

# Total Score Differences of Hospital Anxiety and Depression Scale – Depression (HADS-D) in Patients with Multidrug-Resistant Tuberculosis (MDR-TB) Based on Gender at H. Adam Malik General Hospital Medan

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## Abstract

*Tuberculosis (TB) is a contagious and airborne disease. Over the decades, psychiatric morbidity in patients with MDR-TB has become increasingly recognized. Resistant tuberculosis is currently a serious health problem worldwide. This chronic disease takes a long time and causes various side effects, often causing symptoms of depression and anxiety in patients with Multidrug-resistant tuberculosis (MDR-TB) and pulmonary tuberculosis (TB). However, there are still relatively few who focus on psychiatric disorders in patients with MDR-TB. To find out the total score differences of Hospital Anxiety and Depression Scale - Depression (HADS-D) in patients with Multidrug-Resistant Tuberculosis (MDR-TB) based on gender. This study is an Unpaired Two Group Numerical Comparative Analytical study with a cross-sectional approach, namely by describing and analyzing a situation at a certain time using the Hospital Anxiety and Depression Scale - Depression (HADS-D) instrument. The results of the analysis with the Pearson test obtained a p-value <0.001 (p <0.05). There is a difference in the total score of Hospital Anxiety and Depression Scale - Depression (HADS-D) in patients with Multidrug-resistant tuberculosis (MDR-TB) based on gender at the H. Adam Malik General Hospital Medan.*

## Keywords

HADS-D, MDR-TB, gender



## I. Introduction

Depression has become a very important problem in modern society. Resistant tuberculosis is currently a serious health problem worldwide. This chronic disease takes a long time and causes various side effects, often causing symptoms of depression and anxiety in patients with Multidrug-resistant tuberculosis (MDR-TB). Depression is a mental disorder that often occurs which is characterized by a depressed mood, loss of interest in something, reduced energy, feelings of guilt or inferiority, sleep or eating disorders, and poor concentration. In low to middle-income countries, the prevalence of depression is high and tends to increase. A large prospective study from Korea recently found that depression is inherently associated with a higher risk of incidence of tuberculosis. Meanwhile, inflammation in tuberculosis increases the risk of depression.<sup>1,2</sup>

In the 2016 Javaid and colleagues' study in Pakistan to determine the factors that influence the level of depression in Multidrug-resistant tuberculosis (MDR-TB) patients, it was found that women had higher depression symptoms than men.<sup>3</sup> A study conducted by

Walker and colleagues in 2018 in India on patients who were undergoing multidrug-resistant tuberculosis (MDR-TB) in the results showed that there were differences in depression score scores using the measurement scale Patient Health Questionnaire- 9 (PHQ-9) between male and female.<sup>4</sup> Based on the literature review, through this study, the researcher wanted to find out whether there was a difference in the total score of Hospital Anxiety and Depression Scale-Depression (HADS-D) in patients with Multidrug-resistant tuberculosis (MDR-TB) based on gender at the H. Adam Malik General Hospital Medan.

## II. Research Methods

This study was conducted at the outpatient MDR-TB polyclinic of the H. Adam Malik General Hospital Medan between March 2019 - August 2019. Sampling was carried out by consecutive sampling type non-probability sampling. This study has succeeded in obtaining 32 male subjects with MDR-TB and 32 female subjects with MDR-TB.<sup>5,6</sup>

## III. Results and Discussion

### 3.1 Results

Characteristics of 64 subjects were divided into 2 groups, namely male 32 subjects with MDR-TB and 32 female subjects with MDR-TB group. The instrument used is the Hospital Anxiety and Depression Scale-Depression (HADS-D) which is in the following table.

**Table 1.** Distribution of Demographic Characteristics of Research Subjects of Patients with MDR-TB Based on Gender

<b>Demographic Characteristics</b>	<b>Patients with MDR-TB Male n = 32</b>	<b>Patients with MDR-TB Female n = 32</b>	<b>p</b>
<b>Age (years)</b> (Mean ± s.d.)	33,41(5,16)	31,09(5,78)	0,096 <sup>b</sup>
<b>Education Level</b>			
· Junior High School	7 (21,9%)	9 (28,1%)	0,584 <sup>a</sup>
· Senior High School	19 (59,4%)	16 (50,0%)	
· Diploma/University	6 (18,8%)	7 (21,9%)	
<b>Marital Status</b>			
Married	22 (68,8%)	21 (65,6%)	1,000 <sup>a</sup>
Unmarried	10 (31,3%)	11 (34,4%)	
<b>Treatment duration (months)</b> (Mean ± s.d.)	5,84(1,74)	5,84(1,74)	1,000 <sup>b</sup>
<b>Occupational status</b>			
Employed	25 (78,1%)	16 (50,0%)	0,037 <sup>a</sup>
Unemployed	7(21,9%)	16 (50,0%)	
<b>PHQ-9 score</b> (Mean ± s.b.)	10.31 (3,6)	14,84 (5,2)	0,001 <sup>b</sup>

