Factor related to self care among Pulmonary Tuberculosis patients: A systematic literature review

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Abstract---Background: Tuberculosis remains today one of the deadliest infectious diseases and has claimed millions of lives over the years. One of the TB control measures is integrating patient-centered TB services to maximize care by maximizing patient self-care. Purpose: To identify factors that affect the self-care of Tuberculosis patients. Design/methodology/approach: A systematic literature search was carried out on four databases: PubMed, Scopus, Science Direct, and Sage Journal articles for the last ten years in English and related to self-care in pulmonary TB patients. Findings: This literature review provides an overview of determinants of self-care, including family support, barriers, average monthly income, smoking status, the value of benefits, knowledge, social support, proactive coping, counseling (health education), coping strategies, family welfare (children) and support from a health professional team. Originality/value: The determinants described are crucial and useful;

1218

in particular, they can become primary data for developing self-care programs for TB patients.

Keywords---Determinant, Self Care, Tuberculosis.

Introduction

Tuberculosis (TB) is a potentially severe infectious disease that mainly affects the lungs. The bacteria that cause TB (mycobacterium tuberculosis) spread from one person to another through small droplets released into the air (droplets) through coughing and sneezing (Adigun & Singh, 2021). Anatomically, TB is divided into pulmonary tuberculosis (PTB) and extrapulmonary tuberculosis (EPTB). Pulmonary tuberculosis refers to cases of TB that are bacteriologically confirmed or clinically diagnosed involving the lung parenchyma or tracheobronchial. In contrast, extrapulmonary tuberculosis (EPTB) refers to cases involving organs other than the lungs (WHO, 2020).

TB is one of the diseases targeted by the Sustainable Development Goals (SDGs) to end the TB epidemic by 2030 (WHO, 2019)(WHO, 2019a). At present, TB is still in the 10th category of deadly diseases worldwide, with an estimated 10 million people in 2017, suffering from TB (WHO, 2018)(WHO, 2018). Besides, more than 95% of TB deaths occur in low- and middle-income countries. Southeast Asia accounts for 45.6% of TB incidence or nearly half of the TB burden worldwide. Indonesia ranks second with the highest TB burden after India, followed by China, the Philippines, Pakistan, Nigeria, and South Africa (WHO SEARO, 2017). Today, tuberculosis remains one of the deadliest infectious diseases and has claimed millions of lives over the years. While significant progress has been made to control TB's global burden over the past decade, much work remains to be done. Problems that arise, such as multi-drug resistance, threaten TB care, and control (Agyeman & Ofori-Asenso, 2017). Besides, treatment adherence, including the length of treatment, complex regimens, drug side effects, and poor access to health care services, are contributing factors in increasing TB mortality (Iribarren et al., 2016). Thus, more effective control is needed to reduce the mortality rate of TB.

One of the pillars and components of TB control developed by the Indonesian Ministry of Health (2018) is integrating patient-centered TB services to maximize care (Kemenkes RI, 2018). One of the efforts is by maximizing patient self-care. This aspect is crucial because it can decrease irregular treatment rates and increase acceptance and treatment (Pinto et al., 2016). Self-care support is a key technology for the future of health care (Greaves & Campbell, 2007). Self-care refers to the individual's responsibility to carry out healthy lifestyle behaviors necessary for human development and function and the activities needed to overcome health conditions (Omisakin & Ncama, 2011). Besides, self-care encourages supportive education and is one of the nursing interventions that support the independence of patients and families caring for TB patients (Sjattar et al., 2011)

According to Dorotea Orem (1995), self-care is initiated or carried out by individuals on their own accord for a safe life and improving health. Self-care shows that individuals use their resources, including personal attributes such as knowledge, skills, positive attitudes, determination, courage, and optimism, to promote ill-health (Orem, 1995).

Self-care affects a person's health condition and have a positive impact in the form of increased adherence to treatment, maintenance of good physical health through lifestyle choices (e.g., diet, monitoring symptoms to inform care/self-care decisions, monitoring and managing stress and emotional consequences of illness, interact effectively with healthcare professionals to ensure that patient needs are expressed and addressed, and using social support networks to help achieve health targets (Clark et al., 1991)(Greaves & Campbell, 2007)(Efendi et al., 2022).

