

Factor Depression

by Resti Ijnp

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"I was confused, I couldn't be near my child. I couldn't be near my family"

FACTORS THAT AFFECT DEPRESSION IN PATIENTS WITH PULMONARY TUBERCULOSIS: A PHENOMENOLOGY STUDY

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Abstract

Background: Pulmonary tuberculosis (TB) is one of the infectious diseases that remains a health problem in the world, including in Indonesia. Indonesia is in the third rank of the highest tuberculosis incident in the world. The complete treatment of the disease becomes the essential thing to be conducted. A long-term tuberculosis treatment, incorrect self-perception, family, as well as the community can affect the incidence of patients' depression and leads to treatment failure.

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Objective: Explore the factors that influence depression in patients with pulmonary tuberculosis.

Method: A qualitative study with a phenomenological approach. Nine participants were collected using the purposive sampling technique. They were patients with pulmonary tuberculosis who underwent treatment in the intensive phase or the continuous phase. This research was conducted in public health centers in the district of Sleman. Data were collected by conducting in-depth interviews and were analyzed using inductive content analysis.

Result: There are five themes as the factors that cause depression in patients with pulmonary tuberculosis which are a) denial of destiny b) stigma about tuberculosis, c) presence of comorbidities, d) no family support, and e) losing a job.

Conclusion: Factors causing depression in TB patients are summarized in internal and external factors. It is important for health workers to provide health education related to disease, stigma and family support to reduce the incidence of depression in tuberculosis patients so that they can help complete treatment.

Keywords: depression, factor, pulmonary, phenomenology, tuberculosis

INTRODUCTION

Pulmonary tuberculosis (TB) is one of the infectious diseases that is still a global health problem, including in Indonesia. Indonesia ranks third with the highest incidence of tuberculosis in the world. Globally, an estimated 10.0 million (range, 8.9-11.0 million) people suffered from TB in 2019. In 2019 Indonesia became the number two contributor to the number of TB patients at 8.5% after India (26%) than China (8.4%) (World Health Organization, 2020). In 2020, Indonesia was the third contributor to TB cases, 8.4% after Indians (26%) and then China (8.5%). The existence of the COVID-19 pandemic has resulted in a decrease in the number of new cases diagnosed in the world, including in Indonesia, which was reported in 2020. From 2017-2019 there was a large increase in the number of new cases of tuberculosis patients from 6.4 million new cases in 2017 to 7.1 million new cases in 2019 then decreased into 5.8 million in 2020. The relatively large reduction occurred in the Southeast Asia and West Pacific regions. The two regions combined accounted for 84% of the global reduction in new case notifications. Indonesia was the second country that has contributed to the decrease in the number of new cases of tuberculosis in 2019

which is 14%, with the first being India (41%) and the third being the Philippines (12%), then China (8%) (World Health Organization, 2021)(WHO, 2021).

This decline in cases deserves special attention because the most direct consequence of the massive decline in the number of new patients diagnosed with TB in 2020 will be an increase in the number of people who died from TB. In 2020, the global number of deaths was officially classified as caused by TB. TB (1.3 million) in 2020 is almost double that of HIV/AIDS (0.68 million), and deaths from TB are more severe. Affected by the COVID-19 pandemic in 2020 than HIV/AIDS. TB used to be the 13th leading cause of death worldwide and the leading single infectious agent. By 2020, it is estimated that TB will be the second leading cause of death from a single infectious agent, after COVID-19 (World Health Organization, 2021). Accordingly in Indonesia, as stated by the Director of Infectious Disease Prevention and Control (P2PM) of the Indonesian Ministry of Health, said that of the estimated 824 thousand TB patients in Indonesia, only 49% were found and treated, so there are as many as 500 thousand people who have not been treated and risk of becoming a source of transmission. TB that is not treated properly is also a risk of disease severity and even death. Deaths due to TB in Indonesia reach 93,000 per year or equivalent to 11 deaths per hour (Widyawati, 2022).

