



Effect of Counselling on Medication Adherence in Tb Patients with the DOTS Strategy: A Scoping Review

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ABSTRACT

Tuberculosis (TB) is an infectious disease caused by the bacteria *Mycobacterium tuberculosis*; these bacteria can attack various organs especially the lungs. Lack of knowledge and awareness of the importance of taking medication which leads to poor patient adherence in treatment thus increases the risk of morbidity, mortality and drug resistance in TB patients. Providing counselling is an effort to increase patient's knowledge and understanding to increase their compliance with medication. This study aims to determine the effect of counselling in increasing medication adherence to TB patients with the DOTS strategy through a literature review. This study used a literature study research method by examining 11 journals related to counselling in increasing medication adherence to TB sufferers. The data was collected by searching data based on article data published on the Google Scholar, Proquest, Pubmed, and EBSCOhost websites. Then the data were analyzed using descriptive analysis. The data was then assessed using the Joanna Briggs Institute (JBI) and data extraction was carried out. In 11 journals related to counselling in improving medication adherence to TB patients, it was found that 11 journals proved that there was an effect of counselling in increasing medication adherence of TB patients with the DOTS strategy. Counselling added to the DOTS strategy is effective in increasing medication adherence to TB patients compared to the DOTS strategy without counselling. There are several methods of providing counseling such as individual counseling, counseling with a psychological approach, telephone counseling, leaflet-based counseling, and counseling-based motivational interviewing. The conclusion of this study is that counselling can improve medication adherence to TB patients with the DOTS strategy. By providing counselling, it can increase the patient's knowledge and understanding so that it can change the patient's behavior to a better and positive direction, which is shown by the patients' behavior who adherence to TB medication.

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ABSTRAK

Tuberkulosis (TB) adalah penyakit menular yang disebabkan oleh bakteri *Mycobacterium tuberculosis*; bakteri ini dapat menyerang berbagai organ terutama paru-paru. Kurangnya pengetahuan dan kesadaran akan pentingnya minum obat yang menyebabkan rendahnya kepatuhan pasien dalam pengobatan sehingga meningkatkan risiko morbiditas, mortalitas dan resistensi obat pada pasien TB. Pemberian konseling merupakan upaya untuk meningkatkan pengetahuan dan pemahaman pasien untuk meningkatkan kepatuhannya dalam minum obat. Penelitian ini bertujuan untuk mengetahui pengaruh konseling dalam meningkatkan kepatuhan minum obat pada pasien TB dengan strategi DOTS melalui studi pustaka. Penelitian ini menggunakan metode penelitian studi kepustakaan dengan menelaah 11 jurnal terkait penyuluhan dalam meningkatkan kepatuhan minum obat pada penderita TB. Pengumpulan data dilakukan dengan

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mencari data berdasarkan data artikel yang dipublikasikan di website Google Scholar, Proquest, Pubmed, dan EBSCOhost. Kemudian data dianalisis dengan menggunakan analisis deskriptif. Data tersebut kemudian dinilai menggunakan Joanna Briggs Institute (JBI) dan dilakukan ekstraksi data. Pada 11 jurnal terkait konseling dalam meningkatkan kepatuhan minum obat pada pasien TB ditemukan 11 jurnal yang membuktikan adanya pengaruh konseling dalam meningkatkan kepatuhan minum obat pasien TB dengan strategi DOTS. Konseling dengan strategi DOTS lebih efektif dalam meningkatkan kepatuhan minum obat pada pasien TB dibandingkan dengan strategi DOTS tanpa konseling. Ada beberapa metode pemberian konseling seperti konseling individu, konseling dengan pendekatan psikologis, konseling telepon, konseling berbasis leaflet, dan wawancara motivasi berbasis konseling. Kesimpulan dari penelitian ini adalah penyuluhan dapat meningkatkan kepatuhan minum obat pada pasien TB dengan strategi DOTS. Dengan memberikan penyuluhan dapat meningkatkan pengetahuan dan pemahaman pasien sehingga dapat mengubah perilaku pasien ke arah yang lebih baik dan positif, yang ditunjukkan dengan perilaku pasien yang patuh minum obat TB.