<sup>a</sup> Chi-Square test

<sup>b</sup> Unpaired t-test

Table 1. Shows the demographic characteristics of each group. For the mean age in the subject group of patients with the MDR-TB male was 33.41 and the standard deviation was 5.16, while for the mean age in the subject group of patients with MDR-TB for women was 31.09 and the standard deviation was 5.78. For the level of education in the group of patients with the MDR-TB male, the subjects of the Junior High School education level were 7 (21.9%) and the Senior High School education levels were 19 (59.4%) and the Diploma/University education levels were as many as 19.6 (18.8%). While the educational status of the group of patients with MDR-TB for women for each subject, the education level was 9 (28.1%) and the education level of Senior High School was 16 (50.0%) and the education level of Diploma/University as much as 7 (21.8%). In the marital status group of men with MDR-TB, the married status was 22 patients (68.8%) and 10 patients unmarried (31.3%) and the marital status of the women with MDR-TB married status was 21 patients (65, 6%) and unmarried 11 patients (34.4%). The average length of treatment in the subjects group of patients with MDR-TB for men was 5.84 and the standard deviation was 1.74, while for the mean length of treatment in the subjects group of patients with MDR-TB in women was 5.84 and the standard deviation was 1.74. In the occupational status group of men with MDR-TB, the working status was 25 patients (78.1%) and 7 patients did not work (21.9%) and the occupational status in the group of women with MDR-TB, the working status was 16 patients (50, 0%) and 16 patients do not work (50.0%). For the mean PHQ-9 score in the subject group for the mean PHQ-9 score in the female subject group of patients with MDR-TB was 14.84 and the standard deviation was 5.2.

**Table 2.** HADS-D Score of male patients with MDR-TB

Annotations	n	Median (minimum-maximum)
Total male MDR-TB HADS-D score	32	10.50 (8-21)

Table 2 shows the HADS-D scores for the male group of patients with MDR-TB with the median value of 10.50 and the minimum and maximum scores (8-21).

**Table 3.** HADS-D Score of female patients with MDR-TB

Annotations	n	Median (minimum-maximum)
Total female MDR-TB HADS-D score	32	15.00 (8-21)

Table 3 shows the HADS-D scores for the group of women with MDR-TB with the median value of 15.00 and the minimum and maximum scores (8-21).

**Table 4.** Differences in HADS-D Scores of Patients with MDR-TB in Men and Women

Differences in HADS-D scores of patients with MDR-TB in men and women	n	Median (minimum-maximum)	P
Total male MDR-TB HADS-D score	32	10.50 (8-21)	$P < 0.001^*$
Total female MDR-TB HADS-D score	32	15.00 (8-21)	

\*Mann-Withney U Test

Table 4 shows that there are differences in HADS-D scores based on gender in patients with MDR-TB with a value ( $p < 0.001$ )

### 3.2 Discussion

This study is an unpaired numerical comparative analytical study of two groups with a cross-sectional approach using an anxiety scale assessment (screening) instrument, namely the Hospital Anxiety and Depression Scale - Depression (HADS-D) where a research subject is a person with MDR-TB who is being treated walk at the MDR-TB Polyclinic H. Adam Malik Central General Hospital Medan. For statistical analysis, IBM SPSS Statistics version 22 was used with unpaired T-test data analysis if the data were normally distributed and the Mann-Whitney U test if the data were not normally distributed after log transformation had been previously failed. For the data normality test, the Saphiro-Wilk normality test was used because the required sample size was  $\leq 50$  subjects, namely 32 subjects per group.