Indonesia as a country with the third largest number of TB cases and the increasing number of deaths due to TB is certainly a serious concern from the government to overcome it with complete treatment and new cases. The duration of TB treatment for at least 6 months and various factors can affect mental health to the occurrence of depression. Based on a study conducted on 4903 participants in seven countries, the prevalence of depression in TB patients was 45.19%. The prevalence was higher in MDR-TB 52.34% than in non-MDR-TB patients 43.47%. The prevalence of depression is higher among women 51.54% that compared to men 45.25% (Duko et al., 2020).

The presence of depression in TB patients was significantly associated with poor adherence to TB treatment, as well as higher rates of treatment failure, development of antimicrobial resistance, and higher mortality rate (Ambaw et al., 2015) (Ugarte-Gil et al., 2013) (Ruiz-Grosso et al., 2020). Patients with depressive symptoms are more likely to have low adherence than those without depressive symptoms (Yan et al., 2018). Therefore, it is very important to know in depth the factors that influence depression in tuberculosis patients, especially pulmonary tuberculosis, so that it can be a reference for health workers, families, and the community to provide support for tuberculosis patients so that they do not fall into depression. This will have implications for increasing drug adherence and treatment success and the recovery of tuberculosis patients.

METHODS

A qualitative study with a phenomenological approach. Nine participants were collected using the purposive sampling technique. The research subjects were

patients with pulmonary tuberculosis who underwent treatment in the intensive phase or the continuous phase. This research was conducted in public health centres in the district of Sleman. Data were collected by conducting in-depth interviews. The interview duration ranged from 30 minutes to 60 minutes. Researchers used an interview guide with several questions. Data analysis used inductive content analysis. The process of analyzing the data involved several steps, including 1) listening to the interview results, writing a transcript of the results, scanning the data, dividing the data, and organizing the data; 2) rereading the entire data set and analyzing and coding it; 3) analyzing the keywords, categories, and themes after coding; and 4) performing data analysis. This data study employed the Atlas.ti program. To increase trust in the study's conclusions, interview transcripts were given back to participants. This was done so that participants could assess how closely the transcript matched their intentions. In order to build the conceptual framework¹¹, many authors read the transcripts again independently and held talks. This research has received ethical approval from the Ethics Committee of the Faculty of Medicine and Health Sciences Universitas Muhammadiyah Yogyakarta with the number 030/EP-FKIK-UMY/I/2019. All of the participant gave their written informed consent to the researchers as well.

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RESULTS

The characteristics of the participants in this study can be seen in table 1. The longest time to undergo tuberculosis treatment in the intensive phase and the continuation phase was 8 months. The age range of participants was from 28 years to 63 years. Participants consisted of 5 men and 4 women. The participant's education backgrounds are elementary school (2 participants), junior high school (1 participant), senior high school (4 participants), and graduate student (1 participant).

Table 1. Characteristics of participants

Category	P1	P2	P3	P4	P5	P6	P7	P8	P9
Age	50	50	39	42	40	63	43	28	50
Gender	M	F	F	M	M	M	F	30 F	M
Education	Senior High School	Senior High School	Vocational	Senior High School	Bachelor	Elementary School	Elementary School	Junior High School	Senior High School
Treatment (month)	2	5	3	4	6	2	3	8	1

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Based on the results of in-depth interviews that have been conducted with the respondents, five themes were obtained which can then be summarized into two themes (can be seen in Figure 1). Internal factors consist of two factors and external factors consist of three-factor.

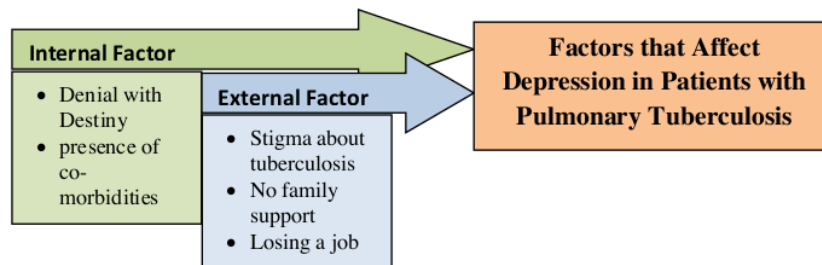


Figure 1. The Main Findings

The factors that cause depression in tuberculosis patients have two themes, namely internal and external factors. For the theme of internal factors, there are three categories, namely feelings of disappointment in the creator for suffering from tuberculosis, misperceptions about tuberculosis and the presence of comorbidities. While on the theme of external factors, there are three categories, namely feeling shunned by family, having no family support, and losing their job. The explanation of each category is as follows:

a. Theme 1. Denial with Destiny (Feeling disappointed to God)

One of the factors that can cause depression in tuberculosis patients is denial or not accepting that he is suffering from tuberculosis. The patient feels disappointed to God for his illness. This can be seen from what was conveyed by the participants.

