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ORIGINAL ARTICLE

Prevalence and Determinants of Depression Among Multi Drug Resistant (MDR) TB Cases

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ABSTRACT

Aim: We aimed this study to find the prevalence of depression among multi drug resistant (MDR) TB patients and its related determinants.

Material and methods: An observational cross-sectional study was conducted at Jinnah Postgraduate Medical Center Karachi hospital, we enrolled 107 MDR-TB patients using non-probability consecutive sampling. Patients were evaluated for depression using Patient Health Questionnaire-9 (PHQ-9). Prevalence of depression along with its determinant were assessed. We used Chi Square test for association between depression and its determinants keeping P value < 0.05 was taken as statistically significant.

Results: Patients' mean age was 32.10±6.19, male patients were higher in number as compared to female patients. In our study we found that depression was present in 52 (48.6%) patients. Depression had significant association with financial issues, family problems, treatment duration and increasing age.

Practical implication:

Current study assess the determinants of depression in TB patients and spreads public awareness in community about Multidrug resistance in TB and ways to avoid TB in local population.

Conclusion: From our study we conclude that 52 (48.6%) patients had depression in MDR-TB patients which is an alarming situation. Financial issues, family problems, treatment duration and increasing age were found to the determinants of depression in MDR-TB patients.

Keywords: Tuberculosis, Multi Drug Resistance, Depression, Truenat, Xpert, Mental disorders, psychiatric comorbidity

INTRODUCTION

Sadness, lack of interest or pleasure, guilt or low self-worth, interrupted sleep or nutrition, feelings of fatigue, and impeded concentration are all symptoms of depression, a widespread mental condition. It can persist for a long time or come back periodically, making it impossible to function normally and even leading to suicide. The estimated global prevalence of depression is 4.4%, or more than 300 million people. It is estimated that 4.7% of Ethiopia's population, experience depression at any given time [1]. This issue has been widely documented from eastern Ethiopia. One research reported that 14.9% of the adult population in the Harari region of eastern Ethiopia was depressed [2].

Tuberculosis (TB) is a leading cause of death worldwide. India (27%), China (14%), and also the Russia (8%). In 2019, Multidrug resistant-MDR-TB accounted for 3.3% of newly diagnosed cases and 17.7% of recurrent cases of tuberculosis worldwide [3]. Overall, a survey of Gujarat's population found that 5.3% of them had MDR-TB [4].

Major depressive disorder is common among TB patients. Various studies have found a wide range in the rates of depression within TB patients, anywhere from 41.1% in Nigeria [5], and 56% in Pakistan [6]. Multidrug-resistant tuberculosis patients had a higher rate of depression than those with standard pulmonary tuberculosis [7].

Patients with tuberculosis who also suffer from depression are less likely to recover from their condition [8]. The quality of life of those with tuberculosis might be significantly impacted as well[8]. Patients with TB who also suffer from depression are less likely to engage in social activities and are more likely to neglect their social responsibilities, particularly during the coughing phase, which can lead to feelings of worthlessness and despair [9].

There is a strong relationship between the presence of depression and the severity and duration of the disease, and trials have shown that psychiatric comorbidity is common amongst MDR-TB patients [10]. Depression occurs more frequently in individuals who have drug-resistant tuberculosis (DR-TB) [11]. This, in addition to the multiplied drug interactions and lengthier treatment, raises the probability of mental disorder [12]. Patients with DR-TB who also suffer from depression are less likely to take their medication as directed and experience adverse long-term outcomes [13].

Both MDR-TB and depression are serious public health challenges in accomplishment of Global Elimination threshold for TB. In light of this, the current research sought to find the rate of depression and its determinants in adult MDR-TB patients presented to our health setup.

MATERIAL AND METHODS

Study Design: A cross-sectional study was conducted.

Objectives: to determine the prevalence of depression among TB patients and to identify associated risk determinants after obtaining ethical clearance certificate from the hospital.

Place of study: An observational cross-sectional study was conducted at Jinnah Postgraduate Medical Center Karachi hospital, we enrolled 107 MDR-TB patients using non-probability consecutive sampling.

