Various Factors Related to The Quality of Living Pulmonary Tuberculosis Patients

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ABSTRACT

A low quality of life has still experienced by many pulmonary tuberculosis (TB) sufferers. The quality of life of patients with pulmonary TB is influenced by many factors that differ for each patient depending on economic and socio-cultural conditions in the area. This study was purposed to find out what factors were associated with the quality of life for people with pulmonary TB by using the Health Promotion Model from Pender. A cross-sectional design was used in this study. The sample size was 20 respondents. Independent variables include gender, age, BMI; education, occupation, marital status, total income; anxiety and depression; assessment of the benefits of action; assessment of barriers to action; behavior which is in accordance with health promotion. While the dependent variable was quality of life. The instruments used include demographic data, K10, barrier modification questionnaire, benefit modification questionnaire, and lifestyle profile modification questionnaire, and SF-36v2. The analysis used a Spearman rank with a significance level of $\alpha = 0.05$. The results showed that many pulmonary TB sufferers had a low quality of life, mainly from the physical domain (17 people) and mental domain (14 people). Only the age variable ($p = 0.027$) was related to the quality of life of patients with pulmonary TB from the mental domain. However, these factors were not related to the quality of life of patients with pulmonary TB. The theory of HPM has many factors, other researchers can use other factors from HPM to determine the quality of life for people with pulmonary TB. Primary healthcare can improve health promotion patterns in the program to eradicate and prevent pulmonary TB.

INTRODUCTION

Low quality of life has still experienced by much pulmonary tuberculosis (TB) sufferers. According to Chung, Lan, & Yang in 2012, quality of life in pulmonary TB patients is also rarely measured in quantity, especially the effect of pulmonary TB on general quality of life, especially in developing countries [1]. In general, what factors influence the quality of life of people with pulmonary TB remains unclear, even though there have been many studies conducted. Factors that affect the quality of life of pulmonary TB patients are various, depending on culture, economy, and local habits.

The World Health Organization report, in 2015, estimated about 10.4 million new pulmonary TB cases worldwide, an increase from 2014 which was only 9.4 million cases [2]. Based on the Ministry of Health of the Republic of Indonesia in 2015, there were 330,910 cases of pulmonary TB, an increase compared to all cases of tuberculosis found in 2014 which amounted to 324,539 cases [3]. Most cases of pulmonary TB were reported from Kapuas District (285 cases), East Kotawaringin (229 cases) and North Barito (192 cases) [4].

The study conducted by Kastien-Hilka et al. in 2016 found that the quality of life in pulmonary TB sufferers was disrupted mainly from physical, mental, social and economic aspects [5]. Some pulmonary TB sufferers experienced nutritional problems which affected nutritional status, physical fatigue, and were more easily disrupted due to drug side effects [6]. Other sufferers experienced problems with stress management, which results in pulmonary TB sufferers unwilling and unable to complete the treatment program that runs [7]. Other pulmonary TB sufferers who experience low quality of life generally also wanted a quick cure in order that many pulmonary TB sufferers were switching to treatment methods other than Anti-Tuberculosis Medication treatment programs; this resulted on an increase of Multi-Drug Resistance TB (MDR-TB) cases [8]–[10].

According to Heydari & Khorashadizadeh in 2014, there had been many nursing studies that prove the correlation between the quality of life and nursing interventions or the factors that influence it [11]. One of them is the Health Promotion Model (HPM) theory developed by Pender, which can be used as a supporting factor to assess the quality of life of patients. Up to now, research on how the correlation of the factors from the Health Promotion Model to the quality of life of patients with pulmonary TB has still rarely done. As a result, this study has a purpose to find out what factors influence the quality of life of pulmonary TB patients based on HPM theory.

METHODS

A cross-sectional design was used to determine factors related to the quality of life in patients with pulmonary TB. The target population of this study was all pulmonary TB patients who were undergoing treatment in 4 (four) primary healthcare, as many as 20 people. The sample was pulmonary TB patients who were undergoing treatment and appropriated to inclusion criteria which included those who were willing to be the subject of research, suffered from pulmonary TB with smear (+) and x-rays (+), aged 17-65 years (late adolescence to late elderly), in treatment programs both in the intensive and advanced phases. Whereas exclusion criteria included patients with MDR-TB and extra-pulmonary TB.

