

**Review Article: Systematic Review, Meta-Analysis, Integrative Review, Scoping Review**

**FACTORS AFFECTING THE QUALITY OF LIFE AMONG PULMONARY TUBERCULOSIS PATIENTS: A LITERATURE REVIEW**

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**Abstract**

**Background:** The quality of life for tuberculosis patients remains elusive, affecting their physical, mental, and social well-being.

**Objectives:** The purpose of this scoping review aimed to discuss issues, patient perceptions, and comprehend the impact of pulmonary tuberculosis on the patient's quality of life.

**Design:** This study was conducted by following a scoping framework.

**Data Sources:** This study was carried out following a scoping review framework. This study's literature search relied on data from ScienceDirect, Scopus, EBSCO, ProQuest, ClinicalKey, SpringerLink, ProQuest, and Pubmed. By using the keywords "quality of life" AND "tuberculosis" AND "treatment" OR "perception" OR "experience". This scoping review leverages a data method derived from 9 articles published between 2016 and 2021. Physical weakness, financial decline, psychological, emotional stress, depression, and stigma experienced by patients are all common problems.

**Review Methods:** The article screening method is used for the review, and it is guided by the PRISMA flowchart. Extraction is carried out on Google Sheets, and synthesis is carried out from the extraction results.

**Results:** This scoping review provides a comprehensive overview of three components of patient impact: 1) physical impact, 2) mental impact experienced by tuberculosis patients, and 3) social impact of tuberculosis patients. There are also six issues to consider: 1) physical disorders (weakness, cough, nausea, vomiting, dizziness, shortness of breath), 2) financial decline, 3) psychological disorders (sad, worried), 4) emotional, 5) depression, and 6) stigma.

**Conclusion:** To enhance the quality of life of Tuberculosis patients, the quality of life must be examined from all perspectives, including physical, mental, and social elements, by intensifying regular health education and self-care management.

**Keywords:** *Tuberculosis, Perception, Quality of Life.*

**INTRODUCTION**

WHO defines the quality of life as an individual's perception of their position in life in the context of the culture and value systems

in which they live and concerning their goals, expectations, standards, and concerns (WHO, 2021). According to WHO, Health is a state of complete physical, mental and social well-

being and not merely the absence of disease or infirmity (WHO, 2012).

Therefore, we must consider that any disease will not only impact on physical health but also all other aspects of individual health. Thus, tuberculosis (TB) has a substantial and comprehensive impact on the patient's quality of life (Dos Santos et al., 2017).

Pulmonary tuberculosis is a chronic condition that can harm a patient's quality of life. Pulmonary tuberculosis has profound consequences for one's quality of life in terms of physical, social, and environmental health (Setiyowati, Hanik, Juliasih, & Wahdi, 2020).

According to the comprehensive literature review, pulmonary tuberculosis patients suffer from unfavorable effects on the physical, mental, and social levels. Physical symptoms include the patient feeling queasy, vomiting, and dizziness (Kumboyono, 2016). Patients reported weight loss, coughing, weakness, nausea, and dizziness (Kumboyono, 2016). Somatic problems and weight loss induce physical weakness, preventing patients from working and causing financial hardship (Aggarwal, 2019).

Mental effects of tuberculosis include psychological, emotional, spiritual, and the patient's view of his sickness. Patients with tuberculosis frequently experience psychological issues such as sadness, anxiety, and rage. Patients suffering from psychiatric problems are subjected to shame and economic difficulties. Furthermore, TB patients suffer from psychological illnesses such as dread of the disease, duration of therapy, and a load of medications consumed, all of which have an impact on the quality of life of pulmonary tuberculosis patients (Kastien-Hilka et al., 2016).