Sampling size: n=107

Population size: A total of 107 TB patients were recruited from OPD, informed written consent was obtained from the patients and the study benefits were communicated to the patients and their care takers.

Development of instruments: The WHO currently recommends Xpert (MTB/RIF or MTB/RIF Ultra) or Truenat (MTB or MTB Plus) as the initial diagnostic test of choice in suspected pulmonary TB

Reliability and validity: Frequencies and percentages were calculated for qualitative variables and mean and SD were calculated for quantitative variables. Association of outcome variables with determinant variables was done through Chi Square. P value < 0.05 was considered statistically significant.

Data collection Procedure and Methods: All the patients were subjected to clinical examination and only those patients were enrolled in the study who were taking anti TB medicine for more than two months. Pregnant females, patients taking medication for psychiatric issues other than depression and patients not willing to participate were excluded. The patients were assessed for

depression using a standardized questionnaire Patient Health Questionnaire-9 (PHQ-9). A score of more than 4 was considered to depressive disorder. Data was collected regarding age, gender, education level, employment status, duration of treatment, as well as information on the patients' TB treatment and their experience of financial issues and family problems related to their TB diagnosis. The sample size was calculated using WHO calculator taking anticipated frequency of depression 16.2%, margin of error 7% and confidence interval 95%. Patients were enrolled using non probability consecutive sampling.

Data Analysis Plan: Data was analyzed using IBM SPSS 20.

RESULTS

Current study was conducted on 107 MDR-TB patients. Mean age was 32.10±6.19 years. In the age group of 31 to 40 years there were 71 (66.4%) patients while 36 (33.6%) were from the age group 20 to 30 years. We observed that male patients were higher in number in comparison to female patients, 74 (69.2%) and 33 (30.8%). The prevalence of depression in our study was 52 (48.6%). Majority of the patients under study were intermediate 32 (29.9%), illiterate patients were 20 (18.7%) and primary education was achieved by 35 (32.7%) patients and bachelors and above education was achieved by 20 (18.7%) patients. Out of 107 patients 26 (24.3%) were employed while 51 (47.7%) were unemployed, students were 11 (10.3%) and housewives were 19 (17.8%). According to financial issues out of 107 patients 38 (35.5%) had financial issues. Family problems were faced by 28 (26.2%) patients.

Table-1: Baseline Characteristics

Baseline characteristics		Frequency (Mean±SD)	Percentage (Mean±SD)
Age groups	20 to 30 years	36±01	33.6±02
	31 to 40 years	71±01	66.4±01
Gender	Male	74±03	69.2±03
	Female	33±01	30.8±01
Financial issues		38±01	35.5±02
Family problems		28±02	26.2±01
Treatment duration	< 4 months	29±01	27.1±04
	4 to 8 months	47±04	43.9±02
	> 8 months	31±01	29.1±01

Regarding the treatment duration we observed that 29 (27.1%) had duration of treatment < 4 months while 47 (43.9%) had duration of treatment 4 to 8 months and 31 (29%) had duration of treatment longer than 8 months. We observed that the associated factors of depression in our study were financial issues which was found in 46.2% of the MDR-TB patients suffering from depression. Family problems were face by 36.5% patients with depression. We also observed that depression was more prevalent with increasing age. Treatment duration also played a significant role in developing depression among MDR-TB patients. We used Chi Square test for association of depression with various determinants in our study.

Table 2: Association of determinants with depression in MDR-TB patients (n=52)

Determinants		Frequency (Mean±SD)	Percentage (Mean±SD)	P value
Age groups	20 to 30 years	25±01	48.1±01	0.001
	31 to 40 years	27±01	51.9±01	
Financial issues	Yes	24±01	46.2±01	0.01
	No	28±01	53.8±01	
Family problems	Yes	19±01	36.5±01	0.01
	No	33±01	63.5±01	
Treatment duration	< 4 months	12±01	23.1±01	0.01
	4 to 8 months	18±01	34.6±01	
	> 8 months	22±01	42.3±01	

