

**ASSESSMENT OF THE FREQUENCY OF DEPRESSION AND ANXIETY AMONG
TUBERCULOSIS PATIENTS AT A TERTIARY CARE HEALTH CENTRE. A CROSS
SECTIONAL STUDY**

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ABSTRACT

Background: The incidence of tuberculosis (TB) varies in different countries, and is very high in India. There is a high prevalence of mental illnesses in TB patients. Aim of the present study was to determine the frequency of depression and anxiety among tuberculosis patients. **Methods:** It was a cross sectional observational study. We had investigated the co-morbidity of depression and anxiety among tuberculosis patients with reference to the gender. The study was conducted in Indira Gandhi Medical College, Shimla, Himachal Pradesh, DOTS centre from September 2017 to February 2018. Hundred and twenty consecutive patients of tuberculosis (82 males and 38 females) seeking treatment were enrolled in the study. Generalized Anxiety Disorder Questionnaire (GAD-7) and Patient Health Questionnaire (PHQ-9) were used to assess the level of anxiety and depression. **Results:** Our results showed that 49% tuberculosis (TB) patients had moderate to severe level of depression, whereas 54% TB patients had moderate to severe level of anxiety. Female patients had significantly high prevalence of depression as compared to males ($t = -2.68, P < 0.05$). Similarly, prevalence of anxiety was also significantly higher in female patients ($t = -3.64, P < 0.05$). **Conclusion:** The prevalence of depression and anxiety was found to be significant in the tuberculosis patients. Early detection and treatment of these psychiatric co-morbidities from tuberculosis patients may increase the treatment compliance and reduce relapse. This can improve the quality of life of patients and prognosis of the disease as well.

KEYWORDS: Anxiety, Depression, Generalized Anxiety Disorder Questionnaire-7, Patient Health Questionnaire-9, Tuberculosis.

INTRODUCTION

The prevalence of tuberculosis (TB) in Indian subcontinent is very high. The populations who have higher prevalence of HIV infection, homelessness/low socioeconomic condition and rampant substance use problem have higher prevalence of tuberculosis. Despite the availability of an effective therapy and the various WHO programs, almost one third of the world population is latently infected and remains a leading infectious cause of mortality.^[1] Mortality due to tuberculosis is an important indicator of the failure of TB control. Although, mortality due to tuberculosis has declined significantly in the developed countries, it still remains one of the highest in the world (higher than other infectious diseases) 8% overall.^[2] Any long standing physical illness negatively affects the mental wellbeing of the patient and tuberculosis with long duration of treatment is one of them.^[3] The patients

suffering from tuberculosis frequently have comorbid mood and anxiety disorder which increases the mortality.

There is a high prevalence of mental illness seen in TB patients, but primary care physicians do not usually screen for this association. Though, anxiety and depression occur frequently in persons with chronic lung diseases, depression is recognized in < 50% of depressed patients, that's why The United States Preventive Services Task Force recommended screening for depression in primary cases of TB.^[4] Up to 80% of patients with depression, are either treated by non-mental health professionals or receive no treatment at all. In general population, depression has a point prevalence of 2.3% to 4. Prevalence of mood disorder in patients with chronic disease is 8.9% to 12.9%.^[5,6]

The WHO's stop TB strategy is comprised of following outstanding Directly Observed Therapy (DOTS) advancement and improvements recommended by WHO.^[7,8] DOTS is a strategy comprised of multiple anti-tuberculosis drugs and lasts for at least 6 to 8 months duration. During the treatment, patient may have various unpleasant adverse effects due to Anti-Tuberculosis Treatment (ATT).^[9,10] There is growing interest among healthcare professionals regarding the effectiveness of tuberculosis treatment and psychiatric co-morbidities.

Anxiety and depression are one of the factors that can influence the compliance and well-being of patient.^[11] The rationale of this study was to recognize and manage the psychiatric co-morbidity among tuberculosis patients to improve adherence to the treatment.

MATERIAL AND METHODS

Study Design

It was a cross sectional descriptive study. We had investigated the co-morbidity of depression and anxiety among tuberculosis patients with reference to gender. The study was conducted in Indira Gandhi Medical College, Shimla, Himachal Pradesh, DOTS centre from September 2017 to February 2018. We have screened 170 consecutive patients; ages ranged between 18 to 60 years, out of which 120 patients met the inclusion criteria and were enrolled into the study. Diagnosed patients of tuberculosis were selected irrespective of the type of TB i.e. pulmonary and extra pulmonary TB. Patients who have completed their ATT or having suspected TB or not willing to participate in the study were excluded.

Procedures

Participants were interviewed to fill up their demographic characteristics form. To assess the level of patients' depression Patient Health Questionnaire (PHQ-

9)^[12] was used. It is a brief scale comprised of 9 items and respondent is asked to rate the occurrence of depression symptoms on 4 point rating scale i.e. "not at all", "several days", "more than half of the days" and "nearly every day". Furthermore, in order to evaluate the anxiety Generalized Anxiety Disorder (GAD-7)^[13] was used. Scores of 5, 10 and 15 provide the cut points for mild, moderate and severe level of depression and anxiety, respectively.

