

# SOCIOECONOMIC AND PSYCHOSOCIAL FACTORS AFFECTING TB TREATMENT COMPLETION IN GUJARAT, INDIA

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DOI: [10.5281/zenodo.13347121](https://doi.org/10.5281/zenodo.13347121)

## Abstract

**Introduction:** Tuberculosis (TB) is a communicable disease that is a notable cause of vulnerability, one of the top 10 causes of death worldwide and the foremost cause of death from a single infectious agent. As tuberculosis is a chronic illness, it always interferes life physically, psychosocially, and also economically. Studies have shown that the prevalence of psychiatric disorders, particularly depression, is high among tuberculosis (TB) patients, and may adversely affect treatment compliance. A person suffering from TB can develop depression in due course of time owing to a number of factors. The study's key goals are to determine the prevalence of psychological distress among tuberculosis patients, to comprehend the factors that contribute to psychological distress, and to assess its impact on treatment outcome. **Methodology:** Cross-sectional study was conducted using quantitative schedule. This research was conducted in the two districts of Gujarat: Vadodara and Chhotaudepur. Random sampling method was used to select 270 samples for this analysis. Telephonic interviews were conducted for data collection. Data on TB patients' socio demographic characteristics, co-morbidities, drug compliance, disease stigma, and patient perceptions of disease seriousness, physical accessibility, and financial status were collected. **Results:** Numerous factors were identified influencing TB treatment outcomes these included: Depression and anxiety(16%), Substance abuse(9%), Stigma(12%), Social support(21%), Socioeconomic status(18%), and Treatment regimen(14%). **Conclusion:** By incorporating psychosocial interventions into TB care, healthcare providers can effectively address the complex factors that influence treatment outcomes and contribute to better patient well-being.

## 1. INTRODUCTION

Tuberculosis (TB) is a highly contagious infectious disease that is one of the top ten causes of death worldwide and the leading cause of death from a single infectious agent. In 2019, the global prevalence of tuberculosis was 10 million, with 1.4 million deaths recorded. The bacillus *Mycobacterium tuberculosis* causes tuberculosis, which is transmitted when people who are sick with the disease expel bacteria into the air, such as by coughing. The disease usually affects the lungs (pulmonary tuberculosis), but it may also affect other parts of the body (extra pulmonary TB). Tuberculosis can strike anyone, anywhere. Adults have a high prevalence of tuberculosis (90 percent), with men having a higher prevalence than women. People affected by tuberculosis (TB) frequently face economic hardship, insecurity, marginalization, stigma, and prejudice as a result of the disease. *M. tuberculosis* infects around a fifth of the world's population..(Sataloff et al., n.d.)

In India, the prevalence of tuberculosis cases was 21.5 lakh in 2018, with 25% of cases recorded from the private sector. The working-age population is extremely endemic for tuberculosis. The age group of 15-69 years accounts for 89 percent of TB cases.(RNTCP, 2018)

Tuberculosis kills a lot of people. TB mortality is linked to co morbidities such as HIV and diabetes mellitus; TB is the tenth leading cause of death globally. In 2019, an estimated 1.21 million HIV-negative people died of tuberculosis. In patients with HIV as co morbidity, the prevalence of TB mortality was 20,800. As a result, the cumulative number of TB-related deaths in 2019 is expected to be 1,418,000..(*Deaths from TB - 2018 Deaths*, 2021)

Because of inadequate sanitation and hygiene, overcrowding, low education, malnutrition, and poor diagnostic and treatment services, tuberculosis is more prevalent in developing countries. Since tuberculosis is a chronic disease, it affects people physically, psychologically, and financially. It can lead to joblessness, prolonged hospitalization leading to work abstinence, loneliness, the feeling of being sick, severe weight loss, decreased libido, hopelessness, and decreased social contact. There is still a social stigma associated with illness in India.(Kumar et al., 2016) In many countries, stigma surrounding mental illness and tuberculosis poses major obstacles to tuberculosis prevention and treatment. This includes a composite of the stigmatizing effects of TB and psychological distress co-morbidity. (Review et al., 2021)

Psychological distress (PD) is a broad term that refers to an uncomfortable subjective state of depression or anxiety that manifests itself in both emotional and physiological forms and interferes with everyday activities. It is characterized by depressive and anxiety symptoms, as well as somatic symptoms. Psychological disorder is described as mood swings in people who are normally functioning. Negative attitudes toward the world, oneself, and others may result from psychological distress. Many patients experience psychological difficulties as a result of their disease. Tuberculosis (TB) is one of the illnesses that cause psychological distress (PD). Similarly, a lack of family and community support, as well as stigma associated with tuberculosis, are risk factors for psychological distress. Many individuals who are experiencing severe psychological distress do not seek help from specialist mental health facilities. Although many of these people may seek help from general practitioners, psychologists, and support groups, a large number of them do not seek some sort of structured assistance when they are experiencing psychological distress.