Several essential factors influence self-care as primary data for developing self-care programs for TB patients(Amir et al., 2022)(Cho & Kwon, 2013). Several previous studies have examined the factors that can influence TB patients' self-care, but no review article summarizes all of these factors. Therefore, this paper is expected to summarize and draw significant conclusions about what factors can play an important role in TB patient self-care (Cho & Kwon, 2013)

Methods

The method used in this review is the systematic review, which is a systematic and critical way of thinking in examining various articles (Polit, D. F., & Beck, 2010). We used the PRISMA checklist 2009 guidelines, which are analyzed in 4 stages: selecting articles, learning descriptions, quality assessments, and the results of a review consisting of 27 items (Moher et al., 2009). Then to assess the feasibility of articles to be included in the review, the Critical Appraisal Skill Program (CASP) was used (Critical Appraisal Skills Programme, 2018).

A literature search was conducted on four databases: PubMed, ScienceDirect, Scopus, and Sage Journal. Structured research questions used the PICO (patient, intervention, comparison, and outcome) electronic method (Frandsen & Eriksen, 2018; Santos, Pimenta & Nobre, 2007). PICO in this article stands for P: patients with tuberculosis, I / E: determinant factor, C: no comparison or control group, and O: self-care. Articles that were included in this literature review were those that (1) focus on factors that affect self-care, (2) written in English, (3) published in the last ten years, from 2011-2020, and (4) research articles conducted on patients TB (Frandsen & Eriksen, 2018)(Santos et al., 2007).
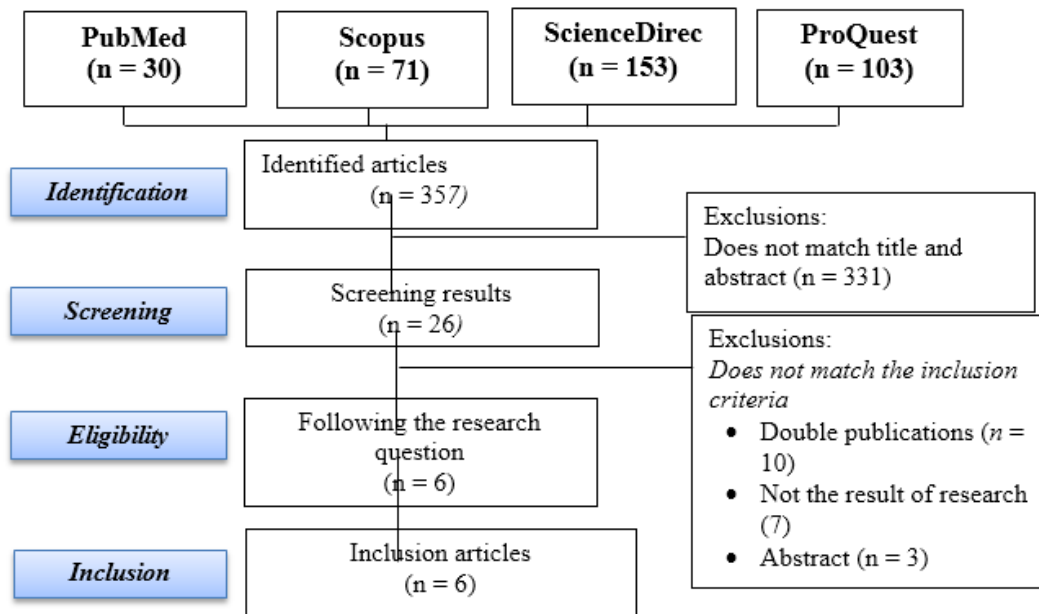
Figure 1. Article selection flow chart

Results
Method

Several studies have been conducted to examine the factors (determinants) that influence self-care in TB patients. We summarized six articles that met the inclusion criteria: investigated self-care determinants in TB patients, published in the last ten years, and published in English. Three designs were used of the six articles: cross-sectional research design, descriptive study, and experimental study. These cross-sectional studies (n = 4) was conducted in Indonesia (n = 3) and Brazil. The descriptive study (n = 1) was conducted in Korea, and the experimental study (n = 1) was conducted in Egypt.

Sample

Of the six articles that were included, the sample in the study conducted by Cho & Kwon (2013) totaled 216 patients with TB, dominated by men (155 people) and the age range was <30-60≤ years (Cho & Kwon, 2013). Furthermore, the study by Sukartini et al. (2019) involved 65 respondents with pulmonary TB patients' criteria both in the intensive and continuous phase (Sukartini, Hidayati, et al., 2019). The age range of respondents ranged from 17 to 74 years. The study by Sukartini et al. (2017) used a sample of 105 respondents with the criteria for pulmonary TB patients both in the intensive and continuous phase. The age range of the respondents was 15-55 years (Sukartini et al., 2017).