Statistical Analysis

Data was entered in the excel sheet and analysed. In the study various socio demographic and clinical variables were compared by using appropriate statistical methods. Data was analysed using statistical software Epi Info version 7.2.0.1. 2-tailed value of <0.05 was taken as statistically significant.

RESULTS

The mean age of total participants was 34.80 years. At the time of study, 32% patients were singles, 68% patients were married and none of them was divorced. Twenty six percent patients were from nuclear families and seventy four patients belonged to joint families. They were also interviewed about their TB diagnosis type, 66% were diagnosed with pulmonary TB and 34% patients with extra pulmonary TB. However, 69% patients were in intensive phase and 31% in continuation phase (Table 1).

Our results showed that 49% tuberculosis (TB) patients had moderate to severe level of depression, whereas 54% TB patients had moderate to severe level of anxiety. Female patients had significantly high prevalence of depression as compared to males ($t = -2.68$, $P < 0.05$). Similarly, prevalence of anxiety was also significantly higher in female patients ($t = -3.64$, $P < 0.05$).

Table 1: Demographic characteristics of the study participants.

Clinical and demographic characteristics	Percentage (N=120)	Mean Age
Gender	Male (68%)	38.60
	Female (32%)	26.84
Marital Status	Single (32%)	24.78
	Married (68%)	41.24
	Divorced (0)	0.00
Type of Family	Nuclear (26%)	26.65
	Joint (74%)	35.58
Type of Tuberculosis	Pulmonary (66%)	35.53
	Extra Pulmonary (34%)	26.50
Treatment Phase	Intensive (69%)	34.50
	Continuation (31%)	28.66
	Total =100%	Total mean age= 34.80

Table 2: Severity of Depression and anxiety among Tuberculosis Patients.

Level of Severity	N=120	Percentage (%)
Severity of Depression		
Minimal symptoms	26	21.67%
Mild	34	28.33%
Moderate	43	35.84%
Moderately Severe	13	10.83%
Severe	04	3.33%
Severity of Anxiety		
Minimal Anxiety	26	21.67%
Mild Anxiety	29	24.16%
Moderate Anxiety	42	35.0%
Severe Anxiety	23	19.17%

Table 3: Severity of depression and anxiety with respect to gender.

	Gender	N=120	Mean	Std. Deviation	T	df	Sig.
Severity of Depression and gender difference	Male	82	11.48	8.92	-2.68	98	0.04
	Female	38	14.66	7.67			
Severity of Anxiety and gender difference	Male	82	11.54	7.88	-3.64	98	0.03
	Female	38	15.86	5.80			

DISCUSSION

Many psychiatric disorders are positively correlated with the high risk of tuberculosis and with poorer adherence to anti-TB treatment. There are various reasons like prolonged treatment, financial and work related problems, frequent visits to hospital, transportation, low socioeconomic status, slow progression of the disease and other illnesses, considered as barrier to treatment adherence.^[14] However, diagnosis of tuberculosis increases the risk of psychiatric co-morbidities and social isolation.^[15] Many studies have indicated that patient with tuberculosis reports several psychiatric disorders like depression, anxiety, somatoform symptoms, frequent smoking and increased alcohol consumption.^[16,19]

Psychiatric co-morbidities seem to be an important factor in the treatment outcome of patients suffering from tuberculosis. Psychological reactions and complications are highly prevalent in tuberculosis patients. These psychological complications are also seen as the adverse effect of anti-tubercular medications.^[20] Side effects of certain anti tuberculosis drugs like isoniazid, ethambutol and pyrazinamide included mood fluctuation, psychosis, seizures, confusion, dizziness, disorientation etc.^[21,22] Factors which contribute to the nonadherence towards anti tubercular drugs are an important barrier to control TB in our society. The defaulters or treatment failure due to any reasons may lead to more severe and resistant disease and its relapse and increases its morbidities and mortality.

Some studies have shown that female sex, middle aged, lower education levels, financial issues, house wife, and social problems with husband and in-laws are some of the associated risk factors of depressive and anxiety disorders.^[23] Depression and anxiety prevalence among TB patients was high in females as compared to males (Table 3). High frequency of depression and anxiety in

female patients may be due to certain biological factors like hormonal fluctuations, pregnancy and childbirth. Moreover, there are many social factors like being single, early adolescent pregnancy, race and neighbourhood poverty which may increase the risk for anxiety and depression in females.^[24] Our study stressed on the importance of routine screening for the symptoms of depression and anxiety in tuberculosis patients at DOTS centres or Psychiatric departments.

CONCLUSION

We have concluded that, the frequency of depression (49%) and anxiety (54%) among tuberculosis patients was high and it could be associated with multiple factors like poor socio-economic status, severity of illness and social issues. We recommended that there should be proper counselling sessions given to the patients by a trained psychologist in the DOTs centres. However, better management of these psychiatric comorbidities may improve the treatment adherence and patients' quality of life to a much better level.

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