffered from psychological impairments in the course of treatment[20-22]. In addition to this, a study by Arango-Lasprilla *et al.* disclosed that creating certain programs in health services is beneficial to reduce mental health issues in patients with injuries as well as improve their QoL[23]. Almost half of the respondents (49.3%) received more frequent social support from the environment during treatment. Hence, frequent social support may also promote individual values with high levels of spirituality (69.9%).

This study next explored the association between individual-level factors and quality of life (table 2). The

results showed that there were significant relationships between physical health (p = 0.037), emotional state (p = 0.04), social support, spirituality, and quality of life (p = 0.001). Kim and Lee stated that social support from closest friends and relatives could improve respondents' mental health as part of components of QoL[24]. Other studies also revealed there were positive correlations between social support and QoL. The studies found that social support could prevent mental health issues and other negative effects of diseases, which would directly impact the QoL[25-28]. TB disease may cause financial loss through morbidity, treatment cost, or its effects on patients' productivity, and on the life of the family. Consequently, adequate emotional support is needed to increase patients' adherence to treatment, active participation in daily activities with societies, and QoL[29]. Further, higher levels of spiritual aspects were associated with better QoL among patients with chronic diseases[30-31]. Davison and Jhangri explained that improving psychosocial adaptation to chronic diseases and engaging in family interactions could enhance patients' spiritual development and QoL[30]. In this study, we can identify that the quality of life among TB patients was affected by physical health, emotional state, social support, and spirituality. Therefore, health professionals need to strengthen these individual-level factors to increase TB patients QoL.

Conclusion and Acknowledgement

This study described the association between individual-level factors and quality of life. There were statistically significant relationships between physical health (p = 0.037), emotional state (p = 0.04), social support, spirituality and quality of life (p = 0.001). Further studies are necessary to consider a wider range of factors that affect the quality of life among TB patients. These factors may contribute to the development of preventive measures and treatment to improve the quality of life of TB patients. We would also like to show our gratitude to Professor Nursalam, Dr. Rachmat Hargono, Professor Mochammad Amin, and Dr. Nyoman Anita Damayanti from Universitas Airlangga for sharing their pearls of wisdom with us during the study. We thank our colleagues from Sekolah Tinggi Ilmu Kesehatan Hang Tuah Surabaya who provided insight and expertise that greatly assisted the study.

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