

# Depression among Patients with Pulmonary Tuberculosis at the State Hospital of Makassar

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## Abstract

**Background:** Comorbidity of tuberculosis (TB) and depression is common. It is associated with the decrease in function, increasing rate of medical cost, nonadherence to long-term medication and self-care, and upward trend of mortality. This study aims to determine the prevalence and distribution of depression in pulmonary TB patients by age, sex, and marital status. **Methods:** This study is a descriptive research conducted at the Pulmonary Clinic of the State Hospital of Makassar (RSUD Kota Makassar). Ninety-two of 820 patients were selected using the Slovin sample size formula. The patients of the study were collected from the population of patients with TB using consecutive sampling through an interview. The depression rate was examined using the Beck Depression Inventory-II (BDI-II) questionnaire. Interpretation of the BDI-II was determined by a score of  $\leq 16$  indicating no depression and  $> 16$  for depression. **Results:** The study indicates that the percentage of patients with depression constituted 31.5%. The number of female patients with depression was higher than that in males with 38.2% and 27.6%, respectively. The biggest proportion of patients with depression was in senior patients ( $> 45$  years old) with 37.5%. The fraction of unmarried/divorced respondents was bigger than coupled respondents, with a percentage of 43.5 and 27.5, respectively. **Conclusion:** The prevalence of depression in pulmonary TB patients who visited the Pulmonary Clinic of the State Hospital of Makassar reached over one-third of the total patients. Depression was more prevalent among female patients, patients within the age of  $> 45$  years, and unmarried/divorced patients, respectively.

**Keywords:** Comorbid, depression, pulmonary tuberculosis

## INTRODUCTION

Comorbid depression causes negative impacts on the progress of chronic physical illness such as decreased function, an increase in medical expenses, long-term adherence to treatment, and self-care as well as the increase of mortality rate.<sup>[1]</sup> One of the chronic physical illnesses associated with depression is tuberculosis (TB). It is estimated that one-third of the world population suffer from TB with symptoms of productive cough within 2 weeks or more, which requires a long period of time in treatment, ranging from 6 to 12 months or more. This phenomenon promotes the vulnerability of TB patients to have depression.<sup>[2]</sup>

Comorbid between TB and depression often occurs with a prevalence of comorbid depression and chronic physical conditions within 25% and 33%, respectively. The risk increases along with the severity of the disease, and it challenges doctors to provide proper management. A study on the prevalence of depression in patients with TB and non-TB

was carried out in a hospital in Nigeria. The result showed that the prevalence of depression was more frequent in patients with TB than non-TB by 45.5% and 13.4%, respectively. TB impacts not only the physical disorder but also mood disorders as well as behavior, which was known as depression.<sup>[3]</sup>

A high prevalence of TB in Indonesia, with 16% of the population, makes it the second most severe burden of TB disease in the world.<sup>[2]</sup> This promotes issues such as long and complex therapy, complications of the disease as well as many other concerns which lead to the potential emergence of depression. Depression in patients with pulmonary TB possibly complicates the treatment including the period of treatment in which most of the patients with depression do not complete the therapy in 6 months. This study

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aims to determine the prevalence and distribution of depression in patients with pulmonary TB by age, gender, and marital status at the State Hospital of Makassar.

## METHODOLOGY

It is a descriptive research conducted at the Pulmonary Clinic of the State Hospital of Makassar (RSUD Kota Makassar) in September–November 2017. The sample was taken from patients with pulmonary TB by consecutive sampling. The inclusion criteria were those aged 18 years and above, undergoing treatment, and willing to participate in the interview. Samples were pulmonary TB patients without multidisease influencing the emergence of depression such as diabetes mellitus, tumors, cardiovascular disease, arthritis, kidney disease, HIV/AIDS, lupus, multiple sclerosis, and other chronic diseases. Ethical approval was obtained from the Health Research Ethical Committee of the Medical Faculty of Hasanuddin University, Makassar, Indonesia.

The primary data were taken by interviewing patients using questionnaires to assess depression using the Beck Depression Inventory-II (BDI-II) after informed voluntary and signed consent. BDI-II is a simple, concise, and clear measuring tool, consisting of 21 questions in which each question has a score of 0–3. After respondents completed answering the questionnaire, scores for all questions were calculated to obtain the final score. BDI-II questionnaire in the Indonesian language used in this research was translated by Hendy Ginting, 2012.<sup>[4]</sup> The interpretation for the final score of the BDI-II used in this study was a score of  $\leq 16$  for no depression and a score of  $> 16$  for depression.