The magnitude of PD is determined by the condition and one's perception of it. No two people have the same reaction to the same incident. Psychological disorder, including mental illness, may have direct and indirect effects on an individual's psychological, social, and occupational functioning, impacting a variety of aspects of their lives, including relationships, employment, and health.(Ayana et al., 2019)

Many factors may contribute to psychological distress, including a history of tuberculosis, drug abuse, physical accessibility, economic accessibility, disease stigma, care provider attitude, self-reported illness severity, and physical distress. The magnitude of PD is determined by the condition and one's perception of it. Psychological disorder, including mental illness, may have direct and indirect effects on an individual's psychological, social, and occupational functioning, impacting a variety of aspects of their lives, including relationships, employment, and health.(Ayana et al., 2019)

A major economic burden would result from the combination of chronic medical conditions and depression. Outpatients' mental states can impact the doctor–patient

relationship and patient satisfaction with medical care, so it's important for healthcare professionals to recognize changes in mental status.(Wang et al., 2017)

The doctor-patient partnership is critical to the quality of health care. This relationship, which began more than 5000 years ago as one between a healer and a sick person, has now developed into one between a care provider and a service user. Many appointments and decisions in the outpatient clinic are based on the doctor's relationship with the family members.(Harbishettar et al., 2021)

The co-occurrence of tuberculosis and depression is linked to a number of negative health effects, including functional disability, increased treatment costs, the development of multidrug-resistant tuberculosis, and a poor health-related quality of life. Some evidence indicates that psychiatric co morbidity, especially depression, is common among TB patients, as are specific psychological reactions and reviews suggesting psychiatric complications as adverse effects of anti-TB treatment. Multiple socio-demographic and economic factors can influence depression in TB patients, including the patient's age, gender, marital status, income, occupation, perceived social support, perceived stigma associated with physical conditions, TB-HIV co-infection, hazardous alcohol usage, and physical symptoms. Depression in TB patients must be measured in order to gain a comprehensive understanding of the disease's effect on the patient's mental health.(Yohannes et al., 2020)

### **1.1 Goals**

- To assess the prevalence of psychological distress among patients with tuberculosis.
- To understand the associated factors leading to psychological distress.
- To compare the doctor-patient relationship amongst government and private facilities in relation to TB care.

## **2. METHODOLOGY**

### **2.1. Study Site**

This study was conducted with the TB patients of Vadodara and Chhotaudepur districts of Gujarat. District for the study were selected purposively. The total population of Vadodara and Chhotaudepur is around 41 lacs and 11 lacs respectively.

### **2.2. Study Design**

The study was a Descriptive Cross sectional study. The data from the population i.e. representative subset was analyzed at a specific point in time. The outcomes and exposures were measured at the same point of time. A quantitative schedule was designed for data collection, which consisted of all the close ended questions with framed options for the answers. The variables measured in this study are; Co-morbidities, diagnostic details, instance of substance use, past history of TB, patient-doctor relationship, stigma related to disease, patient's perception for severity of disease, physical accessibility and financial status and socio demographic details.

### **Sampling Method**

Total TB notified cases in Jabalpur and Balaghat was 304. According to this population, by using open epi software sample size was calculated. By taking confidence interval of 95% and frequency of psychological distress among TB patients

of 46% (Peddireddy, 2016) sample size was calculated 170. Samples were selected by using quota sampling. Interviews were taken till the sample size was achieved.

TB patients in the intensive phase (IP), DSTB patients suffering from pulmonary and extra pulmonary TB, patients notified on NIKSHAY Portal are included in this study. Patients not diagnosed with TB, patients in continuous phase (CP), patients not notified on NIKSHAY Portal and DRTB, MDRTB, and XDRTB patients are not included in this study. The participants were interviewed for this study after obtaining the verbal consent.