Furthermore, the study conducted by Howyida et al. (2012) used a sample of 100 patients taken from 1/3 of the total population. Respondent gender was not determined (Howyida et al., 2012). A study by Dwidiyanti et al. (2019) has 45 participants. The criteria are that the respondents are adult patients with

pulmonary TB who do not have other diseases such as HIV, DM, hepatitis, and are willing to be respondents (Howyida et al., 2012). Meanwhile, Pinto et al. (2016) studied the last article not aimed at TB patients, but at health professionals who act and play an essential role as support providers in providing self-care. The number of respondents used in this study was 100 health professionals chosen randomly (Pinto et al., 2016).

Determinant Self Care

The results of the study in the analyzed article showed several determinants that influence self-care in TB patients. In a study conducted by Cho & Kwon (2013), factors that influence TB patients' self-care include family support, barriers, average monthly income, smoking status, and benefits. Sukartini et al. (2019) study shows a relationship between knowledge, family support, and social support with self-care behavior. Furthermore, a study by Sukartini et al. (2017) shows a strong correlation between variables, where the higher the level of proactive coping, the better self-care management in pulmonary TB patients.

A study conducted by Howyida et al. (2012) stated that the implementation of counseling (health education) would significantly increase the self-care management of patients' physical, social, and psychological conditions. Furthermore, a study by Dwidiyanti et al. (2019) states that the process of self-care management and family welfare are important factors for improving physical self-care among TB patients. Therefore, interventions that integrate coping strategies and family welfare are essential in improving TB patients' physical self-care. The study by Pinto et al. (2016) concluded that primary health professionals' self-care support effectively helped patients with TB. Four supported self-care items were identified: support, notes, acceptance, and behavior change interventions. The following article grid synthesis table is presented in table 1. Following:

Table 1
Grid Synthesis Description Article Determinant Self Care in TB Patient

Author, City	Research Design	Purpose	Sample Size	Interventions	Types of Aspects measured and Instruments	Findings
Cho, EulYeon & Kwon, Yunhee Korea (, 2013).	Descriptive design	This study identified factors affecting self-care among tuberculosis patients.	The participants were 216 patients.		Self Care: Self-care questionnaire. Health beliefs (vulnerability & severity, benefits, barriers): Health beliefs questionnaire. Family support: a questionnaire in the family environment	According to the study, factors affecting self-care in TB patients include family support, barriers, average monthly income, smoking status, and benefits. The findings from this study can be used as baseline data to develop self-care programs for TB patients.
Sukartini, Khairunnisa, Hidayati Indonesia (, 2019).	Cross-sectional	This study was conducted to analyze the relationship between knowledge, family support, and social support with self-efficacy and self-care behavior in patients with pulmonary tuberculosis.	Sixty-five respondents with a purposive sampling technique. The inclusion criteria were pulmonary TB patients in both the intensive and continuous phases.		The instrument uses a questionnaire of knowledge, family support, social support, self-efficacy, and self-care behavior.	There is a relationship between knowledge and family support with self-efficacy, while social support has no relationship. There is a relationship between knowledge, family support, and social support with self-care behavior.
Sukartini, Ramdhani & Hidayati	Cross-sectional	to identify the relationship between proactive	Consecutive sampling techniques took a		Proactive coping: Proactive Coping Inventory (PCI)	This study showed a strong correlation between variables, where the higher

Indonesia (, 2017).		coping and self-care in pulmonary TB patients.	total of 105 respondents. The inclusion criteria of the respondents were pulmonary TB patients in both the intensive and continuous phases.		questionnaire. Self Care: self-care management list questionnaire in patients with pulmonary tuberculosis.	the level of proactive coping, the better self-care management in pulmonary TB patients.
Pinto et al Brazil (, 2016).	Cross-sectional study	To analyze self-care in caring for people with tuberculosis, assisting in primary care health facilities, and comparing self-care scores supported by the type of service and function.	A total of 100 health professionals were randomly selected.		Using a structured questionnaire proposed by the MacColl Institute for Health Care Innovation, particularly in supported areas of self-care.	Self-care support from primary health professionals is effective in helping patients with TB. Four supported self-care items were identified (support, records, acceptance, and behavior change interventions), mostly health facilities, capacity for reasonable attention to people with TB.