Ninety-two of 820 patients were selected using the Slovin sample size formula. All samples were patients with new case category.

## RESULTS

The result showed that the proportion of male respondents was higher than females with 63% and 37%, respectively. 48.9%

of the respondents were within the age of 26–45 years. 75% respondents were being married/divorced. According to the results of BDI-II, 31.5% of the patients experienced depression.

This study shows the distribution of depression status by gender, age, and marital status. No difference was found when comparing those characteristics and depression status. The proportion of female patients with depression was higher than males with 38.2% and 27.6%, respectively. In terms of age, the highest percentage was made up by the old patients ( $> 45$  years old) with 37.5%, followed by the adult category (26–45 years old) with 33.3% and the category of adolescents (18–25 years) with 13.3%. In the category of marital status, the number of unmarried/divorced patients constituted a bigger proportion than that in the married group with 43.5% and 27.5%, respectively [Table 1].

## DISCUSSION

This study revealed that 31.5% of the patients with pulmonary TB were depressed. This percentage is lower than the result of a study conducted in Nigeria made up 45.5%.<sup>[3]</sup> The pathways for association between TB and depression are complex and multidirectional. Biological and psychosocial pathways are responsible in this regard. However, the most contributing pathways for the comorbidity are still unclear. For example, some researchers have suggested that patients with TB may experience depression as a result of chronic infection or associated psychosocial economic stressors or due to treatment effects such as isoniazid. In addition, there are other alternative pathways that state that patients may have TB due to decreased body immunity and self-care associated with depression.<sup>[1]</sup>

This study also shows that female patients are more likely to suffer from depression than males. Women are more prone to have depression in case they are more sensitive to interpersonal relationships, whereas men are sensitive to the career and goal oriented. Women are also more vulnerable to show various forms of depression related to illnesses such as premenstrual disorder, postnatal depression, and postmenopausal as it deals with ovarian hormones.<sup>[5]</sup>

**Table 1: Status of patients with tuberculosis according to demographic characteristics at the Pulmonary Clinic of the State Hospital of Makassar**

Variables	Depression, <i>n</i> (%)	No depression, <i>n</i> (%)	Total, <i>n</i> (%)	<i>P</i> *
Gender				
Man	16 (27.6)	42 (72.4)	58 (63.0)	0.716
Woman	13 (38.2)	21 (61.8)	34 (37.0)	
Age (years)				
Adolescents (18-25)	2 (13.3)	13 (86.7)	15 (16.3)	0.216
Adults (26-45)	15 (33.3)	30 (66.7)	45 (48.9)	
Old ( $> 45$ )	12 (37.5)	20 (62.5)	32 (34.8)	
Marital status				
Married	19 (27.5)	50 (72.5)	69 (75.0)	0.244
Not married/divorced	10 (43.5)	13 (56.5)	23 (25.0)	
Total	29 (31.5)	63 (68.5)	92 (100)	

\*Chi-square test

The study from Nigeria showed that depression in TB patients was associated with older age.<sup>[3]</sup> This is in line with this research finding in which older patients with pulmonary TB made up the highest percentage to have depression, followed by adult and adolescent categories. This may happen because patients with older age groups have a greater sense of responsibility than those at younger age categories such as family and job responsibility.<sup>[6]</sup> In terms of marital status, the results revealed that the proportion of unmarried/divorced patients with pulmonary TB was bigger than the counterpart.

### Limitations

One of the limitations of the study is the design, in which descriptive research is not able to have in-depth analysis of the factors that influence depression in patients with pulmonary TB. In addition, the causes of depression between the categories of patients and the length of treatment are not included in the variables investigated. This results in the limited access of information.

### CONCLUSION AND RECOMMENDATION

In conclusion, the prevalence of depression in patients with pulmonary TB was 31.5%. Depression is more common in female patients within the age of >45 years old and unmarried/divorced. Early detection of depression status of patients with pulmonary TB is important in order to do a more comprehensive treatment for the successful administration of the treatment of pulmonary TB by involving psychologists and psychiatrists and can be utilized for the National TB Elimination Program. In addition, it is suggested to conduct further research on the status of depression in pulmonary TB

patients with longitudinal design and incorporate the variable causes of depression, categories of patients and length of treatment to investigate the factors influencing status of depression in patients with pulmonary TB.

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### Conflicts of interest

There are no conflicts of interest.

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