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INTRODUCTION

Tuberculosis is an infectious disease caused by the bacteria *Mycobacterium tuberculosis*, this bacterium more often attacks the lung organs but does not rule out attacking other respiratory organs. Tuberculosis can spread through the air, for example when a person cough. Tuberculosis (TB) is one of the ten diseases that cause death in the world (World Health Organization, 2019). Tuberculosis (TB) is currently still a public health problem both in Indonesia and in the world, so it is one of the goals of sustainable health development (SDGs). Tuberculosis in Indonesia is in the 3rd rank in the world with the most TB sufferers after India and China (Kementerian Kesehatan Republik Indonesia, 2020).

According to the World Health Organization (WHO) in 2018, there were an estimated 10.0 million people with cases of tuberculosis (TB), around 1.2 million deaths due to tuberculosis, and an additional 251,000 deaths from tuberculosis with HIV (World Health Organization, 2019). Tuberculosis mostly affects men over 15 years of age (57%), women (32%), and children under 15 years of age (11%). In all TB cases, 8.6% of patients were also HIV positive. In Indonesia, the incidence of tuberculosis (TB) in 2019 was 526,977 cases, with details of 303,656 men, 223,321 women, and 63,111 children. Meanwhile, East Java province in 2019 ranks second-most in Indonesia with 64,946 cases with details of 35,929 men, 29,017 women, and 5,239 children (Kementerian Kesehatan Republik Indonesia, 2020).

Failure in handling TB is due to patient non-compliance in taking medication, lack of knowledge, and low awareness of the importance of taking medication. Patients' non-compliance with treatment was the main cause of failure of treatment as much as 19.3% of the total TB sufferers in Indonesia (Rojali & Noviatuzzahrah, 2018). The rate of non-adherence to treatment is estimated to be more than a quarter of TB sufferers who fail to complete treatment for 6 months, so this is considered one of the causes of the emergence for 6 months, so it is considered one of the causes of the emergence of multidrug-resistant (TB MDR) (Alsahar, 2020). In 2018 MDR TB cases in the world were estimated at 186,772, of which only 156,071 cases received treatment. Indonesia is one of the 30 countries with the highest MDR TB cases as many as 24,000 cases with 13% having undergone treatment (World Health Organization, 2019).

Tuberculosis control and treatment efforts in Indonesia since 1995 have implemented a strategy according to the recommendations of the World Health Organization (WHO), namely the DOTS (Directly Observed Treatment Short-course) strategy. The DOTS strategy can be defined by direct supervision of taking short-term medication by the Supervisor for Drug Swallowing (Inayah & Wahyono, 2019). This strategy is used in the control of TB disease by further enhancing the diagnosis of TB with microscopic sputum examination, treatment with Supervisor for Drug Swallowing, short-term anti-TB drug supplies with guaranteed quality and recording and reporting to facilitate monitoring and evaluation of TB control programs (Kementerian Kesehatan Republik Indonesia, 2020).

The key to TB patient adherence in treatment depends on the patient's level of knowledge about the disease and support from family (Saragih & Sirait, 2020). One of the attempts to increase the knowledge of TB sufferers is by providing counseling. Counseling is the process of providing assistance carried out by nurses or counselors to individuals through interviews and behavioral change techniques to identify and solve problems currently faced by clients. If the client's problem can be resolved, of course, it will foster enthusiasm and behavior change towards a better and positive direction. Behavioral changes are indicated by behaviors that are different from usual, such as changes in knowledge, changes in understanding, and attitudes (Kurniasih & Rakhmat, 2019).

Based on the background description above, the researcher wants to conduct further research on the effect of counseling in increasing treatment adherence to TB patients with the DOTS strategy, which aims to know whether there is an effect of counseling in increasing treatment adherence to TB patients with the DOTS strategy through literature studies.

