

The Influence of Social Support to the Quality of Life of Tuberculosis Patients in Depok, West Java Province, Indonesia

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Abstract

The quality of life of Tuberculosis (TB) patients is very important to be considered due to infectious disease is chronic that it can affect quality of life. In order to improve quality of life is by providing social support to TB patients. This study aims to discuss the influence of social support to the quality of life of TB patients. This was a longitudinal study (repeated measurements). Data collection with interviews to respondents using the WHOQOL-BREF and Multidimensional Scale of Perceived Social Support (MSPSS). Data analysis using General Estimation of Equation. The results showed that social support has a strong influence to the quality of life of TB patients (OR = 7.9); An influential source of social support to improve the quality of life of TB patients were family, friends and significant others. Family support provides the highest contribution with an OR of 19.7; An influential type of social support to improve the quality of life of TB patients were emotional, informational and companionship support. Emotional support provides the highest contribution with an OR of 7.4. Social support to TB patients given at the 5th month of treatment have a positive impact on the quality of life with PAR% was 70%. This study recommends improving the social support to TB patients to increase quality of life of TB patients.

Keywords: Quality of life, WHOQOL-BREF, Social Support, MSPSS, Tuberculosis

1. Introduction

1.1 Introduce the Problem

Quality of life is the concept of multidimensional which is more extensive than simply measuring morbidity and mortality (Payot & Barrington, 2011). In 1995, the WHO recognized the importance of evaluating and improving people's quality of life. WHO states that measuring health outcomes, not only based on saving lives, but also in terms of improving quality of life (The WHOQOL Group, 2005).

Tuberculosis (TB) is one of the infectious disease as the highest contributor to the disease burden in Indonesia (MOH Indonesia, 2016). Tuberculosis can affect the patients' quality of life such as psychological, physical, social functioning (Dhuria, Sharma, & Ingle, 2008). Putri, Wahiduddin, and Arsyad research on Pulmonary Tuberculosis patients at BBKPM Makassar with cross sectional study design and using WHOQOL-BREF questionnaire reported that out of 90 research samples, there were 55.6% (50 people) who had poor quality of life (Putri et al., 2013). One of the ways that can be done to improve the quality of life is by giving social support to TB patients from the health worker, communities or families of patients who have contributed substantially in improving the treatment of TB patients with the supervision and cheering the patients against the disease (Nita Yuniarti Ratnasari, 2012).

The study of the influence of social support to quality of life needs to be considered some factors that have a large impact on social support and quality of life, namely the age of TB patients. The age categorization of TB patients is based on a cut-off of 15 years, specifies by pediatric TB patients (age <15 years) and adult TB patients (age ≥ 15 years) (MOH Indonesia, 2016). The response of TB Patients to support social and quality of life at the age of adulthood will be more easily obtained than pediatric TB patients because children have a dependency on the parent (Kusmiyati, 2016). For that this study was conducted, the study of the influence of the social support of the quality of life is carried out on the subject of the homogeneous that patients with TB adults aged ≥15 years.

1.2 Aim of The Study

The study aimed to determine the effect of social support on the quality of life of TB patients in the prospective cohort with repeated measurements.

2. Method

2.1 Participant (Subject) Characteristics

Subjects of this study were 209 patients who newly diagnosed that confirmed by sputum smear microscopic as Pulmonary Tuberculosis at the health centers of Depok City, West Java Province, Indonesia, aged ≥ 15 years old and domiciled in Depok City, West Java Province, Indonesia, which had complete medical records and was willing to be a research respondent by signing an inform consent. The exclusion criteria were pediatric and extra pulmonary TB patients.

2.2 Sampling Procedures

2.2.1 Sample Size

The sample size is calculated to see the difference in proportion of the two groups in the longitudinal study design with more than 1 (one) follow up or repeated measurement, then using a large sample formula from Twisk (Twisk, 2013). A number of samples assuming that this study had a 95% confidence level with α of 5%. Based on the above calculation results obtained $N = 100,402$ rounded up to 100 tuberculosis patients in unsupportive social support groups, and 100 tuberculosis patients in supportive social support groups. Consider to loss to follow up during the observation period, the number of samples in this study will be increased by 10% (10 people) for each group, so tuberculosis patients in the social support group are not supportive of 110 people, and 110 tuberculosis patients in the supportive social support group.