Patients with tuberculosis frequently face social consequences, such as being unable to participate in community activities (Kastien-Hilka et al., 2016). Patients with tuberculosis are frequently stigmatized in society. The social stigma caused by pulmonary TB disease makes patients feel shunned and isolated from friends and family. Tuberculosis patients are

considered a source of infection in the community which causes rejection and social isolation, causing psychosocial disorders of TB patients (Balgude & Sontakke, 2012). TB patients are frequently stigmatized due to the notion of the potential of transmission from the patient to other members of the community (Nyasulu et al., 2018). Patients with tuberculosis frequently report problems such as friend loss, a lack of respect at work, and social isolation at work. The stigma imposed by the surroundings can have a negative impact on the physical, social, and emotional well-being of TB patients (Aggarwal, 2019).

The good influence felt by some patients is that health is an essential factor that must be regarded, therefore they are willing to attend therapy regularly to obtain recovery (Kumboyono, 2016). Furthermore, TB patients adopt healthier lives such as quitting smoking, abstaining from alcohol, and beginning to exercise regularly (Kastien-Hilka et al., 2016). The patient also feels that family support is critical in increasing enthusiasm for therapy (Kumboyono, 2016). The patient is aware that he is not the only one suffering from pulmonary TB, therefore he is nevertheless eager to begin therapy, which must last 6 months (Kumboyono, 2016).

The quality of life of TB patients receiving treatment varies widely, ranging from bad to good thus further research in the form of reviews of prior studies is needed to clarify the image of the quality of life. This scoping review intends to explore difficulties, patient perspectives, and understand the influence of pulmonary tuberculosis on the patient's quality of life to become an evidence-based source of information.

## **METHODS**

### *Design*

The objective of this paper is to use Arksey and O'Malley recommendations to synthesize current evidence and literature (2005). This scoping review acquires a five-stage categorization technique, which includes: 1) establishing research issues, 2) identifying

relevant literature, 3) preferring literature, and 4) mapping or summarizing data. 5) collecting, summarizing, and reporting findings to comprehensively summarize the research.

*Search Methods*

Data from Sciencedirect, Scopus, EBSCO, ProQuest, ClinicalKey, SpringerLink, ProQuest, Pubmed, and Google Scholar were explored for the literature search. The keywords are "quality of life" AND "tuberculosis" AND "therapy" OR "perception" OR "experience." Literature evaluation, providing English or Indonesian, during the previous 5 years (2016-2021). There were 375 recognized works of literature, 25 of which were duplicates. The researchers examined 146 pieces of literature based on the title and abstract. After the categorizing of literacy by title and abstract, the whole text of 19 was evaluated for eligibility. After a complete analysis, ten pieces of literature were eliminated. Five studies did not support the inclusion requirements, while five studies focused on tuberculosis (TB) patients infected with the human immunodeficiency virus (HIV). Nine works of literature were considered to be appropriate for the scope of this review.

