

# Effect of Social Factors on Tuberculosis Patients: A Comprehensive Illness Behaviour Study

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## ABSTRACT

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**Aim:** The aim of present study was to examine whether social factors can influence the illness behaviour of Tuberculosis patient. Comparison was done between tuberculosis patient (Case, Group I) with other Respiratory disease patient (Control, Group II) on the basis of illness behaviour questionnaire (IBQ) and search for possible differences between the two patient subgroups. **Results:** Number of patients enrolled for the study were 164. Out of which, 82 patients served as case (i.e. Group I) and 82 patients as control (i.e. Group II). The illness behaviour of tuberculosis patients was more in Joint family (57.32%) as compared to nuclear family (42.68 %). The illness behaviour was found to be highest where more than 3 people lived in a single room (34.15%). As TB is mostly prevalent in rural area, similarly illness behaviour was also observed highest in rural area (31.71%). The illness behaviour was more in married patients (64.63 %) in comparison with unmarried patients (35.37 %). **Conclusion:** The outcome of the present study indicates that low socio-economic status has great influence to invite illness behaviour in TB. Therefore, illness behaviour must be considered during the treatment of tuberculosis patients.

**Keyword:** Tuberculosis, Illness behaviour, Socio-economic, DOTS

## INTRODUCTION

Tuberculosis (TB) is a chronic infectious disease caused by *Mycobacterium tuberculosis* and is one of the leading causes of mortality worldwide.<sup>1,2</sup> Almost one third of the world's population; approximately two billion people are infected with *M. Tuberculosis*.<sup>3</sup>

Personal experiences, perceived aetiology of the disease, stigma, beliefs and attitudes associated with TB are important in health-seeking behaviour. Focus group discussions in Vietnam revealed 4 perceptions of TB, each contributing to diagnosis delays, to stigma and isolation of patients and their families.<sup>4</sup> Choice of treatment could depend on the availability of money, and various health care providers.<sup>5</sup> Decisions are often influenced by 'significant others' or lay referral groups. Problems arise when health workers and programme managers fail to consider social and behavioural factors in programme design.<sup>6</sup>

Many studies have addressed the factors that affect health-seeking in different socio-cultural milieus. Poor perception of health problems, distance, cost of care and other reasons have been reported as reasons for delay in seeking care among tuberculosis patients in many parts of the world.<sup>7-10</sup> Socio-economic status, whether measured by education, income or other indices of social class, has long been known to be associated with attitudes and health care practice.<sup>11</sup> The impact of socioeconomic status on symptoms,

respiratory morbidity and mortality is important because it may influence behaviour towards health seeking too.<sup>12</sup> The low-income population also suffers from overcrowding and malnutrition, and therefore is predisposed to developing TB.<sup>13</sup>

Perception of illness has been found to vary with cultural, ethnicity, education, family structure and socioeconomic difference.<sup>14</sup> Treatment of active TB requires prolonged therapy (at least 6 months) with multiple, potentially toxic drugs that can lead to adverse reactions in a significant number of patients.<sup>15</sup> Also, among foreign born patients, if considerable social stigma associated with active TB leaving the individual feeling shunned and isolated from their friends and families.<sup>16</sup> The major social characteristic associated with tuberculosis among the patients was overcrowding.<sup>17</sup> In a recent study in Canada, Clark *et al.*, observed that tuberculosis incidence was higher in communities with a higher average housing density.<sup>18</sup> Rural populations in particular face health systems related barriers as diagnosis depends on efficient transport and communication between rural health facilities and district hospitals in the Malawian context as in Thailand and India, the financial costs of TB treatment are very high, and for poor patients in particular, can lead to further spiralling into poverty.<sup>19,20</sup>

One of the study showed that physical functioning, social functioning, and role functioning were all adversely affected by TB. In addition, the participants reported a wide range of psychological reactions including fear, depression and anger.<sup>21</sup>

The term illness behavior refers to both to overt action, such as consulting a physician, and to a patient emotional and psychological reaction to illness. The IBQ is introduced to the patient as survey containing a number of questions about your

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illness and its affect you. The question in the IBQ is concerned with the attitudinal and emotional component of illness behaviour rather than with overt behaviour.<sup>22,23</sup>

Therefore the present study was designed to study social factor with respect to illness behaviour of tuberculosis patient.