ElHameed, Aly & Mahdy Egypt (, 2012).	Experimental Design	This study aimed to evaluate the effect of counseling on the care management of adult patients with pulmonary TB	The sample size consisted of 1/3 participants (100 patients) who met the criteria). Inclusion criteria: (pulmonary TB diagnosed for six months, ages 20-45 years and from both sexes)	All participant members receive the same content. The teaching methods are: lectures, discussions, demonstrations, and re-demonstrations; presentations are made using teaching aids that match real objects (posters/pictures). Counseling was carried out on 100 adult patients with pulmonary TB in the form of individual visits at their homes from January 2010 to December 2010.	1. Structured interview questionnaire to collect data on general characteristics of patients and their knowledge of the disease. 2. Checklist sheet to assess self-care and patient's condition at home.	This study concluded that there was a significant increase in physical, social, and psychological conditions after the implementation of counseling. This study recommends that health education interventions be carried out for all new TB cases in clinics and on TB self-care; and to continue health education for all old cases, to be followed up to improve their knowledge and practice regarding TB self-care management in TB House.
Dwidiyanti, Sari & Wijayanti Indonesia (, 2019).	Cross-sectional	Identifying the correlation of coping strategies, self-care management processes, and family welfare as factors related to physical self-care	Forty-five participants with a purposive sampling technique. Inclusion criteria: adult patients with pulmonary TB who do not have other diseases such as HIV, DM, Hepatitis, and willing to become respondents.		Physical self-care: Physical self-care questionnaire. Coping strategy: A coping strategy questionnaire. Self-care management process: self-care management process guarding (SCMP-G). Family wellbeing: The family wellbeing assessment tool	The process of self-care management and family welfare are essential factors for improving physical self-care among TB patients. Therefore, interventions that integrate coping strategies and family welfare (children) are essential in improving TB patients' physical self-care.

Discussion

Self-care interventions are the most promising and exciting new approach to improving health and wellbeing, both from a health systems perspective and people using these interventions. WHO uses the work definition of self-care as the ability of individuals, families, and communities to promote health, prevent disease, maintain health, and overcome disease and disability with or without healthcare providers (WHO, 2019b). Several factors strongly influence self-care, and several previous studies have been summarized in this review. This review's findings indicate that the factors that have been collected will be instrumental in developing interventions, especially self-care. It can also be used as primary data to develop self-care programs for TB patients (Cho & Kwon, 2013).

Method

From the analysis results, the cross-sectional research design was often used (4 articles). A cross-sectional design was conducted to assess the relationship between variables, in this case, other variables with self-care. In a cross-sectional study, researchers measure outcome and exposure in study participants at the same time. Usually, this can be done relatively quickly and inexpensively. It can be used for monitoring and public health planning (Setia, 2016).(Setia, 2016) The advantages of cross-sectional research designs, in general, are that they can estimate the prevalence of the desired outcome because samples are usually drawn from the entire population, the number of outcomes and risk factors that can be assessed, are useful for public health planning, understanding disease etiology and hypothesis generation (Hemed, 2015).

Sample

The literature review results show that the largest number of samples often used in articles is up to 216 participants. The cross-sectional study aims to estimate the prevalence of the unknown parameter from the target population using a random sample. Thus, adequate sample size is required to estimate population prevalence with good precision. The optimal sample size is an essential component of any study. The calculation of an adequate sample size is an essential part of any clinical study. However, the researcher must provide the sample size information to be determined according to the correct assumptions. Many statistical books provide sample size calculations in medical studies and several software programs available to help with sample size calculations, or online software on the internet (Pourhoseingholi et al., 2013).

The analysis of respondents' characteristics most often found in articles is TB patients from late adolescence to late adulthood with a positive diagnosis of TB and receiving care in health services. The highest TB age data globally occurs at ages 45-55 years, but in the Western Pacific, Eastern Mediterranean, and Southeast Asia Region, TB age is increasingly evident in the elderly, peaking among those aged ≥65 years (Byng-Maddick & Noursadeghi, 2016).