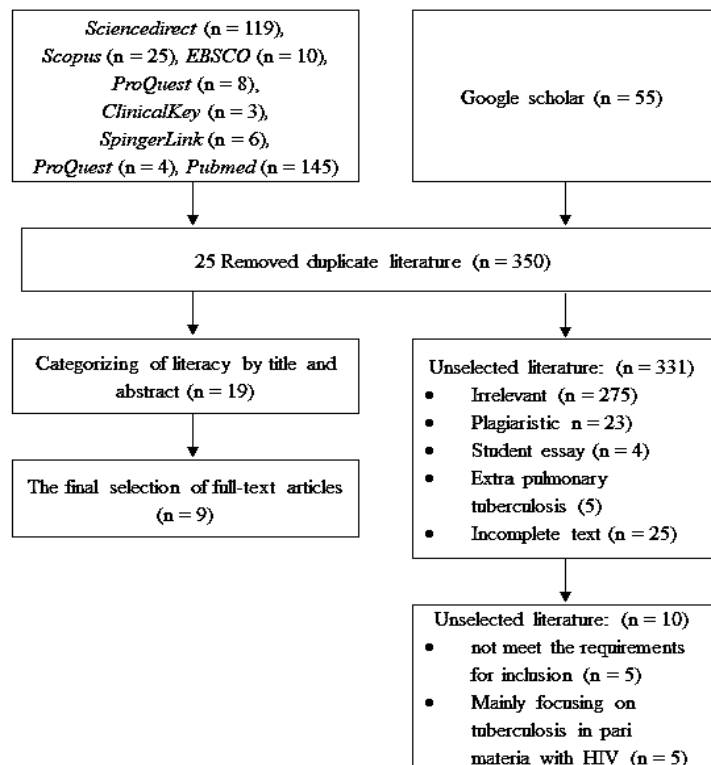
*Search Outcome*

After going through numerous steps of literature selection, the researcher classifies the literature into several categories, which are elaborated in Table 1.

**Table 1.** Characteristics of the selected literature.

Category	Scope	Total Articles
Study design	Analytical studies	6
	Qualitative study	3
Year of publication	2016-2021	9

Table 1 summarizes the characteristics of the studies analyzed for this scoping review. The selected papers have quantitative (cross-sectional study, cohort study) and qualitative research components.



**Figure 1.** Flowchart of Literature Search and Screening Strategy.

*Quality Appraisal*

The data is analyzed by summarizing the main results chosen to get the topics and subtopics. After that, the researcher merged the data analysis and analyzed it to find the subthemes.

To Accomplish the aims of this scoping review, the literature on quality of life of pulmonary TB patients was thoroughly reviewed. Using the PRISMA technique, the researcher the choose 9 publication for the review. Figure 1 depicts the entire literature search and screening procedure.

*Data Abstraction*

Narrative tables are used by researchers to map, arrange, and summarize the selected studies. To identify findings that meet the study questions and objectives, tables and graphing

data were applied. To include information from chosen studies, year of publication, sample, design, objectives, and conclusions, data extraction tables were formed.

*Data Analysis/ Synthesis*

Narrative tables are used by researchers to map, arrange, and summarize the selected studies. To identify findings that meet the study questions and objectives, tables and graphing data were applied. To include information from chosen studies, year of publication, sample, design, objectives, and conclusions, data extraction tables were formed. Extracted data of the 9 studies are presented in Table 1.

**RESULTS**

The analysis of the literature included in this scoping review reveals three effects on the quality of life of pulmonary TB patients: 1) physical impact, 2) mental impact, and 3) social impact. There are also six issues to consider: 1) physical disorders (weakness, cough, nausea, vomiting, dizziness, shortness of breath), 2) financial decrease, 3) psychological diseases (sad, anxious), 4) emotional, 5) sadness, and 6) stigma. Elaborated in table 2.

**Table 2.** Topic and Sub-Topics from Selected Studies.

Literatures	Components				Problems					
	Physical impact	Mental impact	Social impact	Physical disorder	Financial crisis	Psychological disorder	Emotional Disorder	Depression	Stigma	
Louw et al., 2016	√	√		√	√	√	√	√		
Jaber et al., 2016		√	√				√	√		
Nyasulu et al., 2018	√		√	√	√	√			√	
Juliasih et al., 2020	√	√	√				√	√	√	
Ambaw et al., 2018		√	√					√	√	
Iti et al., 2019	√	√	√	√	√	√			√	
Shivapujimath et al., 2017			√						√	
Yellappa et al., 2016	√	√	√			√	√	√		
Chrisnawati et al., 2017	√	√	√	√	√					

**Table 3.** Summarizes the Research of Selected Final Studies.

Literature	Sample	Study Design	Objectives	The Main Results
Change in health-related quality of life among pulmonary tuberculosis patients at primary health	Patient with pulmonary tuberculosis	A Cohort Study.	Prospective To analyze parameters related to Health-Related Quality of Life (HRQL) in TB patients in three high-risk	After six months, psychological discomfort was found to have a negative connection with both physical and mental HRQL. When compared with patients living in traditional huts, permanent housing had a substantial