2.2.2 Measures and Covariates

The study was carried out using an observational design with a prospective cohort (longitudinal study). Repeated measurements (baseline, 2nd month, 5th month, 6th month) conducted was to assess data were gathered in all (35) health centers in Depok City with the time of the study was August 2017 - September 2018. The Indonesian version of the WHOQOL-BREF (4 domains: physical health, psychological, social relation and environmental) was created as an instrument to measure QOL of Tuberculosis patients (the Cronbach's Alpha coefficient of total QOL was 0,880). Although the WHOQOL-BREF has been used in 23 other countries (Alexander et al., 2005), the use of WHOQOL-BREF for Tuberculosis patients is still not widely practiced, especially in Indonesia. Moreover, the Indonesian version of Multidimensional Scale of Perceived Social Support (MSPSS) modified with Tuberculosis (the Cronbach's Alpha coefficient of total Social Support was 0,950) has been used as an instrument to measure social support received by the TB patients. Social support consists of source social support (support from family, friends, doctor and significant others) (Zimet, Dahlem, Zimet, & Farley, 1988) and type of social support (emotional, informational, tangible and companionship support). Emotional support is the offering of empathy, concern, affection, love, trust, acceptance, intimacy, encouragement, or caring. Informational support means the provision of advice, guidance, suggestions, or useful information related TB to someone. Tangible support is the provision of financial assistance, material goods, or services. Companionship support is the type of support that gives someone a sense of social belonging. This can be seen as the presence of companions to engage in shared social activities (Wikipedia The Free Encyclopedia, n.d.). The determination of 'bad' or 'good' category of quality of life uses the 60 percentiles (50.67). With the categorization is based on the cut off of this. Moreover, the categorization of social support is non-supportive and supportive based on the parameters of the mean score (105.94).

2.3 Research Design

This was a longitudinal study (repeated measurements). Data collection with interviews to respondents using the WHOQOL-BREF questionnaire for quality of life data and Multidimensional Scale of Perceived Social Support for social support data. Data analysis using logistical regression analysis for repeated data measurement is General Estimation of Equation. The impact of social support to the quality of life of TB patients is assessed by calculating Attributable Risk (AR), Attributable Risk Percent (AR%), Population Attributable Risk (PAR) and Population Attributable Risk Percent (PAR%).

3. Results

3.1 Participant Characteristics

From 209 patients who diagnosed as newly patients by sputum smear microscopic as Pulmonary Tuberculosis at

the health centers of Depok City, West Java Province, there were age of 25-34 years (27.8%), male (60.3%), high school education (47.8%), working (60.3%), married (67.9%), have medical insurance (64.1%), no have HIV (99.2%) and no have DM (82.3%).

3.2 Quality of Life of TB Patients and Social Support to TB Patients

Two information namely quality of life of TB patients and social support to TB patients are describes in Table 1.

Table 1. Quality of Life of Tuberculosis Patients and Social Support to Tuberculosis Patients at Specific Follow Up (Baseline, 2nd month, 5th month, 6th month) (n = 209)

	Baseline		2 nd month		5 th month		6 th month		p value
	n	%	n	%	n	%	n	%	
Quality of life									
Bad	206	98,6	172	82,3	83	39,7	41	19,6	0,000
Good	3	1,4	37	17,7	126	60,3	168	80,4	
Social Support									
Non-supportive	113	54,1	105	50,2	89	42,6	61	29,2	0,000
Supportive	96	45,9	104	49,8	120	57,4	148	70,8	

Significant level: 5%.

The quality of life of TB patients is good at baseline were 3 (1.4%) then rise in the follow up in sixth month into 168 (80.4%), whereas Quality of life of TB patients with is bad at baseline were 206 (98.6%) and then decreased to 41 (19.9%) at 6th month. The relationships were significant (p-value = 0.000) between the quality of life with the time of measurement. The more the length of treatment, the good quality of life of TB patients is getting higher and the bad quality of life of TB Patients is getting low. The description of support social to the TB patients is known that at baseline, supportive social support to the TB patients is found low were 96 (45.9%) subsequently at follow up in 6th month rise into 148 (70.8%), and non-supportive social support the highest found at baseline namely 113 (54.1%) and then decreased at 6th month becomes 61 (29.2%). There is a significant relationship (p-value = 0.000) between the social support with the measurement of time. The length of treatment, the supportive social support to the TB patients is getting higher and non-supportive social support to the TB patients is getting lower.

3.3 Social Support to the TB Patients

Social support to the TB patients can be distinguished based on sources of social support and type of social support. An overview of the sources and type of social support to the TB patients is presented in Figures 1 and 2.