Determinant Self Care

Determinant	Author
Family support	(Cho & Kwon, 2013) (Sukartini et al., 2019)
Barrier	(Cho & Kwon, 2013)
Average monthly income	(Cho & Kwon, 2013)
Smoking status	(Cho & Kwon, 2013)
Benefit value	(Cho & Kwon, 2013)
Knowledge	(Sukartini et al., 2019)
Social Support	(Sukartini et al., 2019)
Proactive Coping	(Sukartini et al., 2017)
Counseling (Health Education)	(Howyida et al., 2012)
Coping strategy	(Dwidiyanti et al., 2019)
Family welfare (children)	(Dwidiyanti et al., 2019)

Support from the Professional Health Team	(Pinto et al., 2016)

Factors (determinants) that affect self care in TB patients. In a study conducted by Cho & Kwon, (2013) family support factors that affect self-care in TB patients. This is in line with Ariani & Nuraeni (2018) research that family support affects the adherence to self-care (self-care) of TB patients, through family support as a support system that can provide motivation and increase family independence in caring for family members with TB (Ariani & Nuraeni, 2018). family in caring for patients at home is very necessary (Abu et al., 2020)
Barrier factors are also mentioned affecting self-care in TB patients Cho & Kwon, (2013), this is in line with the research of Togatorop et al (2019)which explains that TB patients experience obstacles in self-care, due to lack of information on how to perform self-care (Togatorop et al., 2019). In addition, the average monthly income factor affects self-care in TB patients Cho & Kwon, (2013). This is in line with research (Harandi et al., 2021) which states that lower education, occupation, income, and social class tend to have overcrowded living quarters, inadequate ventilation, and indoor air pollution, thereby increasing the risk of TB and affecting self-care management.

Knowledge is said to affect the self-care of TB patients Sukartini et al., (2019). This is reinforced by research conducted by Sudewi et al (2020) which states that TB patients who have good knowledge have 2 times higher levels of self-care than patients who have low levels of knowledge (Harandi et al., 2021). Another study stated that knowledge of TB patients plays an important role in self-care management although it does not have a direct effect (Harandi et al., 2021). Then smoking status is also mentioned to affect self care of patients Cho & Kwon, (2013). This is reinforced by the research of Siddiqi et al (2020) which states that quitting smoking, which is a self-care effort in TB patients, greatly affects the cure rate of TB patients (Siddiqi et al., 2020).

Factors of value of benefits, social support and proactive coping were also mentioned to influence the self-care of TB patients in the study of Sukartini et al (2019). Another study stated that TB patient support was not only obtained through family and health workers, but also from social support in the form of TB treatment policy support and peers. Peer group support interventions can improve adherence and self-efficacy of TB patients recovering through group activities by sharing experiences from and for patients about experiences during treatment, obstacles or complaints experienced and solutions to problem solving during treatment and motivation to recover (Barik et al., 2020). In addition, research by Larasati & Yulanda (2020) supports that the role of coping is very important for medication adherence in self-care of TB patients.
Then the health education factor was also mentioned to affect the self-care of TB patients by Howyida et al., (2012). Another similar study explains that increasing knowledge about TB disease is very important for self-care management [34]. One effort that can be done is through educational interventions using the coaching method and M-health education interventions that can optimize tuberculosis care (Irnawan & Syahrul, 2020; Latif et al., 2020)
Research conducted by Dwidiyanti et al., (2019) states that coping strategies are one of the factors that affect self-care in TB patients. This is in line with the research of Riska et al (2021) which showed that the coping strategies of TB patients which focused on solving their health problems by seeking treatment, taking medication and regular check-ups, emotional control by praying and doing other activities were very influential in self-care process towards healing TB patients (Riska et al., 2021). In addition, according to Dwidiyanti et al., (2019), family welfare factors (children) also affect self-care in TB patients. This is supported by research which states that the concern of families who have family members with TB problems that can be transmitted to other family members, so it is necessary to provide psychological education therapy so that they can care for each other in the process of healing TB patients (Kamilah et al., 2020)

In addition, according to Pinto et al., (2016) the support factor from the professional health team also affects the self-care of TB patients. This is in line with the research of Togatorop et al (2019) which states that the support from health workers and health facilities will

improve treatment adherence of TB patients where nurses have an important role in providing comprehensive information to patients so that their treatment can run well.

Conclusion

This literature review provides an overview of determinants of self-care, including family pay, barriers, average monthly income, smoking status, benefit value, knowledge, social support, proactive coping, counseling (health education), coping strategies, family welfare (children), and support from a professional health team. This determinant can become primary data for developing self-care programs for TB patients.

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