Table 1 shows the demographic characteristics of each group. The mean based on the age group of patients with MDR-TB was male 33.41 with a standard deviation of 5.16 and 31.09 with a standard deviation of 5.78 for women with MDR-TB. Besides, there was no significant difference between the ages of the two groups with values ( $p = 0.096$ ). This is by the study by Mehren and colleagues in 2015 in Pakistan which saw the frequency of depression in MDR-TB patients using the Hamilton Depression Rating Scale (HAM-D) from 213 MDR-TB patients found 141 (66.2%). suffering from depression with an age of  $\geq 30$  years.<sup>4</sup>

In table 1, it is found that the most educational status is the group of patients with MDR-TB is Senior High School, each in the male group as many as 19 subjects (59.4%) in the female group as many as 21 subjects (65.6%). There was no significant difference in the level of education in the two groups ( $p = 1,000$ ). In a study by Oladimeji and colleagues in 2015 in Nigeria which looked at the psychosocial well-being of MDR-TB sufferers who were in the hospital. In this study, out of 98 subjects with MDR-TB, 39 subjects (43.3%) were found in Junior High School education.<sup>7</sup>

In table 1, it is found that the duration of treatment in the group of patients with MDR-TB was male and female with a mean of 5.84 with a standard deviation of 1.74. There was no significant difference in the length of treatment in the two groups ( $p = 1,000$ ). This is following a study by Javaid and colleagues in 2017 in Pakistan which looked at depression in MDR-TB sufferers using the Hamilton Depression Rating Scale (HAM-D) measurement tool. In the study, it was often found that the duration of illness  $> 1$  year was higher than that of  $\geq 1$  year with  $OR = 0.122$ .<sup>3</sup>

In table 1, it is found that in the largest number of marital statuses in each group, 22 men are married to MDR-TB patients (68.8%) and 21 (65.6%) men are married to MDR-TB patients. There was no significant difference in age between the two groups with values ( $p = 0.584$ ). This is following the study of Mehren and colleagues in 2015 in Pakistan which looked at the frequency of depression in MDR-TB patients using the Hamilton Depression Rating Scale (HAM-D). In this study, out of 213 MDR-TB patients, 123 (57.7%) often suffered from depression in married patients.<sup>4</sup>

In table 1 it is found that in the most occupational status in each group, the male patients with MDR-TB were 25 (78.1%) and the female group with MDR-TB was 16 (50.0%). There were significant differences between the two groups with values ( $p = 0.037$ ). This is following the study of Vega and colleagues in 2004 in Peru which examined psychiatric disorders in the treatment of MDR-TB. This study examined 75 patients with MDR-TB and found 30 subjects (40.0%) who had jobs.<sup>8</sup>

The results of this study are following a study conducted by Javaid and colleagues in 2016 in Pakistan to determine the factors that influence the level of depression in Multidrug-resistant tuberculosis (MDR-TB) patients in which women have higher

depressive symptoms than men with OR = 0.334 with ( $p = 0.003$ ).<sup>3</sup> This study found that men had a median value of 10.50 and a minimum-maximum value (8-21) and in women a median value of 15.00 and a minimum-maximum value (8-21) with  $p$ -value  $<0.001$ . This research equation is the same comparing gender.<sup>3</sup>

The results of this study are following a study conducted by Walker and colleagues in 2018 in India which found that there were differences in depression score scores using a measurement scale (PHQ-9) between men and women. It was found that the proportion of women with symptoms of depression was higher than that of men. This study following the terms of co-monitors patients with MDR-TB patients.<sup>4</sup>

In this study, there were no subjects who dropped out where the number of samples was sufficient for the study. The results of community studies in adults suggest that women have a higher rate of experiencing nearly all depressive disorders. Women have an approximately two-fold lifetime increase in rates of panic disorder, generalized anxiety disorder, agoraphobia, and simple phobia than men. In a 2015 study by Albert and colleagues, explaining that gender is a significant susceptibility to depressive symptoms, for example, there is evidence to suggest that as a result of biological factors women have a higher biological susceptibility to depression than men. Periods of hormonal changes in women during puberty, postpartum, and perimenopause are associated with an increase in major depressive disorder.<sup>9</sup>

#### IV. Conclusion

Of the 64 subjects with Multidrug-resistant tuberculosis (MDR-TB) based on sex at the General Hospital of the Adam Malik Haj Center, which were divided into two groups, 32 subjects were male with MDR-TB patients and 32 female subjects with MDR-TB patients. at the outpatient polyclinic installation of the General Hospital of the Adam Malik Hajj Center in Medan in March 2019 - September 2019. Based on the results of the study, there were significant differences in HADS-D scores in the male subjects with MDR-TB and women with MDR-TB with  $p$ -value  $<0.001$ . The strength of this study is that it is the first study to conduct an initial screening using the Patient Health Questionnaire-9 (PHQ-9) measurement scale and the Hospital Anxiety and Depression Scale - Depression (HADS-D) measurement scale to assess depression scores. The limitation of this study is that this study was only conducted at one study site and was not a multi-center study.

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