"Yes, why am I having this disease, why is it (slow voice)... I often in prayer, why is it that I am sick like this, I have a disease like this, while my descendants don't have this kind of disease, maybe I'm afraid of destiny in my life to have a disease like this" (Participant 7)

"I took three medicines once, where the medicine was very large... Oh my God, what kind of punishment did that come from.. lately, I've been through it.. yes, in the end, every day I wear the mask, I don't dare to go out of the house, do I) (Participant 3)

b. Theme 2. Stigma about Tuberculosis

Another risk factor that causes depression in tuberculosis patients is a misperception about tuberculosis so which adds to the burden on the patient's mind. As stated by the participant from the family or the environment said that he should not be close to his family, TB patients should stay away from their family. Especially when they have to stay away, especially from their children, so that they become participants in psychological stressors that can cause depression. This is as stated by the following participants:

*"In the beginning, **I was confused, I couldn't be near my child... I couldn't be near my family, so I slept separately** (while holding her baby's feet) and **didn't want to be separated from her mother**, so it felt like... Oh my God... having a child but you can't be near your child... you can't kiss your child... moreover this is asking for a kiss (while chuckling)... this can't be the case, whatever it is, you often give a kiss as a gift, you can't kiss the child... it feels... (didn't continue the words, eyes looked teary)" (Participant 3)*

*"Yeah.. if it's for the family, you have to be careful, **so don't be too close to your wife** so that it doesn't spread like that, right" (Participant 4)*

c. Theme 3. Presence²⁹ of co-morbidities

Another thing that is a risk factor for depression in tuberculosis patients is the presence of comorbidities other than tuberculosis so which adds to the burden on the patient's mind. Participants said that since they were exposed to tuberculosis, they are more susceptible to other diseases, even though it was not so before, thus making their hearts more depressed (broken). This is as stated by the following participant:

*"**I keep complaining all the time when my body is tired** (while remembering) oh, the last one is different, sis, suddenly I feel tired here (pointing to the back) **that's what the diagnosis is instead of changing**" (Participant 3)*

*"**Yes, instead, I changed it. Then, after that it dropped again...** it dropped in the urinary tract.. keep checking... check back and forth again, finally it was said to be cervical cancer. Wow, it was crushed.. **Oh Allah, Ya Robbi.. what do you want, the disease that TB has not finished yet there is another disease..** this one has no cure, I thought.. it was really crushed at that time (Participant 5)*

d. Theme 4. No Family Support

The absence of family support can be a stressor that causes the patient to become depressed. A participant was left by her husband to return to his parents' house when he was sick, this indicates that family support is poor, as follows:

".. Now he doesn't live here now... he used to live at his parents' house while I was sick. As long as I was sick... he said he didn't want to be a bother. In the end when he was here he never did anything.. I mean if I want to eat, so I can't... finally he goes to his parents first... but when the evening comes back here after maghrib or Isha, then, at 10 pm or 11 pm he comes home again... but at least, it just once a week or 2 weeks hehe (laughing small)....." (Participant 2)

e. Theme 5. Losing a Job

Another factor that becomes a stressor for tuberculosis sufferers so that it can be a risk factor for losing a job. This is as stated by the following participants:

"Well, yes.. there is.. I can't work, I can't do anything.. I'm just sleeping like this (answered with a slightly raised tone)" (Participant 1)

DISCUSSIONS

In this study, the factors that cause depression among tuberculosis patients come from internal and external factors. The researcher divides the factor into themes, and there are five themes shown. The first theme was a denial of destiny, the second theme was the stigma about tuberculosis, the third theme was the presence of comorbidities, the fourth theme was no family support, and the last theme was losing a job.