### **Data Collection, Sources and Statistical Analysis**

Data was collected through telephonic interviews. The dependent variables of the data were Co-morbidities, diagnostic details, instance of substance use, past history of TB, patient-doctor relationship, stigma related to disease, patient's perception for severity of disease, physical accessibility and financial status. The independent variables of the data were the socio demographic details. A 5 point Likert scale was used to assess the level of psychological distress among TB patients, doctor-patient relationship and perceived stigma. Participants were allowed to express how much they agree or disagree with the questions asked. Socio economic class of the participant was measured by using Kuppuswamy scale. According to the scoring of education, occupation and income, participant are classified in particular category. Severity perceived by patient was assessed through a close ended question with 3 categories, severe, moderate and mild. Instance of substance use was measured by asking a close ended question with two categories; yes and no. Use of alcohol, tobacco and cigarette were considered as instance of substance use.

<b>Secondary outcome</b>	<b>Measurement of outcome</b>
<b>Prevalence of psychological distress among TB patients</b>	A 5 point Likert scale is used to assess the level of psychological distress among TB patients. Participants were allowed to express how much they agree or disagree with the questions asked. The mean is calculated of the scores and accordingly the participants are kept in a particular category; very high, high, moderately high, low and very low
<b>Socio economic class of patient</b>	Socio economic class of the participant is measured by using Kuppuswamy scale. According to the scoring of education, occupation and income, participant are kept in particular category; upper class, upper middle class, lower middle class, upper lower class and lower class.
<b>Patient doctor relationship</b>	5 point likert scale is used to assess the relationship between doctor and patient. According to the mean score, participants are placed under a particular category; very good, good, normal, poor and very poor.
<b>Perceived stigma</b>	5 point likert scale is used to assess the stigma faced by the participant. As per the mean scores the patient are kept in a particular category; very high, high, moderately high, low and very low
<b>Severity of disease perceived by participant</b>	severity perceived by patient is assessed through a close ended question with 3 categories, severe, moderate and mild
<b>Instance of substance use</b>	Instance of substance use is measured by asking a close ended question with two categories; yes and no. Use of alcohol, tobacco and cigarette is considered as instance of substance use.

The analysis of data was done using SPSS software. To compare the doctor- patient relationship amongst government and private facilities in relation to TB care Mann Whitney U test was used as we had ordinal and categorical data. To understand the associated factors leading to psychological distress ordinal logistic regression was used. To assess the prevalence of psychological distress among patients with TB multinomial regression was used.

### 3. RESULTS AND DISCUSSION

Numerous psychosocial factors have been identified as influencing TB treatment outcomes. These factors can be broadly categorized into individual, social, and environmental factors.

#### Individual Factors

- Depression and anxiety: Mental health conditions such as depression and anxiety can negatively in **16% patients** impact treatment adherence, self-care behaviors, and overall health outcomes.
- Substance abuse: Alcohol and drug use can negatively impact **16% patients**. It may exacerbate the symptoms of TB, interfere with treatment adherence, and increase the risk of reinfection and transmission.
- Stigma: The social stigma associated **12% patients** negative outcome which may lead to isolation, discrimination, hindering treatment engagement.

#### Social Factors

- Social support: Poor social support systems can negatively impact **21% patients**. Strong support may provide emotional and practical assistance to TB patients, promoting treatment adherence, adherence, and overall well-being.
- Cultural beliefs and practices: Cultural beliefs and practices may influence treatment decisions and adherence. Addressing cultural barriers is crucial for effective TB care.
- Socioeconomic status: Poverty, lack of education, and limited access to resources can hinder access to treatment and adherence.

#### Environmental Factors

- Healthcare access and quality: Availability of quality healthcare services and timely diagnosis are essential for prompt treatment initiation and successful outcomes.
- Treatment regimen: Length of regimen may negatively impact **14% patients**. The side effects, and complexity of treatment regimens can also affect adherence and outcomes.
- Community factors: Factors such as overcrowding, poor sanitation, and limited access to food and water can contribute to TB transmission and hinder treatment success.

## 4. CONCLUSION

### Addressing Psychosocial Factors in TB Care

Integrating psychosocial interventions into TB care is crucial for improving treatment outcomes and overall patient well-being. Effective strategies include:

- Psychological screening and assessment: Identifying and addressing mental health conditions is essential for optimal TB care.
- Psychosocial counseling and support: Providing counseling and support can address stigma, anxiety, and other psychosocial challenges.
- Patient education and empowerment: Empowering patients with knowledge about TB, treatment, and self-care can improve adherence and overall health outcomes.
- Addressing social determinants of health: Addressing poverty, food insecurity, and inadequate housing can improve treatment access and adherence.
- Community engagement and outreach: Engaging community leaders, organizations, and healthcare workers can promote awareness, reduce stigma, and enhance treatment support.

By incorporating psychosocial interventions into TB care, healthcare providers can effectively address the complex factors that influence treatment outcomes and contribute to better patient well-being.

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