**Original Research Article**

# THE ROLE OF SOCIAL SUPPORT ON TREATMENT ADHERENCE IN TB PATIENTS: A SYSTEMATIC REVIEW

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**Abstract**
**Background:** Adherence to treatment regimens in TB patients was carried out by using a pharmacological and non-pharmacological approach or paying attention to the social aspects of the patient.
**Objective:** This review is to analyze and identify the literature related to the social support approach to treatment adherence in TB patients.
**Design:** The systematic design of this review is to find and review journal articles from the database using Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA).
**Data Sources:** This systematic review is based on literature studies from various journal data bases in the last 5 years, including Scopus, ScienceDirect, ProQuest and Google Scholar by conducting a comprehensive review. The keywords in this Systematic review are adjusted to the Medical Subject Heading (MeSH) and use a combination of Boolean operators (AND and OR), namely "Social Support" OR "Family Support" OR "Peer Group Support" OR "Nurse Support" AND "adherence OR Compliance" AND "Tuberculosis" OR "pulmonary TB".
**Review Methods**: The review method on this systematic review uses the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Evaluation) guidelines and the assessment of the quality of the study in the article uses the JBI critical appraisal tools.
**Results:** In this literature ten articles fit the inclusion and exclusion criteria and relate to the topic. It was found that social support which includes family support, peer support and support from health workers is one of the driving factors for treatment adherence in TB patients.
**Conclusion:** Aspects of social support which include family support, peer group support and support from health workers have an important role and become a driving factor for TB patients to adhere to the treatment regimen. For further research, the development of interventions to improve adherence to TB patients needs to consider these social aspects.

**Keywords:** Medication Adherence, Social Support, Tuberculosis.

## INTRODUCTION

Tuberculosis (TB) is defined as an infectious disease caused by bacillus Mycobacterium tuberculosis and in the category of infectious disease cases that are a challenge to global public health problems (CDC, 2016). The number of new TB cases is increasing every year and is estimated to reach 10.0 million (range, 9.0-11.1 million) in 2018 (WHO Global Tuberculosis Report, 2019). The contributing factor is non-compliance or treatment failure. Treatment failure in TB patients appears to be influenced by several factors, including lack of knowledge, feeling cured, drug side effects, long treatment duration, stigma and lack of social support (Gebreweld et al., 2018). Strategies for handling TB disease are not only pharmacological aspects but based on non-pharmacological aspects or paying attention to patient psychology aspects. Several interventions show that psychological aspects in the form of social support which include family support, peer support, support from health professionals and the surrounding community can increase compliance (Deshmukh et al., 2018). Social support is widely applied in a number of areas of behavior change. The results of the study by Gu et al., (2017) on Type 2 Diabetes Mellitus patients in China show that social support influences patient compliance behavior by helping to motivate patients to take medication in a timely manner, diet and reduce the risk of anxiety, depression and mental illness disorders.

Regarding the evidence based on some of the literature, this systematic review was made with the aim of analyzing correlated social support factors that play an important role in TB patient compliance.

## METHODS

### Design

This research design uses systematic review. Guidelines for assessing the quality of studies using The Joanna Briggs Institute (JBI) Critical Appraisal and PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Taken) statement guidelines.

### Search Methods

The literature search strategy search used four electronic databases including Scopus, ScienceDirect, ProQuest and Google Scholar. The literature search process was carried out by limiting the publication of journals for the last five years, namely 2015 to 2020 and articles in English and Indonesian. Keywords in this study are adjusted to the Medical Subject Heading (MeSH) and use a combination of Boolean operators (AND and OR), namely "Social Support" OR "Family Support" OR "Peer Group Support" OR "Nurse Support" AND "adherence OR Compliance" AND "Tuberculosis" OR "pulmonary TB". The criteria for the articles that we entered in this systematic review are (1) the criteria for the patient are TB patients, (2) focus on discussing social support factors, family support, peer support and health workers on TB patient compliance, (3) using a cross sectional study design. The criteria for the articles that we put out in this systematic review are (1) articles in the form of systematic reviews, (2) do not focus on discussing aspects of social support, family support, peer support and health workers on TB patient compliance.

### Search Outcome

The results of literature search on the electronic database were 831 articles, namely (55 Scopus articles, 97 Science Direct, 86 ProQuest articles and 593 google scholar). A total of 799 articles were excluded for not meeting the inclusion criteria based on titles, abstracts and duplication. The remaining 32 articles fit the full text and 10 articles that fit the inclusion criteria by removing 22 articles because they did not fit the inclusion criteria.

The systematic objective of this review is to conduct a descriptive analysis of the relationship between the role of social support, family support, peer support and health care workers' support as a driving factor for tuberculosis treatment adherence, so that the

journal articles we collect are through an electronic database using a cross-sectional study design.