METHOD

Search Strategy

The literature search in this literature review uses 4 databases with high and moderate-quality criteria, namely

Google Scholar, ProQuest, Pubmed, EBSCOhost. Keywords in this literature review consist of: ("Counseling") AND ("Medication Adherence") AND ("Tuberculosis Sufferers") AND ("DOTS"). Search results for journals: Google Scholar for 6 journals, Proquest for 2 journals, Pubmed with 3 journals, and EBSCOhost for 0 journal. The search was conducted to determine the effect of counseling in increasing treatment adherence to TB patients with the DOTS strategy.

Inclusion Criteria

The inclusion criteria in this study are as follows: 1) Journals published in the 2015-2020 timeframe. 2) International and national journals 3) Journals with RCT research designs, Quasi Experiment and Comparative Study. 4) Journals that discuss Counseling, Medication Adherence, and Tuberculosis Patients. 5) Patients undergoing TB treatment with the DOTS strategy. 6) Journal that can be accessed in full (Full text).

Study Selection and Data Extraction

Screening in this study was carried out through the title and abstract that resulted from the search strategy. Journal articles that are not relevant are issued while other fully accessible journals are screened with predetermined inclusion criteria. The journals obtained are then extracted into tabular form to make it easier to describe the contents of the research journal. The data analysis table contains the author (author), the year the journal was published, the country of the journal publisher, the journal research design, the quality score, the research population/research sample, and the outcome (the results of the journal research).

Quality Assessment

The methodological quality of each study was evaluated by researchers using the Joanna Briggs Institute (JBI) instrument. The JBI instrument was chosen because it can assess the quality of journals with the Randomized Controlled Trial (RCT) and Quasi-Experimental Study research design. The JBI Randomized Controlled Trial (RCT) checklist consists of 13 items and the JBI Quasi-Experimental Study checklist consists of 9 items.