Literature	Sample	Study Design	Objectives	The Main Results
care settings. Louw et al., 2016. South Africa			provinces in South Africa.	favorable link with mental HRQL in TB patients. Poor physical HRQL was substantially related to describing one's health as good, fair, or worse. In the past, excessive alcohol use had a significant deleterious influence on physical HRQL.
Evaluation of health-related quality of life among tuberculosis patients in two cities in Yemen. Jaber et al., 2016. Yaman	Patient with pulmonary tuberculosis	Prospective study	To evaluate and identify factors influencing the HRQoL of TB patients in two large cities (Taiz and Alhodidah) in Yemen with high TB prevalence.	The mean Physical Component Score (PCS) and Mental Component Score (MCS) before the commencement of therapy were both low, indicating that TB patients were in poor health. The analysis indicates that there was a considerable rise in PCS and MCS owing to therapy at the end of IP and a modest change at the end of CP. The MCS score remained below the normal range (47), indicating a considerable risk of depression in tuberculosis patients. To assess changes in PCS and MCS with time, a general linear repeated measure ANOVA was performed on the specified variables. In Alhodiah city, khat chewing habit, stigmatization, and treatment length of more than six months were shown to be substantially linked with poorer MCS scores of TB patients, suggesting a high risk of depression, which can lead to poor treatment results.
Knowledge, beliefs, and perceptions of tuberculosis among community members in Ntcheu district, Malawi. Nyasulu et al., 2018.	Pulmonary tuberculosis patients and society	Qualitative phenomenology	To investigate the knowledge, beliefs, and perceptions of community members and patients with TB towards tuberculosis in the district of Ntcheu, Malawi.	Most respondents thought tuberculosis is treatable and will seek treatment if they indicate symptoms of the disease. Individuals, however, express some concerns about the spread of tuberculosis and the societal repercussions of identifying the condition based on their views. Participants' responses to seeking diagnosis and treatment are

Literature	Sample	Study Design	Objectives	The Main Results
Malawi				influenced by these attitudes. A supportive and collaborative approach that combines mass media, interactive communication campaigns, TB symptom suppression, transmission, and stigma can be effective in overcoming hurdles to early diagnosis and treatment-seeking behavior.
Factors affecting tuberculosis patients' quality of life in Surabaya. Juliasih et al., 2020. Indonesia	Patient with pulmonary tuberculosis	Observational research using a cross-sectional approach.	To assess the quality of life to identify closely connected aspects that impact the routine lives of patients who have been affected by the disease, while taking into consideration patient well-being that is related to individual characteristics.	According to the results of this study, only age had a significant influence on general health (P = 0.018) of the eight categories assessing the quality of life; gender did not effect on the quality of life in any domain. Only role restriction related to emotional issues had a significant influence on education level (P = 0.014). Mental distress has a significant impact on the overall quality of life.
Untreated depression and tuberculosis treatment outcomes, quality of life and disability. Ambaw et al., 2018. Ethiopia.	Patient with pulmonary tuberculosis	A prospective observational study	The purpose of this study was to analyze the relationship between comorbid depression and TB treatment results, quality of life, and disability in Ethiopia.	The results of this study showed that early untreated depression was independently associated with tuberculosis treatment standard (aRR: 9.09; 95 % confidence interval (CI): 6.72 to 12.30), mortality (aRR: 2.99; 95 % confidence CI: 1.54 to 5.78), greater disability (: 0.83; 95%ci: 0.67 to 0.99), and poorer quality of life (: 0.07; 95 % confidence CI: 0.07 to 0.06) at 6 months. At 6 months, participants with probable depression had a worse mean quality of life score than those without depression (5.0 versus 6.0, respectively; P 0.001) and a higher median disability score (22.0 each). According to the findings of research 2, untreated depression in TB patients is related to worse