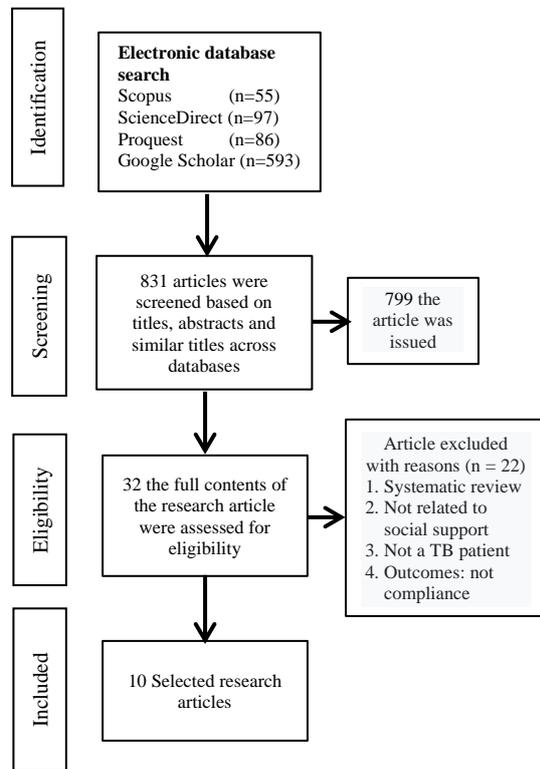The final selection compiled the 10 articles selected for a systematic review, shown in Figure 1.



**Figure 1** The PRISMA flow diagram is depicting the flow of information through the different phases of the systematic review.

*Quality Appraisal*

The quality analysis in this systematic review uses The JBI Critical Appraisal Tool to assess the quality of the methodology in each study. The JBI Critical Appraisal Tool

assessment checklist provided several questions to assess the quality of the study. The scoring criteria were scored as 'yes', 'no', 'unclear' or 'not applicable', and each criterion with a 'yes' score was assigned one point and the other score was zero, each study score was then calculated and added up. Critical Appraisal for assessing eligible studies conducted by researchers. If the research score is at least 50% fulfilling the Critical Appraisal criteria with a cut-off point value and the articles collected in this systematic review using a cross-sectional study have a value of 6 out of 8 statement points so that they have a quality above the cut-off (JBI, 2017).

*Data Abstraction*

In the abstraction stage, the researcher independently reviews the study abstracts taken from an electronic database. The next step is to do an article search and read the full text of potentially relevant articles. For studies that met the inclusion criteria, data extraction was performed independently by the research team using standard data extraction templates. The disagreements over data extraction were resolved by a third investigator.

*Analysis/ Synthesis*

In this study using descriptive analysis that describes and explains through a narrative the research results described in the literature. Relevant data reviewed included: author, country, year, study design, study objectives, sample size and analysis of results.

**RESULTS**

The results of searching articles in four electronic databases found 10 articles that met the inclusion criteria of this systematic. Additional information on this systematic review which includes the author's name, year of publication, study design, number of participants, objectives and summary of the results is shown in Table 1.

The study selected in this article used a cross-sectional study, all participants were TB patients with the number of participants between 24 and 698. This article is a multi-region consisting of 6 studies conducted in Indonesia, 2 studies in China, Pakistan and Ethiopia.
The following is a description of the results of the study shown in Table 1.

*Barik, A. L., Indrawati, R., Sulistiawati, S. (2020).*

**Table 1** Summary of included literature.

| Author (year), Country | Type Of Study | Participant | Purpose | Outcame |
|---|---|---|---|---|
| (Tola et al., 2017) Ethopia | cross-sectional | 698 patient | Structural equation modelling was employed to assess the pathway relationship between sociodemographic characteristics, patients' beliefs, and treatment adherence | The results of the study explain that it is necessary to use interventions to reduce the components of the perceived barriers and maximize the perceived benefits in order to increase TB treatment adherence. Another important component is that it involves motivators (cues for action) such as friends, family, health workers and media to promote TB treatment adherence. |
| (X. Chen et al., 2020) China | cross-sectional | 481 patient | Evaluation of TB patient treatment was based on a questionnaire survey consisting of treatment based, socio-demographic Family support, social support and supporting factors for national policy support | The results reveal that the regular supervision of family members on medication and spiritual encouragement, doctor-patient is good relationship and knowledge related to TB, high need for policy support contributed to high adherence in patients with statistical results having family members as supervisors taking medication (OR: 0.34, 95% CI: 0.16-0.71), spiritual encouragement family (OR: 0.14, 95% CI: 0.03-0.80), good doctor-patient relationship (OR: 0.58, 95% CI: 0.38-0.88), knowledge of TB disease (OR: 0.49, 95% CI: 0.33-0.72) and high need for TB treatment policy support (OR: 0.39, 95% CI: 0.22-0.67) |
| (B. Chen et al., 2016) China | cross-sectional | 220 patient | To assess the social support received by patients diagnosed with multidrug-resistant tuberculosis (MDR-TB) | The results of the study stated that harmonious family relationships as an important aspect in supporting TB patient adherence and independent isolation can cause a decrease in the support received by TB patients from the community. |
| (Asriwati & Tristiyana, 2020) Indonesia | cross-sectional | 48 patient | to determine the factors that affect family support in pulmonary TB patients in taking anti tuberculosis drugs | The statistical results in this study indicate that there is a significant p value of 0.008 (p value = <0.05), so it can be concluded that there is an effect of the patient's family support in taking anti-tuberculosis drugs. |