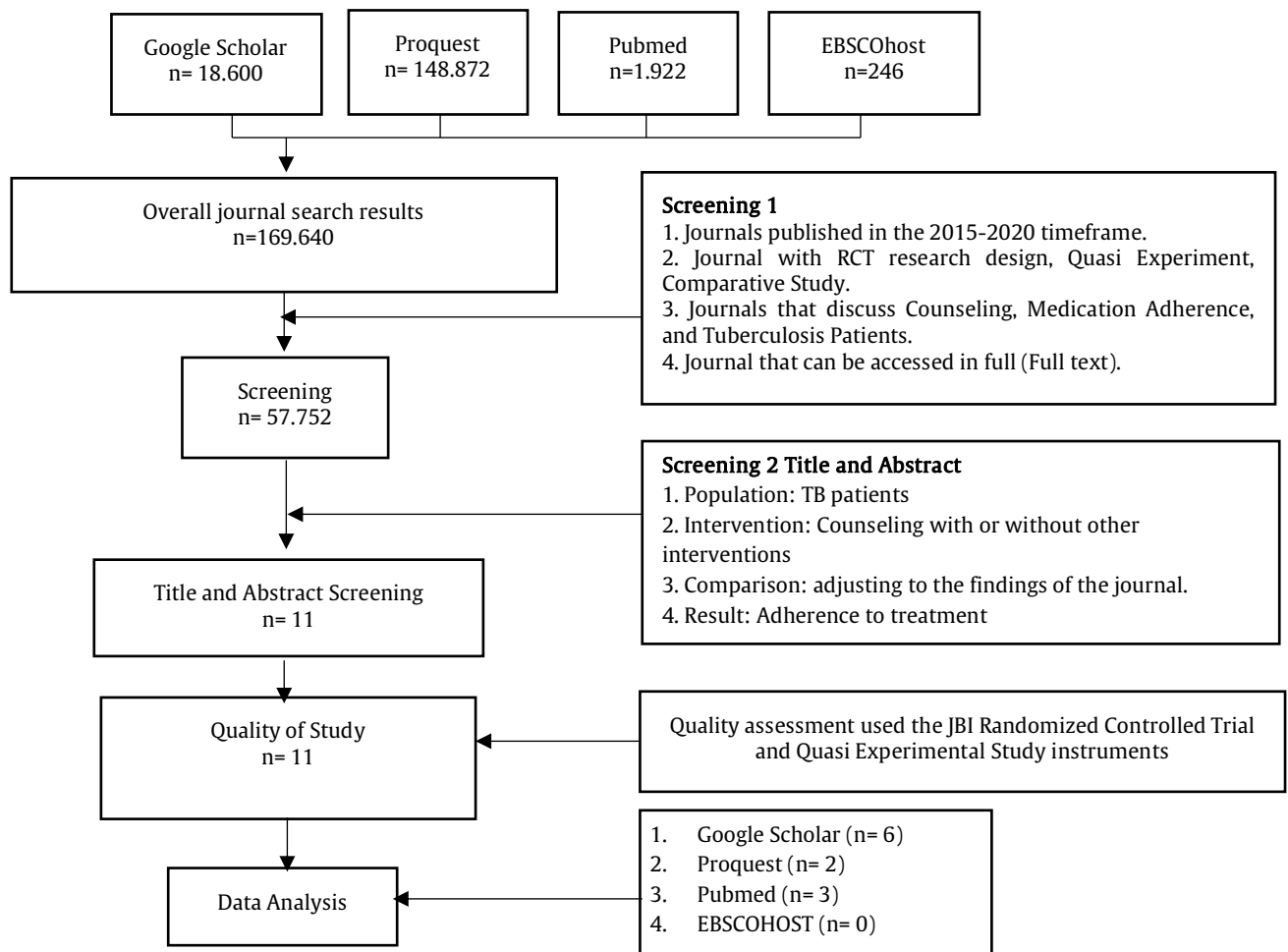


Figure 1. Diagram Flowchart

RESULT AND DISCUSSION

Literature Search

The literature search resulted in 169,640 journals which were then screened into 57,752 with the criteria of journals published in the 2015-2020 timeframe, journals with RCT

research designs, quasi-experiments, comparative studies, journals that discuss counseling, medication adherence, and tuberculosis patients. a journal that can be accessed in full (full text). The second screening of journals was carried out by looking at titles and abstracts according to PICO (Problem, Intervention, Compare, Outcome) which resulted in 11 journals that met the inclusion criteria.

Table 1
Data Analysis

Author	Study Design	Total of Patients	Outcome
(Suwannakeeree et al., 2015)	<i>Randomized Controlled Trial</i>	50 Tb patients	The results showed that the mean score of treatment adherence in the intervention group at three months after program implementation was significantly higher ($p = 0.000$) than in the control group.
(Hussain et al., 2016)	<i>Randomized Controlled Trial</i>	100 female TB patients	The success rate in the intervention group was 100%. The self-esteem score before the intervention was 10.42, after the intervention became 17.44 ($p < 0.05$). This study showed that patients with higher self-esteem were more likely to adhere to treatment.
(Winarto & Bintoro, 2018)	Quasi-Experimental Study	15 Tb patients	The results showed that there was an effect of the telephone counseling approach in improving treatment adherence in TB DOTS patients with poly tuberculosis at Dungus Madiun Hospital ($\text{sig} = 0.007 < \alpha = 0.05$).
(Muller et al., 2019)	<i>Randomized Controlled Trial</i>	169 Tb patients	The cure rate in the intervention group was 71.3% and in the control group 58.4%. This strategy increases TB cure rates and directly affects one of the challenges of TB control, namely increasing adherence to treatment.
(Prasetyo et al., 2015)	Quasi-Experimental Study	68 Tb patients	The results showed that the TB health promotion program was effective in increasing the compliance with TB patients taking medication ($p < 0.01$).
(Karuniawati et al., 2019)	Quasi-Experimental Study	75 Tb patients	Counseling added with leaflets was effective in increasing medication adherence.
(Goruntla et al., 2020)	Quasi-Experimental Study	258 Lung TB patient smear positive	The results showed that pharmacist-mediated counseling in tuberculosis patients showed a significant increase in knowledge and level of treatment adherence ($p < 0.05$).
(Khachadourian et al., 2020)	<i>Randomized Controlled Trial</i>	385 Tb patients	The results showed that the treatment success in the intervention group was not lower than in the control group. The intervention group resulted in improved treatment adherence.
(Tola et al., 2016)	<i>Randomized Controlled Trial</i>	698 Tb patients	The results showed that psychological counseling and educational interventions were effective in reducing the level of non-adherence in the intervention group.
(Aamir et al., 2016)	<i>Comparative Study</i>	60 Tb patients	The results showed the dropout rate in the experimental group (16.6%) and the control group (70%).
(Zuliani, 2019)	Quasi-Experimental Study	18 Tb patients	The results showed that counseling-based motivational interviewing had an effect on decreasing despair ($p = 0.000$) and increasing motivation and medication adherence ($p = 0.000$).