The incidence of depression in tuberculosis patients is something that can worsen the disease because it causes patients to drop out of drugs to play a role in mortality. Risk factors for depression in infectious diseases such as tuberculosis can be viewed from two things, namely biological aspects and social aspects. On the biological aspect, previous studies have shown that patients with chronic inflammatory diseases and depression have reduced circulating levels of tryptophan (TRP) and increased levels of metabolites of the enzyme Indolamin 2,3-dioxygenase (IDO) such as kynurenine. IDO is a rate-limiting enzyme in the TRP to kynurenine pathway that converts TRP, a serotonin precursor, to kynurenine, resulting in reduced serotonin synthesis. Pro-inflammatory cytokines such as IFN- γ and TNF- α can regulate IDO expression and activate the kynurenine pathway that reduces central serotonin levels. A decrease in serotonin synthesis may explain the development of depressive symptoms (Chandra et al., 2019).

Social factors that cause depression in tuberculosis are stigma, lack of support from family, shunned by family, job loss, and denial of God's destiny. The existence of stigma in TB patients can increase the incidence of depression in patients. This is as revealed in a study in Southern Ethiopia which states that patients who experience TB stigma are about 11 times more likely to experience

depression than their counterparts (Duko et al., 2015). Previous studies have shown that perceived stigma is strongly associated with depression. The prevalence of stigma felt by patients with pulmonary tuberculosis reached 57.1%. Stigma is also explained to be closely related to feelings of stress and tends to trigger depression (Mohammed Hussein et al., 2020). People with chronic illness and feeling stigmatized may have a low self-image and social isolation which can predispose them to depression (Perlick et al., 2001).

Another social factor that causes depression in tuberculosis patients is the absence of family support. Participants who get bad behavior from their families feel more heavy burden in undergoing treatment. The impact of the lack of support from the family causes participants to feel uncared for by their families when they are sick, causing participants to feel heavy in undergoing the disease and its treatment. This is in line with research in Southern Ethiopia which states that poor social support is significantly associated with depression (Duko et al., 2015). Lack of (poor) social support and somatic illness can lead to increased psychological distress. On the other hand, good social support is very important for those who have good health in depression prevention (Bøen et al., 2010). The existence of positive social support from the surrounding environment such as family, colleagues and the community tends to make patients have a better quality of life (Zarova et al., 2018).

Tuberculosis patients who do not get family support also suffer from changes in family behavior towards them. One of these behavioral changes is the attitude of the family away from the patient. As described above, patients with poor social support are at risk of feeling alienated and isolated from the environment which is manifested by the family's refusal to share equipment and food with the patient (Tadesse, 2016). This was also able to trigger the incidence of depression in tuberculosis patients. This avoidance and avoidance behavior is a form of social discrimination given to people with tuberculosis. In line with the study conducted by Datiko *et al*, severe discrimination with shunned manifestations is explained that tuberculosis sufferers in Ethiopia are often experienced not only in the home environment but in all activities at work and in society. This may be due to the fact that they suffer from diseases that can be easily transmitted through droplets in the air (Datiko et al., 2020).

The condition of tuberculosis suffered also has an impact on the patient's daily ability which makes the patient unproductive. This causes tuberculosis patients to experience social factors in terms of triggering depression, namely losing their jobs. Tuberculosis causes patients to only lie down so that they cannot work like individuals in general. This is supported by the results from previous literature showing that in Eastern Ethiopia the case and control group in a study of patients with multi-drug resistance tuberculosis (MDR-TB) had quit their jobs due to physical exhaustion (Roba et al., 2018). The function of social roles is disrupted and causes them to experience severe financial challenges. Patients with low income and finances have an increased risk of anxiety symptoms (Wang et al., 2018). This disorder will psychologically make the patient depressed so that it

ultimately affects the quality of life for a long time (Kastien-Hilka et al., 2017). The quality of life becomes poor, mainly due to depression and other psychological stresses that can interfere with the immune system response of tuberculosis sufferers, impacting anti-TB medication adherence and in the worst case leading to death (Duko et al., 2015)