| Author (year), Country | Type Of Study | Participant | Purpose | Outcame |
|---|---|---|---|---|
| (Mongan & Fajar, 2017) Indonesia | cross-sectional | 30 patient | known about the relationship between family support (emotional, material, and informational support) with medical compliance in tuberculosis patients | There is a significant relationship between family support (emotional, material, and information support with statistical results (X2hit = 10.20> X2tab value = 3.841; Cc 0.50 moderate relationship), material support (X2hit = 6.00> X2tab value = 3.841; Cc 0 , 41 - moderate relationship), and informational support (X2hit = 13.50> X2tab value = 3.841; Cc 0.56 - strong relationship) with p-value 5 <0.05.) With medical compliance of patients with pulmonary tuberculosis. |
| (Arifin et al., 2019) Indonesia | cross-sectional | 80 patient | Investigate the correlation of social support with pulmonary tuberculosis medication adherence with DOTS strategic | The results showed that the social support component in the form of informational support provided by families to TB patients can increase motivation and obedient behaviour during treatment with a P value of 0.009 |
| (Saqib et al., 2019) Pakistan | cross-sectional | 269 patient | to validate the Medical Outcome Study–Social Support Survey (MOS- SSS) instrument in Pakistan and to quantify the nature of care and social support currently extended to patients with pulmonary tuberculosis (TB) in Pakistan. | The healing process for TB patients can be achieved by not only paying attention to aspects of the clinical service approach, but it is important to pay attention to the aspects of family and community support. |
| (Ainiyah et al., 2019) Indonesia | cross-sectional | 24 patient | to know the frequency distribution of family's assessment support and MDR TB patient's adherence | There is a significant relationship between family support on MDR-TB treatment adherence, p value is 0.020 ($\alpha$ = 0.05). Family support in the form of reward or reward support to increase self-esteem, didn't give up and be obedient during treatment |
| (Siregar et al., 2019) Indonesia | cross-sectional | 60 patient | to determine the relationship between family support and medication adherence to pulmonary tuberculosis patients | The results showed evidence that family support has an important role for pulmonary TB patients in completing their treatment |

| Author (year), Country | Type Of Study | Participant | Purpose | Outcame |
|---|---|---|---|---|
| (Tinah & Triwibowo, 2020) Indonesia | cross-sectional | 41 patient | To find out the effect of Family Support on Compliance Drinking Medicines in Patients with Pulmonary TB | The results showed that the chi square test results obtained p value = 0.00, P <0.05. statistically show that there is a significant effect of both assessment support and emotional support family with treatment adherence to the patient Pulmonary TB |

The results of a literature review of 10 articles explained that social support has an important role as a driving factor for adherence in TB patients. Tola et al. (2017) stated that in a study conducted in Ethiopia with 689 TB patients and using the structural equation Health Belief Model (HBM), it was concluded that the cues to action aspect involved family, peers, health workers and the media as a motivator and promotion of patient compliance TB.

The Health Belief Model is one of the recommended models to explain and understand health behavior including treatment adherence to TB patients (Tola et al., 2016). This model was first developed in the fifties by a group of social psychologists who tried to explain the reasons for a group's failure individuals undergoing Rosenstock's disease prevention program (Rosenstock, 1974) which was later expanded by Janz and Becker (1984) to study a person's behavior towards the diagnosis being made, in particular the problem of adherence to the treatment regimen.

The success of treatment in TB patients is not only by individual effort but needs support from several other factors such as social support, family support, peer support and support from health workers (Niven, 2000). The health status of TB patients is weak due to illness and changes in nutrition, therefore nurses and families have an important role to play in ensuring regular monitoring of treatment until they recover (Safri et al., 2014). In line with the results of research by X. Chen et al., (2020) which stated that regular supervision of family members on medication and spiritual encouragement, good doctor-patient relationships and knowledge related to TB, high need for policy support contributes to high adherence in patients with statistical results having family members as supervisors taking medication (OR: 0.34, 95% CI: 0.16-0.71), spiritual encouragement from the family (OR: 0.14, 95% CI: 0.03 -0.80), good doctor-patient relationship (OR: 0.58, 95% CI: 0.38-0.88), knowledge of TB disease (OR: 0.49, 95% CI: 0.33 -0.72) and high need for TB treatment policy support (OR: 0.39, 95% CI: 0.22-0.67). Treatment policy support for TB disease management does not only pay attention to aspects of the clinical service approach, but it is also important to pay attention to aspects of family and community support (Saqib et al., 2019).