The independent variables were personal factors (biological factors: gender, age, BMI; sociocultural factors: education, occupation, marital status, total income; and psychological factors: anxiety and depression level), assessment of the benefits of action (care management pulmonary TB patients), assessment of barriers to action (management of pulmonary TB sufferers' care) and behaviors that are in accordance with health promotion (lifestyle profile). The dependent variable was quality of life.

The instrument used was a questionnaire divided into 6 questionnaires which used consisting of demographic

data forms, Kessler Psychological Distress Scale (K10) [12], Benefit Scale questionnaire, Likert scale questionnaire, Obstacle Scale questionnaire with Likert scale, HPLP-II (Health-Promoting Lifestyle instruments) Profile II) [13], Medical Instrument Outcomes Study 36-Item Short Form (SF-36v2) [14], [15]. All data has been processed and tested with statistical tests using the Spearman rank correlation test conducted with the help Table 1. Distribution of respondent and demographic data

Characteristics of Respondents	n	%
Ages		
17-25 years	2	10,0
26-35 years	5	25,0
36-45 years	4	20,0
46-55 years	5	25,0
56-65 years	4	20,0
Total	20	100,0
Gender		
Male	16	80,0
Female	4	20,0
Total	20	100,0
Marriage Status		
Married	18	90,0
Single	2	10,0
Total	20	100,0
Body Mass Index (BMI)		
Heavy thin	1	5,0
Moderate thin	8	40,0
Normal	11	55,0
Total	20	100,0
Occupation		
Civil Servant	1	5,0
Private Sector	2	10,0
Entrepreneur	13	65,0
Student	1	5,0
Unemployed	3	15,0
Total	20	100,0
Education		
Primary School	2	10,0
Junior School	1	5,0
High School	14	70,0

of computers using the Statistical Product and Service Solution program (SPSS) version 19.0 with a significance level of α = 0.05.

RESULTS

The results of the study collected from pulmonary TB sufferers in the Strait District were described in the following tables:

Higher Education	3	15,0
Total	20	100,0
Income		
Under the standard	17	85,0
Within standard	2	10,0
Above the standard	1	5,0
Total	20	100,0

Table 1 illustrated how the characteristics of research respondents. Early adulthood (26-35 years) and early elderly (46-55 years) had a higher number of respondents who were each in a total of 5 people (25.0%). Furthermore, men dominated in the gender category, namely 16 people (80.0%), and many respondents were also married with a total of 18 people (90.0%). Most of the respondent's BMI was in the normal which reached 11 people (55.0%). The majority of respondents also have an occupation as entrepreneurs in a total of 13 people (65.0%). High school was the most experienced by respondents, which numbered 14 people (70.0%), and the majority of respondents' income was below the Kapuas Regency standard (85.0%).

Table 2. Distribution of depression levels, obstacle scales, benefit scales, lifestyle profiles II (drugs, nutrition, transmission, environment, activity, and stress prevention) as well as the quality of life for pulmonary TB sufferers (PCS and MCS)

Characteristics of Respondents	n	%
Level of Depression		
Low	11	55,0
Moderate	9	45,0
Total	20	100,0
Scale of Barriers		
Low	1	5,0
High	19	95,0
Total	20	100,0
Scale of benefit		
Good	20	100,0
Lifestyle profile II		
Good	18	90,0
worse	2	10,0
Total	20	100,0

Physical Component Summary (PCS)		
Good	3	15,0
Worse	17	85,0
Total	20	100,0
Mental Component Summary (MCS)		
Good	6	30,0
Worse	14	70,0
Total	20	100,0

Table 2 showed that most respondents have low levels of depression as many as 11 people (55.0%). Most respondents also have a high scale of obstacles, which means that respondents were aware of the obstacles they have, about 19 people (95.0%). All respondents have a high scale of benefits, which means that respondents are aware of the benefits to be gained, namely 20 people (100.0%). For lifestyle profile II, 18 people (90.0%) have good grades. Assessment of quality of life shows that physical quality of life (Physical Component Summary), 17 people (85.0%) have a poor quality of life, while mental quality of life (Mental Component Summary) shows that 14 people (70.0 %) have a poor quality of life.