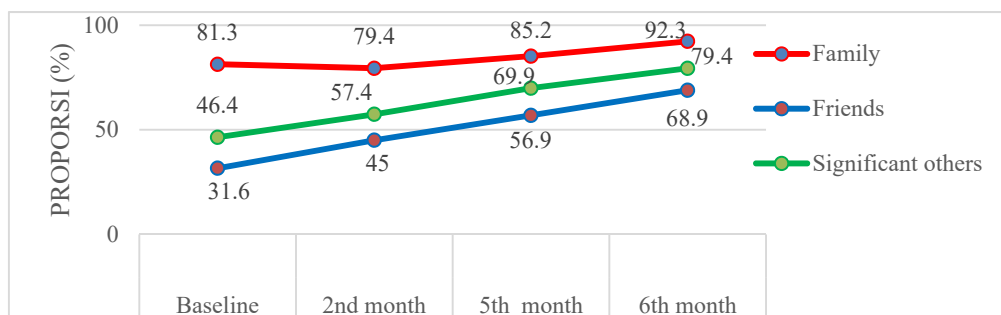


Figure 1. Distribution of Proportion (%) Sources of Supportive Social Support to Tuberculosis Patients

Description of sources of social support that comes from family, friends and significant others can be identified that at baseline supportive social support over many obtained from family, namely by 170 (81.3%) and at 6th month increase to 92.3%. The relationships were significant (p-value = 0.000) between the three sources of social support to the TB patients with a measurement of time. The longer period of treatment, supportive social support to the TB patients is getting higher and non-supportive social support to the TB patients is getting lower.

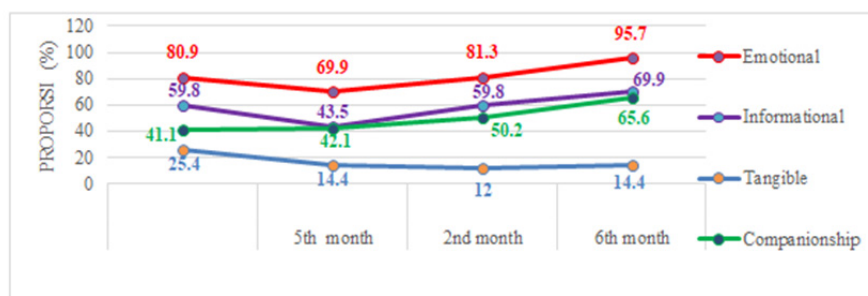


Figure 2. Distribution of Proportion (%) Type of Supportive Social Support to Tuberculosis Patients

Figure 2 above shows that at baseline, the highest type of supportive social support was emotional was 169 (80.9%), then 6th month increasing to 95.7%. while the lowest type of supportive social support is tangible by 53 (25.4%) and decreasing in 6th month becomes 14.4%. There was a tendency the longer period of treatment, the type of supportive social support to the TB patient is getting higher, except for the tangible support the longer period of treatment, the tangible support is getting lower.

3.4 The Influence of Social Support to Quality of Life of TB Patients

Based on the result of multivariate analysis with the General Estimation of Equation (GEE), the final model of the influence of social support to the quality of life of TB patients is presented in table 2.

Table 2. Final Model of the Influence of Social Support to Quality of Life of Tuberculosis Patients after Controlled Covariates

Variable	B	SE	p-value	OR	95% CI OR	
					Lower	Upper
Sosial Support						
Supportive	2,071	0,177	0,000	7,9	5,6	11,2
Not Supportive	Reff			1		
HIV						
Yes	-1,527	0,353	0,000	0,2	0,1	0,4
No	Reff			1		
DM						
Yes	-0,378	0,189	0,046	0,7	0,5	0,5
No	Reff			1		

Significant level: 5%.

The results of the analysis showed that TB patients with supportive social support had a 7.9 times chance (95% CI: 5.6-11.2) to have a better quality of life than TB patients with non-supportive social support after controlling comorbid factors (HIV and DM).

In this study, measurements of social support to TB patients were carried out 4 times at baseline, 2nd months, 5th months and 6th months. The effect of the time for providing social support to TB patients most needed to improve the quality of life of TB patients. Improvement in the quality of life of TB patients has increased from 2nd month, 5th month and 6th month. The information on the source and type of social support that influences to the quality of life is presented in Table 3.