Another social factor that plays a role in causing depression in tuberculosis patients is the patient's own denial attitude towards the fate of the disease experienced. Generally, patients cannot accept reality and feel disappointed with God's destiny because of the disease conditions that occur in them. A previous study in Ghana reported that denial behavior was manifested by emotions of hopelessness and worry about symptoms and long duration of treatment (22). Tuberculosis sufferers often feel stressed and pressured just to come to treatment facilities. Through the study of Febi et al in India, it was reported that about 24% of patients experienced symptoms of anxiety at the beginning of their diagnosis of tuberculosis, accounting for 20.9% of patient subjects experiencing depression. The existence of anxiety and occurrences is said to be common among people with tuberculosis and has a very negative impact on the quality of life of patients (Febi et al., 2021).

CONCLUSIONS

The study found five categories that cause depression in tuberculosis patients. The existence of feelings of disappointment and rejection of God, because they were diagnosed with tuberculosis and patients who have comorbidities, are the trigger factors for depression. In addition, the absence of family support, the attitude of being shunned by the family and losing a job were significantly related as causes of depression in patients with pulmonary tuberculosis. Interventions such as community education followed by counselling need to be developed to help reduce stigma and discrimination and reduce psychological stress on patients.

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REFERENCES

- Ambaw, F., Mayston, R., Hanlon, C., & Alem, A. (2015). Depression among patients with tuberculosis: Determinants, course and impact on pathways to care and treatment outcomes in a primary care setting in southern Ethiopia - A study protocol. *BMJ Open*, 5(7). <https://doi.org/10.1136/BMJOPEN-2015-007653>

- Ambaw, F., Mayston, R., Hanlon, C., Medhin, G., & Alem, A. (2018). Untreated depression and tuberculosis treatment outcomes, quality of life and disability, Ethiopia. *Bulletin of the World Health Organization*, 96(4), 243–255. <https://doi.org/10.2471/BLT.17.192658>
- Bøen, H., Dalgard, O. S., Johansen, R., & Nord, E. (2010). Socio-demographic, psychosocial and health characteristics of Norwegian senior centre users: A cross-sectional study. *Scandinavian Journal of Public Health*, 38(5), 508–517. <https://doi.org/10.1177/1403494810370230>
- Chandra, M., Rana, P., Chandra, K., & Arora, V. K. (2019). Tuberculosis - Depression syndemic: A public health challenge. *Indian Journal of Tuberculosis*, 66(1), 197–202. <https://doi.org/10.1016/j.ijtb.2019.02.007>
- Datiko, D. G., Jerene, D., & Suarez, P. (2020). Stigma matters in ending tuberculosis: Nationwide survey of stigma in Ethiopia. In *BMC Public Health* (Vol. 20, Issue 1). BioMed Central Ltd. <https://doi.org/10.1186/s12889-019-7915-6>
- Duko, B., Bedaso, A., & Ayano, G. (2020). The prevalence of depression among patients with tuberculosis: A systematic review and meta-analysis. *Annals of General Psychiatry*, 19(1), 1–11. <https://doi.org/10.1186/s12991-020-00281-8>
- Duko, B., Gebeyehu, A., & Ayano, G. (2015). Prevalence and correlates of depression and anxiety among patients with tuberculosis at Wolaita Sodo University Hospital and Sodo Health Center, Wolaita Sodo, South Ethiopia, Cross sectional study. *BMC Psychiatry*, 15(1), 1–7. <https://doi.org/10.1186/s12888-015-0598-3>
- Febi, A. R., Manu, M. K., Mohapatra, A. K., Praharaj, S. K., & Guddattu, V. (2021). Psychological stress and health-related quality of life among tuberculosis patients: A prospective cohort study. *ERJ Open Research*, 7(3). <https://doi.org/10.1183/23120541.00251-2021>
- Gyimah, F. T., & Dako-Gyeke, P. (2019). Perspectives on TB patients' care and support: A qualitative study conducted in Accra Metropolis, Ghana. *Globalization and Health*, 15(1). <https://doi.org/10.1186/s12992-019-0459-9>
- Kastien-Hilka, T., Rosenkranz, B., Sinanovic, E., Bennett, B., & Schwenkglenks, M. (2017). Health-related quality of life in South African patients with pulmonary tuberculosis. *PLoS ONE*, 12(4). <https://doi.org/10.1371/journal.pone.0174605>
- Mohammedhussein, M., Hajure, M., Shifa, J. E., & Hassen, T. A. (2020). Perceived stigma among patient with pulmonary tuberculosis at public health facilities in southwest Ethiopia: A cross-sectional study. *PLoS ONE*, 15(12 December). <https://doi.org/10.1371/journal.pone.0243433>
- Perlick, D. A., Rosenheck, R. A., Clarkin, J. F., Sirey, J. A., Salahi, J., Struening, E. L., & Link, B. G. (2001). Stigma as a barrier to recovery: Adverse effects of perceived stigma on social adaptation of persons diagnosed with bipolar affective disorder. *Psychiatric Services*, 52(12), 1627–1632.
- Roba, A. A., Dasa, T. T., Weldegebreal, F., Asfaw, A., Mitiku, H., Teklemariam, Z., Naganuri, M., Geddegol, B. J., Mesfin, F., Befikadu, H., & Tesfaye, E. (2018). Tuberculosis patients are physically challenged and socially isolated: A mixed methods case-control study of Health Related Quality of Life in Eastern Ethiopia. *PLoS ONE*, 13(10). <https://doi.org/10.1371/journal.pone.0204697>