Literature	Sample	Study Design	Objectives	The Main Results
Deciphering the quality of life among tuberculosis patients under RNTCP in Karnataka. Iti et al., 2019. Karnataka, India.	Drug resistance in pulmonary tuberculosis patients	A cross-sectional study	To analyze and compare the quality of life of drug-sensitive tuberculosis patients enrolled in the Revised National Tuberculosis Control Programme, drug-resistant tuberculosis patients, and the general population in the Gadag district of Karnataka, India.	treatment results, lower quality of life, and higher disability. When compared to drug-sensitive treatments and the general population, drug-resistant TB patients reported lower Quality of Life (QOL).
A cross-sectional study to assess the stigma associated with tuberculosis among tuberculosis patients in Udupi district. Shivapujimath et al., 2017. Karnataka, India.	Patient with pulmonary tuberculosis	A cross-sectional study	To examine the stigma faced by TB patients and the factors related to stigma.	According to the results of this research, 51.2 % of the 209 respondents experienced some type of stigma. The majority of the patients had just a basic education, and 71.3 percent of the responders were men. The majority of patients fall into the group 1 Short Course of Directly Observed Treatment. Age, education, and smear status were shown to be correlated with stigmatization (P0.05), while gender, income, employment, family history, and marital status were not.
Coping with tuberculosis and directly observed treatment: a qualitative study among patients from South India. Yellappa et al., 2016. India.	Patient with pulmonary tuberculosis	A Qualitative Studies	To investigate the experiences and implications of TB patients registered in DOTS and their caretakers in the Tumkur district of Karnataka, India's southern state.	The analysis indicated that tuberculosis and Directly Observed Treatment Shortcourse (DOTS) had a significant influence on live patients, which frequently extended to relatives and caretakers. Patients are the most prone to experiencing the most difficulty in accessing and completing DOTS. During the patient's health recovery, the

Literature	Sample	Study Design	Objectives	The Main Results
<p>Life experiences of tuberculosis patients undergoing treatment with oats (anti-tuberculosis drugs) in the work area of Pekauman Health Center Banjarmasin in 2017. Chrisnawati et al., 2017. Indonesia.</p>	<p>Patient with pulmonary tuberculosis</p>	<p>Qualitative study with a phenomenological approach.</p>	<p>To explore the quality of life of TB patients who are receiving OAT (Anti Tuberculosis Drugs) treatment by characterizing their physical, psychological, social, and environmental interactions.</p>	<p>family is the primary source of support. When compared to patients who use DOTS from private practitioners, patients who reside in rural regions and use DOTS from government facilities must overcome several barriers to comply with DOTS therapy, such as large distances to DOTS centers, inappropriate timing, and a negative attitude of RNTCP employees (PP). Patients mention privacy, flexibility in time, closeness, and faster access to care as benefits of receiving DOTS via PP. Patients and their families must deal with the stigma, anxiety, and financial challenges that come with TB and DOTS. Younger patients in urban areas are more concerned about stigma than elderly patients in rural areas. Patients referred through PP are more likely to have financial issues than those who receive RNTCP services directly.</p> <p>According to the report's results, fatigue causes TB patients to suffer a decline in work capability and potentially lose their job, resulting in a deterioration in the patient's and family's financial situation. The quality of life of TB patients receiving OAT (Anti Tuberculosis Drugs) therapy varies. This is determined by the physical conditions encountered, emotional stress and individual and family coping, social support acquired from family and others, and environmental circumstances that help TB patients live their lives.</p>



### *The Impacts of Physical Distress*

According to Louw's research, patients experience physical distress in daily activities. Physical distress can result in unsatisfactory therapeutic outcomes (Louw, Mabaso, & Peltzer, 2016). According to the research results of Crisnawati's study, tuberculosis patients frequently experience physical effects such as fatigue, cough, shortness of breath, sleep disturbances, nausea, vomiting, and dizziness, resulting in a decrease in quality of life and an impact on the patient's role in daily activities. Patients' physical ailments have an impact on their duties at work, resulting in changes in roles and economic demands (Crisnawati, Virginius Mario Beda, 2017). Physical function refers to the patient's ability to accomplish everyday activities, whereas role function refers to the patient's ability to participate in the workplace, community, and research home (Atif et al., 2014).