Table 3. Recapitulation of factor analysis related to the quality of life of pulmonary TB patients

Independent Variables	Dependent Variables	p-value
Age	PCS	0,072
	MCS	0,027
Gender	PCS	0,361
	MCS	0,147
Marriage Status	PCS	0,160
	MCS	0,541
BMI	PCS	0,643
	MCS	0,467
Occupation	PCS	0,364
	MCS	0,889
Education	PCS	1,000
	MCS	0,922
Income	PCS	0,319
	MCS	0,113
Level of anxiety and depression	PCS	0,679
	MCS	0,518
Barriers to action (nursing management of pulmonary TB patients)	PCS	0,686
	MCS	0,527
Assessment of the	PCS	-
benefits of action (nursing management of pulmonary TB patients)	MCS	-
Behavior that matches health promotion (lifestyle profile)	PCS	0,556
	MCS	0,355

DISCUSSION

The analysis showed that there was no correlation between age and quality of life of Physical Health Summary (PCS), however, age was related to the quality of life of Mental Health Summary (MCS). The results showed that poor quality of life became a problem that many experienced by the early elderly. All respondents surveyed had gone through an intensive phase and were undergoing further phases of treatment. The results of the correlation test analysis with the Spearman rank also showed that gender, marital status, BMI, employment, education, income, and depression status were not related to the quality of life of pulmonary TB sufferers, both in terms of Physical Health Summary and Mental Health Summary. These results were in line with the results of research conducted by Jaber, Khan, Sulaiman, Ahmad, & Anaam in 2016 that age, sex, marital status, BMI, employment, education, and income are not related to the quality of life of pulmonary TB sufferers [16]. According to this study, factors were very influential in the quality of life for pulmonary TB included stigma, and duration of treatment; and this was not measured in this study.

According to research conducted by Kakhki & Masjedi in 2015, that age was not related to the quality of life domains of pulmonary TB sufferers, however, the duration of treatment greatly influences the quality of life of pulmonary TB sufferers [17]. Most TB sufferers can be at risk of default (failure) in treatment, due to the length of a treatment period that must be endured. Other research conducted by Masood, Muhammad, & Muhammad in 2012 also showed that the duration of treatment affects the quality of life of TB sufferers, especially in terms of mentality [18]. Prolonged treatment, coupled with changes in the elderly, worsens the quality of life of people with pulmonary TB, especially mental health.

In a study conducted by Jannah in 2015, it was shown that gender, occupation, and income were not related to the quality of life of patients with pulmonary TB [19]. This means that the sex, type of work and income received by pulmonary TB patients every month does not affect the quality of life. Men and women have the same tendency in efforts to improve the quality of life. There is no difference between men and women in determining the health services they receive, and also in the decision to get treatment. This, indirectly, determines the quality of life. The faster the decision to get TB treatment, the better the quality of life.

There was no significant difference in the correlation between marital status and the quality of life of pulmonary TB sufferers. Pulmonary TB patients who are married can get more support from the closest people, namely a spouse or child. This indirectly improves the quality of life for people with pulmonary TB. For patients with pulmonary TB who are not married, he can get support from parents or people in the surrounding environment, such as uncles, aunts, brothers or sisters. People with pulmonary TB who get support from those

closest to them, have a better quality of life than those who do not get support [20].

The type of work also has no relationship with the quality of life. Based on demographic data, the occupational choices of pulmonary TB patients in the Strait District were mostly entrepreneurs. Entrepreneurs are self-made work for people with pulmonary TB. Work carried out in entrepreneurship includes trading and farming (farmers or planters). This type of work rarely causes conflicts with those around him. Unlike the civil servants or private employees, who are always in touch with people around him, or the people they serve. Indirectly, avoiding conflicts with those around can reduce the risk of stress, so this can improve the quality of life for people with pulmonary TB.

Income was also not related to the quality of life of people with pulmonary TB. Most of the income of patients with pulmonary TB in the Strait District is still below the UMR. This does not affect the quality of life of pulmonary TB sufferers, because the cost of living is cheap, it is also easy to get natural products from the surrounding environment so that the ease of obtaining daily necessities indirectly increases the quality of life for pulmonary TB sufferers.

Body Mass Index (BMI) was also not related to the quality of life. This is due to the level of BMI of pulmonary tuberculosis patients in the Strait District still in normal values and mild underweight, no pulmonary TB sufferers whose BMI is at the level of underweight or fat. BMI in the category of underweight is very disturbing in daily physical activity of pulmonary TB sufferers, while obese BMI even tends to be obese, can interfere with the quality of life in terms of mentality [21]. The level of BMI of pulmonary TB patients in the strait district does not interfere with physical activity and relationships with those around them. Patients with pulmonary TB who have a normal BMI, have a better quality of life, and also a better recovery time than a BMI that is below normal [22].