- Ruiz-Grosso, P., Cachay, R., De La Flor, A., Schwalb, A., & Ugarte-Gil, C. (2020). Association between tuberculosis and depression on negative outcomes of tuberculosis treatment: A systematic review and meta-analysis. *PLoS ONE*, 15(1). <https://doi.org/10.1371/JOURNAL.PONE.0227472>
- Tadesse, S. (2016). Stigma against tuberculosis patients in Addis Ababa, Ethiopia. *PLoS ONE*, 11(4). <https://doi.org/10.1371/journal.pone.0152900>
- Ugarte-Gil, C., Ruiz, P., Zamudio, C., Canaza, L., Otero, L., Kruger, H., & Seas, C. (2013). Association of Major Depressive Episode with Negative Outcomes of Tuberculosis Treatment. *PLoS ONE*, 8(7). <https://doi.org/10.1371/JOURNAL.PONE.0069514>
- Wang, X. B., Li, X. L., Zhang, Q., Zhang, J., Chen, H. Y., Xu, W. Y., Fu, Y. H., Wang, Q. Y., Kang, J., & Hou, G. (2018). A survey of anxiety and depressive symptoms in pulmonary tuberculosis patients with and without tracheobronchial tuberculosis. *Frontiers in Psychiatry*, 9(JUL). <https://doi.org/10.3389/fpsy.2018.00308>
- WHO. (2021). *Tuberculosis Country Profile 2021 Indonesia*.
- Widyawati. (2022). Tahun ini, Kemenkes Rencanakan Skrining TBC Besar-besaran. *Kementrian Kesehatan RI*.
- World Health Organization. (2020). Global Tuberculosis Report 2020: Executive Summary. In *World Health Organization* (Vol. 59).
- World Health Organization. (2021). Global Tuberculosis Report 2021. In *World Health Organization* (Vol. 59).
- Yan, S., Zhang, S., Tong, Y., Yin, X., Lu, Z., & Gong, Y. (2018). Nonadherence to Antituberculosis Medications: The Impact of stigma and depressive symptoms. *American Journal of Tropical Medicine and Hygiene*, 98(1), 262–265. <https://doi.org/10.4269/AJTMH.17-0383>
- Zarova, C., Chiwaridzo, M., Tadyanemhandu, C., Machando, D., & Dambi, J. M. (2018). The impact of social support on the health-related quality of life of adult patients with tuberculosis in Harare, Zimbabwe: A cross-sectional survey 11 Medical and Health Sciences 1117 Public Health and Health Services. *BMC Research Notes*, 11(1). <https://doi.org/10.1186/s13104-018-3904-6>

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