Physical symptoms of TB patients have an impact on their duties at work and in social activities. According to the Nyasulu research, TB patients frequently experience physical pain and cough. Tuberculosis sufferers are also unable to work well owing to their physical weakness, resulting in a financial deterioration (Nyasulu et al., 2018).

### *The Impacts of Mentality Distress*

Yellappa conducted research that discovered that TB patients have mental impacts such as psychological, emotional, and depressive disorders. When first diagnosed with tuberculosis, the patient feels sad, shocked, and afraid. Patients are also apprehensive that TB is incurable (Yellappa et al., 2016). Juliasih's research confirms that mental illnesses have a significant impact on the quality of life of TB patients in all domains. The patient's quality of life is harmed by limited social roles as a result of emotional issues. The degree of education also has an impact on the quality of life of TB patients. A person with higher education is more likely to obtain information. The capacity to receive information influences a person's manner of

thinking and problem-solving abilities. Someone with higher education has more information and is more likely to be able to overcome challenges with knowledge, cognitive ability, and emotional regulation (Juliasih et al., 2020). According to Jaber's research, the Physical Functioning (PF) and Role Emotion (RE) assessments were the lowest at the start of treatment. This result demonstrates the patient's low emotional state due to TB. The extremely low RE score is attributed to depression at the time of TB diagnosis (Jaber, Khan, Sulaiman, Ahmad, & Anaam, 2016).

According to the research results of Ambaw's study, patients were depressed at the commencement of TB therapy and had a low quality of life during the 6-month treatment period. Depressed patients have a lower mean score than those who are not. Patients who received 6 months of therapy were very depressed when they began treatment. As a result, the proportion of patients who died was greater than the proportion of patients who did not suffer depression. Treatment success rates in people with probable depression were considerably lower than in those without depression. The possibility of depression at the commencement of therapy has a substantial impact on treatment or death. Furthermore, the odds of effective therapy are reduced. Adherence to planned health care is hampered by depression. Treatment failure causes infection to spread to others, increasing the chance of subsequent failure and the possibility of multidrug-resistant disease (Ambaw, Mayston, Hanlon, Medhin, & Alem, 2018).

### *The Impacts of Social Distress*

It conducted a case study whose results showed that social interactions, social support, and personal relationships were the worst affected categories across all groups in the study. The social aspect plays a significant role, resulting in social isolation, a lack of social support from friends and family, and a limited range of social and recreational activities. TB societal stigma and prejudice have a

detrimental influence on the treatment process and the quality of life of tuberculosis patients (Iti, Mudaraddi, Nagaraja, & Shastri, 2019).

The research results of Nyasulu's research indicated that public opinion frequently associates TB with human immunodeficiency virus (HIV), making tuberculosis a stigmatized disease. Some patients claimed prejudice, with one explanation suggested being that most people were terrified of obtaining TB (Nyasulu et al., 2018). In research conducted by Shiva Pujimath et al, patients stopped therapy for the most prevalent reasons, such as loss of respect or humiliation by the local community. Discrimination is a significant problem for welfare settings and professional practice since society still views TB as an affliction that spreads to others (Shivapujimath, Rao, Nilima, & Shilpa, 2017).

## DISCUSSION

After the screening stage, 9 publications that fulfilled the inclusion and exclusion criteria were thoroughly analyzed based on the needs of this scoping study. The results of the study of the next nine publications are applied to identify conclusions. The publications were evaluated using quantitative approaches such as cross-sectional studies and cohort studies, as well as qualitative phenomenological methods.