The level of education also does not affect the quality of life of TB sufferers. All TB sufferers get the same information from health workers about treatment programs, side effects of treatment, nutrition, prevention of transmission and environmental modification. Before starting treatment, pulmonary TB sufferers are also given counselling about the risks if treatment stops in the middle of the road so that pulmonary TB sufferers fully understand the disease. This, of course, affects the quality of life for pulmonary TB sufferers, because they are exposed to useful information, and indirectly related to improving quality of life [23].

In other studies, it was found that the level of depression can be related indirectly to the quality of life for people with pulmonary TB. Quality of life can be poor if the level of depression is accompanied by chronic infectious diseases, such as TB with HIV (+). The lower the level of depression is, the higher the quality of life will occur. Patients with pulmonary TB with chronic infectious diseases, plus a high value in measuring the level of depression (K-10) can increase anxiety and depression which can lead to failure of pulmonary TB treatment programs [24]. Pulmonary TB patients who are undergoing the treatment process should get adequate encouragement and support, both from families and health workers, especially in the first 2 months of treatment or intensive phase [16], [25]. This aims not only to ensure the recovery of pulmonary TB sufferers but also to improve the quality of their lives.

Spearman rank correlation test analysis results showed that there was no relationship between the assessments of action barriers with the quality of life of patients with pulmonary TB. This means that pulmonary TB sufferers already know the obstacles to action (nursing management of pulmonary TB sufferers), but most of them still have a poor quality of life. These results are consistent with research conducted by Mohamadian et al. in 2011 found that the assessment of obstacles is not directly related to the quality of life [26]. Barriers to assessment only affect the healthy lifestyle that pulmonary TB sufferers will choose. If pulmonary TB sufferers can recognize obstacles from themselves, then the choice to live a healthy lifestyle will become easier [27]. This is caused by counselling actions carried out by TB managers at the health centre before TB sufferers begin treatment. So that all obstacles that may arise have been anticipated by TB managers, including using the informed consent method before starting treatment, ensuring that the supervisors take medication (PMO) from the patient's immediate family, plus additional home visits made to TB sufferers.

Analysis of the correlation test with the Spearman rank showed that the assessment of the benefits of action (nursing management of patients with pulmonary TB) is not related to the quality of life of patients with pulmonary TB, both physically and mentally. This means, many pulmonary TB sufferers have recognized the benefits of action (nursing management of pulmonary TB sufferers), however, most of them still have a poor quality of life. This finding is consistent with the results of research conducted by Mohamadian et al. in 2011 that the assessment of benefits was only directly related to a healthy lifestyle, nevertheless indirectly related to the quality of life [26]. This means that the respondent's ability to recognize the benefits he or she gets can make it easier for the respondent to maintain the behavior in accordance with future health. This can indirectly affect the quality of life. Showing the benefits to be gained, building self-awareness, giving time and opportunities to change, and using certain conditions to want to change, are steps that can be used to ensure pulmonary TB sufferers recognize the benefits to be gained [27].

Spearman rank correlation test analysis results showed that behavior in accordance with health promotion (lifestyle profile) is not related to the quality of life of patients with pulmonary TB. This means that many pulmonary TB sufferers have adopted a healthy lifestyle, nevertheless, the majority of pulmonary TB sufferers still have a poor quality of life. The finding is consistent with research conducted by Mohamadian et al. in 2011, that behavior in accordance with health promotion (lifestyle profile) will be a trigger for good quality of life if he walks alone, without any other health problems [26]. If other problems accompany the respondents' healthy lifestyles, they will most likely affect their quality of life.

V. CONCLUSION

Most people with pulmonary TB have a poor quality of life. Most personal factors (biological: gender, BMI; socio-cultural factors: education, occupation, marital status, amount of income; and psychological factors: level of anxiety and depression), assessment of the benefits of action (nursing management of pulmonary TB patients), assessment of barriers actions (nursing management of patients with pulmonary TB), as well as behaviors which are in accordance with health promotion (lifestyle profile) are not related to poor quality of life. However, only age

factors are associated with poor quality of life, especially from the mental quality of life (Mental Component Summary). In general, the issue of quality of life is still not an essential concern for pulmonary TB sufferers.

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