Regarding table-2 Association of determinants with depression in MDR-TB patients the findings were as financial issues Frequency (Mean±SD) (24±01) Yes and (28±01) No, while Family problems Yes (19±01) No (33±01) were obtained respectively. Whereas Percentage (Mean±SD) 48.1±01, 51.9±01, 46.2±01, 53.8±01, 36.5±01, 63.5±01, 23.1±01, 34.6±01, 42.3±01 were measured comparatively. The results are highly significant (P≤0.05). MDR-TB patients are more likely to experience depression since it is more common among them (16.2%). Thus, cases must be carefully watched for depression at TU as well as in the community. Stressors related to money, relationships, or mental health were mentioned in 22% of instances. According to the HAM-D scale, 16.2% of people experienced depression; univariate analysis revealed a strong relationship between depression and recent family problems, discrimination, financial difficulties, other troublesome concerns, and the occurrence of drug-related adverse events.

DISCUSSION

Depression is a mental health disorder that can have a significant effect on the quality of life of individuals affected by it. In recent times, there has been an alarmingly high prevalence of depression in tuberculosis (TB) patients, which is thought to be due to a combination of physical, psychological, and social factors. The higher prevalence of depression in TB patients highlights the need for early identification and management of depression as part of TB care.[15]

The results of our study shows among TB patients 52 (48.6%) had depression. A study from Ethiopia reported the prevalence of depression in TB patients 51.9%[16]. A study carried out in Indonesia also reported that 51.9% MDR-TB patients had depression[17]. A study from India however reported a low prevalence of depression in TB patients 16.2.[14] A study[18] conducted in Nepal reported the prevalence of TB 62.7% which is comparable to our findings.

One of the factors that have been identified as a determinant of depression in MDR-TB patients is financial issues. TB patients with financial issues might have difficulties in paying for their treatment, transportation, food and other expenses leading to stress and anxiety which can worsen their mental health and increase the risk of depression. In our study we found that out 52 patients diagnosed with depression, 46.2% had financial issues. An Indian study[14] also reported that depression and financial issues were significantly associated in their study. Another study[16] indicated that financial burden can cause depression in TB patients.

TB treatment can take up to more than six months, and it can be challenging for patients to continue with their treatment for that long. The longer duration of treatment can lead to patients feeling hopeless and helpless, which eventually leads to depression. In our study, we discovered that individuals receiving treatment for longer periods of time had greater rates of depression. We also discovered a strong association between the length of treatment and depression. A study also reported similar findings that longer duration of treatment can lead to depression among MDR-TB patients.[16]

Family issues can also be a contributing factor to depression among TB patients. TB patients might feel guilty and ashamed of their diagnosis, and this can lead to a breakdown in communication and support from their families. This can lead to increased levels of stress and anxiety and an increased risk of depression. We founds significant association between family issues and depression in MDR-TB patients, our findings are in agreement with a study[14] which reported similar findings.

Lastly, increasing age has been identified as a determinant of depression in TB patients. Patients in their late 30's might be more likely to have financial and family responsibilities, which can increase the levels of stress and anxiety, and can also lead to an increased risk of depression. We observed that the prevalence of depression was higher among patients between 31 to 40 years and the association was found to be significant. A study[16] from Ethiopia also reported similar findings.

The findings of this study highlight the importance of addressing depression among TB patients. Left untreated, depression can impede the patient's ability to adhere to their TB treatment regimen and may lead to poorer treatment outcomes. Furthermore, depression can also have a negative effect on the patient's overall quality of life[19, 20].

It is important for healthcare providers to be aware of the high prevalence of depression in MDR- TB patients and to routinely screen for and manage depression as part of TB care. This can be done through the use of standardized screening tools and referral to mental health services when necessary. Additionally, healthcare providers should also be aware of the potential risk factors such as financial issues, longer duration of treatment, family issues and middle age as they can increase the risk of depression in MDR-TB patients.

CONCLUSION

TB patients have a significant prevalence of depression, according to our findings, which also identified a number determinants for the condition, including financial issures, a prolonged course of treatment, familial concerns, and advancing age. The findings of this study emphasise the value of treating depression in TB patients and the requirement that healthcare professionals be knowledgeable of the high frequency of depression among TB patients and regularly screen for and treat depression as part of TB care. In order to improve treatment outcomes, quality of life, and overall health outcomes for TB patients, depression needs to be addressed.

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