The quality of life of TB patients receiving treatment varies considerably, ranging from poor to good. Further research, in the form of a review of prior studies, is required to clarify the concept of life quality. This scoping review intends to explore difficulties, patient perspectives, and understand the influence of pulmonary tuberculosis on patient quality of life to become an evidence-based source of knowledge.

Tuberculosis (TB) is an infectious disease that causes mortality and is still a global public health issue (Masumoto et al., 2014).

Tuberculosis, which causes morbidity, influences a person's physical, psychological, economic, and social well-being. This is due to different factors such as stigma, financial devaluation, extended duration of therapy,

numerous hospital visits, pill load, and unpleasant medication responses (Iti et al., 2019). Tuberculosis requires long-term therapy to recover fully. In the long run, this type of treatment bores patients to the point that they do not cooperate with continued treatment. This consequences in treatment failure, medication resistance, and the spread of infection indefinitely (Riri Maria, 2015).

Tuberculosis has a physical consequence that interferes with routine work (Bam, Bhatt, Thapa, Dossajee, & Angdembe, 2014). Patients with tuberculosis may experience stomatal symptoms or fatigue. For a long period, the patient has had a fever (Bam et al., 2014). Patients with tuberculosis express concern about their weight loss and physical dependency (Aggarwal, 2019). According to Bam's research, people who were previously slightly fat and healthy are suddenly losing weight and finding it difficult to work as a consequence of their illness (Bam et al., 2014). Tuberculosis patients whose physical condition deteriorates, prompting them to miss work. Disruptions in this employment cause TB patients' financial income to diminish (Iti et al., 2019). Tuberculosis causes patients to lose their work opportunities (loss of income), causing a lot of difficulties for both patients and their families for medical expenses (Aggarwal, 2019).

Tuberculosis patients suffer from psychological issues such as anxiety about the disease and being rejected by the surrounding community (Awan, Waqas, & Aslam, 2012). According to Awan's research, the social impact that pulmonary TB patients frequently experience is a negative stigma from their surroundings. Because of the possibility of transmission from the patient to other members of the community, TB sufferers are frequently stigmatized (Nyasulu et al., 2018). Patients with tuberculosis frequently describe issues such as friend loss, a lack of respect at work, and social isolation at work (Aggarwal, 2019). Stigma and discrimination have a negative influence on TB patients' treatment and quality of life (Farias, Medeiros, Paz, Lobo, & Ghelman, 2013).

Patients with tuberculosis may also endure mental repercussions such as stress, anxiety, and depression (Louw et al., 2016). The anxiety that TB patients experience is caused by the disease. Patients are concerned that they may be ostracized by their surroundings or society (Farias et al., 2013). The patient also perceived an extended TB treatment, which resulted in psychological issues such as stress and depression (Louw et al., 2016). Patients with tuberculosis who are depressed have higher mortality rates due to poor self-care, including failure to take medicine as prescribed (Ambaw et al., 2018).

Articles based on qualitative research on patient quality of life are still infrequent. The excellent quality of articles with an analytical design approach and qualitative phenomenology is an advantage of scoping review. Each article's findings are nearly identical since they describe both negative and positive effects on pulmonary TB patients. The disadvantages of this scoping review include that numerous publications do not explain funding or the possibility of bias in complexity in the study, making it difficult for researchers to analyze these things.

## CONCLUSION

In TB patients, the quality of life in all three domains is still inadequate. The negative domain focuses on TB patients' physical, psychological, and social well-being. Thus, the use of the quality of life assessments in TB patients must pay attention to factors of patient welfare through counseling or health education combined with self-care management to improve tuberculosis patients' quality of life.

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## AUTHOR CONTRIBUTION

**Febi Septiani:** Designed the study, collected and analyzed articles, and contributed to completion of literature review.

**Meira Erawati:** Designed the study, collected and analyzed articles, and contributed to completion of literature review.

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