## STUDY DESIGN AND METHODOLOGY

The present study was a prospective study to find out 'Effect of social factors on Tuberculosis Patients: An illness behaviour study, at DOTS centre of defined LRS-RNTCP area. The study was performed on patients receiving combination anti-tubercular therapy for the management of tuberculosis registered under RNTCP for DOTS regimen. The category I patients of LRS-RNTCP defined area were enrolled in the study. All patients receiving or registered under category I were interviewed during intensive phase as a case (Group I) and equal number of control patients (Group II) were taken from same dispensary OPD where the DOTS centre is situated. The control group was diagnosed patients of chronic respiratory disease like COPD, Asthma, Chronic bronchitis, Emphysema, Cystic fibrosis, Sinusitis, Lung cancer and obstructive sleep apnoea by the respective dispensaries allopathic doctors. The patients attended OPD with record of pre-diagnosed chronic respiratory disease by allopathic doctor patients were also included in the study as a control group. The illness behaviour was checked on the basis of interview to patient directly. All the observation was recorded in a simple pre-designed and pre-tested semi structured standard monitoring formats.

A total of 164 patients were enrolled in this study, were divided into two groups (Group I and Group II) on the basis of treatment. Group I served as case, consisting of 82 patients, received short course chemotherapy as per RNTCP guidelines i.e. four drugs (Isoniazid, Rifampicin, Pyrazinamide and Ethambutol) thrice weekly for two months in the intensive phase. Group II served as control, consisting of 82 patients, who were diagnosed as chronic respiratory disease like COPD, Asthma, Chronic bronchitis, Emphysema, Cystic fibrosis, Sinusitis, Lung Cancer and obstructive sleep apnoea by the respective dispensaries allopathic doctors.

The present study was initiated after approval of the Research and Ethical committee at LRS Institute Tuberculosis and Respiratory Diseases. A written informed consent was obtained from each patient before collecting data according to the Hindi translation of IBQ.

In order to have a valid estimation of the illness behaviour due to tuberculosis an equal number of patients of same age and sex matched control were also given the IBQ as some degree of illness behaviour may be seen in them too. Out-patients register were selected, having taken care that complete addresses had been recorded during the period. The period of intake in all DOTS centre of LRS institute was four month i.e.

January 2010 to April 2010. The data were fed into MS Excel sheet and analysis was performed using SPSS-12 package. Odd ratios (OR) along with confidence intervals (CI) and p-value were calculated for all the items to find out difference between cases and controls, if any. The IBQ is a self administered questionnaire that uses a yes/no response format.

### Inclusion criteria

- All TB patients as a case group recommended for DOTS regimen, at all DOTS centre of defined LRS- RNTCP area during intensive phase of category I.
- Patients who are treated with combination anti-tuberculosis therapy.
- The control group of chronic respiratory disease like COPD, Asthma, Chronic bronchitis, Emphysema, Cystic fibrosis, Sinusitis, Lung cancer and Obstructive sleep apnoea.

### Exclusion criteria

- Mentally retarded and unconscious patients.
- Patients who are not treated with combination anti-tuberculosis therapy.
- Patients who are not willing to participate and have any active or chronic disease.
- Paediatric patient.
- Patients unable to comply.

### Data collection

- Patient's demographic profile (age, gender, weight, height, address, marital status etc).
- Information about family, social and socioeconomic status, details of past medication etc.
- Individual personality, knowledge about TB, health service factor, psychological factors, and knowledge about DOTS strategy.

### Sources of data

- Patient's treatment card.
- Patient's identity card.
- Individual interview from patients.

### Statistical Analysis

The factor contributing to abnormal illness behaviour among newly diagnosed tuberculosis patients i.e. Group I, was compared with that of control i.e. Group II. Odd ratio and confidence intervals are calculated for both case and control. The number and proportions were compared with P- value and reported.