Table 3. Analysis of General Estimation of Equation (GEE) The Influence of Source of Social Support to Quality of Life of TB Patients

Social Support	B	SE	p-value	OR	95% CI OR	
					Lower	Upper
Source of Social Support						
Family						
Non-Supportive	Reff			1		
Supportive	2,981	0,531	0,000	19,7	6,9	55,8
Friend						
Non-Supportive	Reff			1		
Supportive	0,992	0,199	0,000	2,7	1,8	4,0
Medical Dokter						
Non-Supportive	Reff			1		
Supportive	-0,719	0,213	0,001	0,5	0,3	0,7
Significant Others						
Non-Supportive	Reff			1		
Supportive	0,961	0,210	0,000	2,6	1,7	3,9
Type of Social Support						
Emotional Support						
Non-Supportive	Reff			1		
Supportive	1,995	0,433	0,000	7,4	3,2	17,2
Informational Support						
Non-Supportive	Reff			1		
Supportive	0,806	0,195	0,000	2,2	1,5	3,3
Tangible Support						
Non-Supportive	Reff			1		
Supportive	-0,781	0,218	0,000	0,5	0,3	0,7
Companionship Support						
Non-Supportive	Reff			1		
Supportive	1,132	0,189	0,000	3,1	2,1	4,5

An influential source of social support to improve the quality of life for TB patients was support from family, friends and significant others. Family support provides the highest contribution to improving the quality of life of TB patients with an OR of 19.7. The emotional, informational, tangible and companionship support has a statistically significant effect (p -value = 0,000) to the quality of life of TB patients. The type of social support that affect improving to the quality of life of TB patients were emotional, informational, and companionship support. Emotional support provides the highest contribution to improve the quality of life of TB patients with an OR of 7.4.

The analysis results for the Attributable Risk Percent (AR%), at baseline was 3%, at the 2nd-month follow-up was 36%, at the fifth-months follow up was 74%, and at the sixth-month follow up was 86%. The analysis result for Population Attributable Risk Percent (PAR%) shows that at baseline was 2%; at the 2-month was 23%; at the 5th-month was 70%, and at the 6th-month was 63%.

4. Discussion

In this study, the number of male TB patients was more than female. These results are following previous studies conducted by Pasipanodya, Miller, Mauricio Vecino, Drewyer, and Weis (Pasipanodya et al., 2007) where the

ratio of male and female tuberculosis patients was 69%: 31%. WHO (WHO, 2010) also reports that every year there are 70% more TB sufferers in men than women. Based on age groups, most TB patients in this study were productive ages, namely age 25-34 years and 45-54 years. Previous research conducted by Tety and Turniani also found the most TB sufferers at the age of 16-45 years (R. Tety & Turniani L, 2006). WHO states that the highest incidence of pulmonary tuberculosis is usually about the age of young adults between 15-44 years, of which 75% are of productive age (MOH Indonesia, 2016). Formal education of respondents in this study mostly half (47.8%) of TB patients have a high school education. These results were consistent with research conducted by Adnan, Perwitasari, and Mulyani that TB patients are found at the high school level (45.9%) (Adnan, Perwitasari, & Mulyani, 2014). Research conducted by Tinartayu and Riyanto found that the majority (44.4%) of pulmonary TB patients had a high school education (Tinartayu & Riyanto, 2015). More TB patients in this study were married. This is the same as the results of research by Patel et al who found 74% of TB patients were married (Patel, Ramanuj, & Bala, 2014). More TB patients in this study worked than those who did not. Previous research conducted by Hadifah, Amri Manik, Zulhaida, and Wilya found that 80% of Tuberculosis Patients worked (Patel et al., 2014). The incidence of TB in people who work may be caused by the high level of activity and mobility that provides greater opportunities for contact with others including TB patients, so the risk of contracting TB is greater (MOH Indonesia, 2016).

In terms of ownership of health insurance, in this study most (64.1%) TB patients claim to have health insurance. This is in accordance with the statement on the Technical Instructions of TB patients services for BPJS participants "Health Insurance or BPJS will cover all medical expenses related to TB" (CDC, 2015). Moreover, according to the data claim BPJS, tuberculosis is one of the five most diseases in Indonesia (Setiaji, 2019).

The description of the quality of life of TB patients, it is known that at the baseline (early treatment) more TB patients are found with poor quality of life but subsequently, good quality of life has improved. These results is the same as research conducted by Hendrik, Perwitasari, Mulyani, and Thobari found that poor quality of life for TB patients occurred in the first month at the beginning of treatment (Hendrik, Perwitasari, Mulyani, & At Thobari, 2015).