The theoretical and operational definition of social support consists of four types of support, namely emotional support, instrumental support, informational support, and reward support (Penny et al., 1997). The results of studies from several studies show that 4 aspects of family support have a significant relationship with TB patient adherence, but there are articles that state some of these 4 aspects have no correlation with adherence. The results of the research by Mongan & Fajar, (2017) and Arifin et al., (2019) have the same research conclusions by stating that information support factors have a strong correlation with TB patient compliance. This is in line with the research results.

The results of research by Ainiyah et al., (2019) which were conducted at Dr. Soetomo stated that family support in the form of reward support with a p value of 0.020 ($\alpha$ = 0.05) as a factor in increasing adherence to MDR-TB patients. Tinah & Triwibowo, (2020) explained the results of the study that

emotional support and appreciation support were influencing factors in increasing TB patient compliance.

The articles reviewed in this systematic review as a whole show that social and psychological aspects of patients such as social support, family support, peer support and health care workers support have an important role and are correlated as driving factors for increased adherence in TB patients.

**DISCUSSION**

One of the factors that support compliance is the modification of environmental and social factors which means building social support (Niven, 2000). The social support approach in the form of family support, peer support and support from health workers has a correlation as a driving factor for TB patient compliance. According to Friedman et al., (2010) family support is one of the factors supporting patient compliance with the functions they have, namely as a support system for family members who are sick, the family is always ready to provide assistance and assistance if needed. Having a family and being in a harmonious family environment makes TB patients feel supported, comfortable, confident of recovery and increases adherence (B. Chen et al., 2016). Support for social support, namely emotional support, instrumental support, informational support, and reward support (Penny et al., 1997). The emotional support received and felt by patients from their families and health workers as shown by a sense of empathy, compassion and care (Brooks et al., 2017; Bsn et al., 2020) affects the patient's motivation to comply with and complete the treatment regimen (Deshmukh et al., 2018). Bsn et al., (2020) also argued that instrumental support developed in the community by community nurses by maintaining the environment by promoting positive perceptions can have a positive impact on TB patients. Instrumental support received by patients indicates an increase in psychological, perceived self-efficacy and physical well-being (Hovick et al., 2012).

Compliance with TB patients cannot be separated from the informational support received and obtained from health workers and through their families. Informational support provided during times of stress can be a solution to problem solving. Research conducted by Arifin et al., (2019) shows that informational support provided by families correlates with increased motivation to recover and obedient behavior of TB patients. The process of completing a TB treatment regimen lasts 6-8 months. This long duration of treatment often makes patients feel bored, hopeless and get a negative stigma from society. but this can be prevented with the support of rewards provided by the patient support system. The appreciation support felt by the patient as shown by encouragement, motivation to recover and assistance during the treatment period correlates with the patient's treatment regimen adherence (Ainiyah et al., 2019).

Sources of support for patients are obtained not only through family and health workers, but can also come from peer support. Peer group support interventions can improve TB patient adherence and self-efficacy to recover 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 (Jauhar et al., 2019). Wade & Tavris, (2007) stated that when the subject worked with close friends or was in the same environment as the peer group, the subject would also do what his friends did, be it obedient or not. The results of qualitative research conducted by Deshmukh et al., (2018) show the results of in-depth interviews that the patient-centered approach with the peer group method affects adherence and treatment success. The peer group has an influence on treatment compliance which is shown by the timeliness of taking medication (Hasanah et al., 2019).

The weakness of this systematic review is that the respondents included in all categories of TB patients, both new TB patients and MDR-TB, have not been homogenized in one of the cases.

## CONCLUSION

It is important to pay attention not only to the clinical approach but also to consider the social approach. Social support, family support, peer groups and support from health workers have an important role and a strong correlation as a driving factor for mindset, motivation and positive behavior towards TB patient compliance in completing treatment.

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## DECLARATION OF CONFLICTING INTEREST

This comprehensive summary or systematic review is written independently, so there is no conflict of interest in the writing.

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## AUTHOR CONTRIBUTION

**Ardila Lailatul Barik:** Main author of the literature review and source search used for article writing.

**Retno Indarwati:** Looking for the sources used to write and supervised the work of systematic literature review.

**Sulistiawati Sulistiawati:** Looking for the sources used to write and supervised the work of systematic literature review.

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