## RESULTS AND DISCUSSION

### 1. Distribution of illness behaviour of patients in Group I and II according to gender

Table 1 represents the distribution of the patients according to gender where 59 (71.95%) were male as compared to

**Table 1: Distribution of Illness behaviour of patients in Group I and II according to gender**

Group	Male No. of patients (%)	Female No. of patients (%)	Total No. of patients (%)
Group I	59(71.95)	23(28.05)	82(100)
Group II	59(71.95)	23(28.05)	82(100)

23 (28.05%) were female TB patients. The Indian society is male dominant where male are working as compared to female in the family and come in contact with undiagnosed TB at their working place and during the travel. The above finding was confirmed with Bhatia et al.,<sup>24</sup> who reported 76% male and 24% female. Perhaps the reason why more men than woman get TB is because they work and live in crowded and unsanitary condition.<sup>25</sup>

**2. Distribution of illness behaviour of patients in Group I and II according to type of family**

Table 2 depicts the distribution of TB patients according to type of family. The TB patients were more in joint family (57.32%) as compared to nuclear family (42.68). This may be due to less earning and more ignorance about health in joint family as compared to nuclear family. Similar finding were found in study by MS Bhatia et al.,<sup>24</sup> where 52% were found in joint family.

**Table 2: Distribution of illness behaviour of patients in Group I and II according to types of family**

Group	Nuclear No. of patients (%)	Joint No. of patients (%)	Total No. of patients (%)
Group I	35 (42.68)	47 (57.32)	82 (100)
Group II	20 (24.39)	62 (75.61)	82 (100)

**3. Distribution of Illness behaviour of patients in Group I and II according to crowding**

Table 3 depicts the distribution of the TB patients according to crowding. Majority of TB patients belongs to low socioeconomic strata. Living in one room set among them a considerable number of patients are migratory therefore they are living in one room set on rent. In present study TB were observed highest in the patients living 3 persons in 1 room (34.15%). The similar finding was observed by Moharana PR et al., who found 64% persons per living room are greater than 2.<sup>26</sup>

**4. Distribution of Illness behaviour of patients in Group I and II according to residence**

Table 4 represents the distribution of the TB patient according to living area. In the present study TB is most prevalent in rural area (31.17%). In this way the illness behaviour is inversely related to living condition and hygiene of people. Similar finding was confirmed in another study by Dubey et al., who found 32.8% in rural area.<sup>27</sup>

**5. Distributions of Illness behaviour of patients in Group I and II according to marital status**

Table 5 depicts the distribution of TB patients according to marital status. Tuberculosis is more in married patients (64.63%) as compared to unmarried patients (35.37%). This may be that married person has more liability as compared to un-married and give less attention towards them

**Table 5: Distributions of illness behaviour in group I and II patients according to marital status**

Group	Unmarried No. of patients (%)	Married No. of patients (%)	Total No. of patients (%)
Group I	29 (35.37)	53 (64.63)	82 (100)
Group II	36 (43.91)	46 (56.09)	82 (100)

**Table 3: Distribution of Illness behaviour of patients in Group I and II according to crowding**

Groups	2 persons in 1 room No of patients(%)	3 persons in 1 room No of patients(%)	4 persons in 2 room No of patients(%)	7 persons in 3 room No of patients(%)	10 persons in 4 room No of patients(%)	Total No of patients(%)
Group I	23 (28.04)	28 (34.15)	20 (24.39)	8 (9.76)	3 (3.66)	82 (100)
Group II	22 (26.82)	21 (25.61)	26 (31.71)	9 (10.98)	4 (4.88)	82 (100)

P < 0.05, statistically significant

**Table 4: Distribution of Illness behaviour of patients in Group I and II according to Residence**

Groups	Rural No of patients(%)	Urban No of patients(%)	Semi Urban No of patients(%)	Urban Slum No of patients(%)	Total No of patients(%)
Group I	26 (31.71)	15 (18.29)	21 (25.61)	20 (24.39)	82 (100)
Group II	21 (25.61)	22 (26.83)	25 (30.49)	14 (17.07)	82 (100)

P < 0.05, statistically significant

health. Similar finding were found by Dubey (1975) where 70% patient are married and 26% unmarried. 72% married and 25% unmarried patients reported by Tandon *et al.* in 1980.

## CONCLUSION

The present study reveals that social factors have great influence to cause illness behaviour in Tuberculosis patients. Poor socio-economical status always invites overcrowding, malnutrition, frustration and also influences psycho-social disturbances. Therefore, illness behaviour must be considered during the treatment of tuberculosis. So this study is useful as an adjuvant in the treatment of Tuberculosis and leave strong message to the MHRD about providing facilities, awareness campaigning, active involvement of electronic and printing media regarding do's and dont's during TB treatment. The campaigning must cover the rural and remote corners of India with help of NGO's and active participation of local doctors and DOTS provider. Then we can control the morbidity and mortality due to TB and will make India a TB free country.

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