Tabel 2
Counselling intervention

Author	Intervention group	Control group
(Suwannakeeree et al., 2015)	MAEP Program (Medication Adherence Enhancement Program) consists of two components, including; activities to increase self-awareness of self-regulation to comply with TB treatment, and the second component provides environmental support such as selecting family support, telephone reminders and counseling.	Routine care includes health education about the treatment of pulmonary tuberculosis, treatment of tuberculosis, as well as counseling on side effects and prevention of TB transmission.
(Hussain et al., 2016)	Counseling is given in 3 sessions where 1 session is individual counseling and 2 sessions are group counseling. Added education about TB treatment and also given strategies in dealing with anxiety.	Educational intervention that includes comprehensive information regarding treatment, etiology, duration, drug side effects, and consequences of treatment failure.
(Winarto & Bintoro, 2018)	Telephone counseling was given on D-7 and D-2 before scheduled control.	there is no control group
(Muller et al., 2019)	Educational strategies are provided with educational materials regarding TB available on the website, pre-discharge counseling regarding illness, importance of follow-up, treatment in primary health care and monitored	Usual care according to the Brazilian TB control program.

	by phone calls every month (emphasizing the importance of continuing treatment).	
(Prasetyo et al., 2015)	The health promotion program consists of: TB-related health education, individual counseling for 35 minutes at week 2 and 3, group discussions scheduled 3 times during weeks 4,5 and 6, individual monitoring for 4 weeks, patients get motivational SMS and reminders taking medication.	Routine care regarding health information related to treatment of Tb.
(Karuniawati et al., 2019)	In the intervention group 1, counseling was given with leaflets and in the intervention group 2, counseling was given only.	Usual care
(Goruntla et al., 2020)	Patients are given counseling with education regarding the etiology, signs and symptoms, modes of transmission, and complications of tuberculosis. Patients were also educated about antitubercular therapy, duration, possible side effects, and the importance of medication adherence using brochures.	there is no control group
(Khachadourian et al., 2020)	One counseling session is provided by trained interventionists (psychologists and nurses) with topics that include materials on TB symptoms, modes of transmission, treatment strategies, importance of medication adherence, infection prevention and control, managing TB-related stigma, management of side effects.	Receive only DOT during the follow-up phase according to the Armenian national strategy (similar to the implementation of the WHO Guidelines for TB Treatment worldwide).
(Tola et al., 2016)	Seven sessions of psychological counseling (anxiety and depression counseling) and the Health Belief Model based educational intervention (health education, risk of non-adherence to treatment, benefits of TB treatment & medication adherence) and methods for developing self-awareness.	only receive DOTS (Directly Observed Treatment Short Course) services.
(Aamir et al., 2016)	Routine DOTS therapy was given to this group and weekly counseling sessions for 1 month (1 session / week). The counselor also contacts the patient by telephone to monitor progress and reminds of weekly counseling sessions.	Only given routine DOTS therapy.
(Zuliani, 2019)	The intervention in this group was motivational interviewing based on counseling which was given for 4 weeks with 2 meetings per week within 30-40 minutes.	there is no control group

Based on the 11 journal articles that have been analyzed, the results show that:

1. Counseling can improve the adherence of TB patients in carrying out their treatment. In the study (Winarto & Bintoro, 2018) it was found that counseling using the telephone method could improve medication adherence with a value of $\text{sig} = 0.007 < \alpha = 0.05$, which means that there is an effect of providing telephone counseling on patient compliance. In another study (Karuniawati et al., 2019) the counseling method with leaflets showed a value ($p 0.003$), where there was an effect of providing counseling with leaflets on treatment adherence of TB patients.
2. Counseling is provided by several methods such as telephone counseling, psychological counseling, motivational interviewing (counseling), individual counseling, and counseling with leaflets.