TB patients with supportive social support are 7.9 times more likely to have a better quality of life than TB patients with non-supportive social support with 95% CI: 5.6-11.2. The large OR results between social support and quality of life for TB patients show a strong association between social support and quality of life for TB patients. Temporal relationships in this study are shown in the design and course of the study. Data on exposure (supportive social support) is the result of measurement in the period of treatment (before the outcome occurs), while the quality of life of TB patients is the result of measurement at the next observation. Plausibility in terms of the biological mechanism of the influence of social support on the quality of life of TB patients can be explained that social support is related to the level of morbidity and mortality because it involves physiological mechanisms that will ultimately affect a person's quality of life. According to the principle of causality based on Hill's theory, the effect of social support on quality of life has a strong relationship, fulfilling the principle of temporality and plausibility (King, 2015).

This study showed that the provision of social support at the baseline, 2nd month, 5th month, and 6th month influenced the quality of life of TB patients. The most effective time to provide social support to improve the quality of life of TB patients is in the initial stages of treatment (baseline until the 2nd month of treatment), where in the improvement in the quality of life of TB patients who receive supportive social support will continue to increase from 2nd to 5th months, 6th month (end of treatment). The quality of life of TB patients towards the 6th month seems to increase sharply along with the course of their illness towards recovery. The critical time for TB patients is in the 2nd month of treatment as a qualitative study on pulmonary tuberculosis patients at BP4 Tegal conducted by Nugroho (Nugroho, 2011) concluded that the underlying factor for dropping out of TB patients is treatment after the 2nd month of treatment where the symptoms disappear and the patient feels get well. This condition can encourage patients to stop treatment. Thus, the provision of social support at the end of the second 2nd month of treatment becomes very important for the treatment of TB patients to achieve true healing.

This study shows that the source of social support that is influential to improve the quality of life of TB patients is support from family, friends and significant others. Social support from the family gives the strongest influence to improve the quality of life of TB patients Tety & Turniani (Tety & Turniani, 2006) stated that because treatment requires a long time, patients with pulmonary tuberculosis are very likely to experience high enough stress so that in addition to medical treatment is also needed social support from family and those around them. Putri, Wahiduddin, Arsyad in They study in Makassar on pulmonary tuberculosis patients stated that 56%

of pulmonary tuberculosis patients who received family support had a better quality of life than social support received from the community and friends (Putri et al., 2013).

In this study, the social support received by TB patients who influence to improve the quality of life of TB patients is emotional, informational, and companionship support. Emotional support provides the most powerful influence to improve the quality of life of TB patients. Research conducted by Melisa Prisilia Tarok, Jeavery Bawotong in of pulmonary tuberculosis patients at BLU Hospital Prof. DR R.D. Kandou Manado found that a high quality of life was in of pulmonary tuberculosis patients with high emotional support (67%) (Melisa Prisilia Tarok, Jeavery Bawotong, 2012). Emotional support is the most powerful support in motivating recovery in TB patients (Tety & Turniani, 2006).

The results of this study found a significant proportion of the impact, this proves that TB patients with non-supportive social support are a health problem that must be prevented and addressed. Supportive social support can improve the quality of life so that the elimination of non-supportive social support programs and interventions for the whole community to provide supportive social support to TB patients is the right program to improve the quality of life.

The limitations in this study were the time needed in a longitudinal study is too short to measure changes in the quality of life of TB patients (in just 6 months), the sample is small for a comparative studies that could compare quality of life of TB patients in supportive social support and non-supportive social support groups, data collection was conducted by interviewing patients, the researchers had not made direct observations on the environmental conditions (whether physical condition of the house is in accordance with health standards and healthy their residential environment), access to health services, and socioeconomic situations.

5. Conclusion

Social support to Tuberculosis patients given during the period of treatment have a positive impact on the quality of life. This study recommends improving the social support to Tuberculosis patients from family, friends and significant others in the emotional, informational and companionship support in order to make a better quality of life of Tuberculosis patients.

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Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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Appendix

Table 1. Characteristics of New Patients with Bacteriologically Confirmed Pulmonary Tuberculosis (n = 209)

Variable	n	Percentage (%)
Age (years)		
15-24	34	16,3
25-34	58	27,8
35-44	40	19,1
45-54	53	25,4
>55	24	11,5
Gender		
Male	126	60,3
Female	83	39,7

Education Background		
Elementary	46	22,0
Junior High	48	23,0
Senior High	100	47,8
Diploma/Bachelor	15	7,2
Occupation		
Not Working	83	39,7
Working	126	60,3
Marital Status		
Single/ Divorced/Widow	67	32,1
Married	142	67,9
Medical Insurance		
Not Have	75	35,0
Have	134	64,1
HIV		
No	125	99,2
Yes	1	0,8
DM		
No	105	82,3
Yes	21	16,7

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