DISCUSSION

Counseling Intervention

Of the 11 journals that have been analyzed discussing counseling interventions in increasing treatment adherence to TB sufferers. There are several methods of providing counseling such as individual counseling, counseling with a psychological approach, telephone counseling, leaflet-based counseling, and counseling-based motivational interviewing.

Providing counseling is very important in order to avoid failure in the treatment of TB caused by patient non-compliance in taking medication, lack of knowledge, and low awareness of the importance of taking medication.

Taking anti-tuberculosis (OAT) drugs for a long time resulted in the patient experiencing several side effects such as dizziness, vomiting, boredom, and laziness, even the patient felt he had recovered no complaints so he no longer took the medicine so that it made the patient disobedient in underwent treatment for Tb. The benefit of the counseling provided is the increased compliance of TB sufferers in treatment so that it can reduce the mortality rate and cost or other losses. Counseling is proven to be effective in increasing TB sufferers' adherence to treatment, this is evidenced by the increased patient adherence after being given counseling. Most of the respondents adhered to treatment based on routine control and taking medication.

Effect of Counseling on Medication Adherence in Tb Patients

In the counseling process, there is an approach or process of establishing a relationship between the counselor and the patient, whereby creating a positive relationship between the two, it is hoped that the patient can open up and talk about whatever is on their mind. That way the counselor can find out the patient's problems that make the patient behave maladaptively and help the patient to overcome the problem. Selain dilakukannya pendekatan, di dalam proses konseling juga terdapat pemberian motivasi oleh konselor

kepada patients to encourage patient compliance in treatment (Aamir et al., 2016). In the counseling process, information or education is also provided about the treatment. The information required includes, among other things, the impact on health, ways to raise awareness of risk factors and preventive measures. Patients receiving tuberculosis treatment need health information or advice about tuberculosis treatment. Providing information or education is expected to increase patient knowledge and change behavior regarding treatment (Aldina et al., 2020).

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Based on journal analysis, it is known that the majority of counselors in several research journals are nurses and pharmacists. As it is known, the role of the nurse as a counselor is to provide information, listen objectively, provide support, provide nursing care, help clients identify problems and influencing factors, and provide instructions for clients to choose appropriate problem-solving methods (Pakpahan et al., 2020). The nurses here can help the patient in overcoming the patient's problems related to treatment so that the patient can comply with the treatment. While the counseling provided by pharmacists has several advantages such as definite safety and effectiveness, can help solve therapeutic problems in certain situations, can reduce drug use errors, avoid unwanted things due to drug reactions, and increase adherence in carrying out research therapy or treatment (Karuniawati et al., 2019).

This research has the advantage of identifying the right interventions to improve medication adherence and is the first step for health workers (Doctors, Nurses, Pharmacists, Psychologists) to improve medication adherence. The weakness in this study is that the types of counseling provided are very diverse and in the journals that have been analyzed, not only counseling is provided but there are other interventions so that the possibility of treatment adherence and treatment success can be influenced by additional interventions other than counseling. However, despite all these limitations, counseling can have a positive effect on TB patients as evidenced by the increase in medication adherence after giving the counseling interventions.

CONCLUSION AND RECOMMENDATIONS

After carrying out a series of research processes, based on the results of research in national and international journals regarding the study of the effect of counseling in increasing treatment adherence to TB patients with the DOTS strategy,

it can be concluded that counseling given by nurses and pharmacists can improve treatment adherence to TB sufferers so that it can increase treatment success. Counseling given by several kinds of methods can significantly increase knowledge and treatment adherence to TB sufferers.

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Conflict of Interest statement

The author declares that there is no conflict of interest.

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