



## Research Article

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### EFFECT OF SOCIAL FACTORS ON TUBERCULOSIS PATIENTS: A COMPREHENSIVE ILLNESS BEHAVIOUR STUDY

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#### ABSTRACT

Perception of illness has been found to vary with cultural, ethnicity, education, family structure and socioeconomic difference. The aim of the present study was to examine whether social factors can influence the illness behaviour of tuberculosis patients or not. The comparison was done by considering tuberculosis (TB) patients (Case, group I) with other respiratory disease patients (Control, group II) on the basis of illness behaviour questionnaire (IBQ) and search for possible differences between the two patient subgroups. Number of patients enrolled for the study was 164. Out of which, 82 patients were served as case (i.e. group I) and 82 patients as control (i.e. group II). The illness behaviour of tuberculosis patients were more in joint family (57.32%) as compared to nuclear family (42.68 %). The illness behaviour was found to be highest in crowding i.e. 3 people living in one room (34.15%). As tuberculosis is mostly prevalent in rural area, illness behaviour was also observed highest in rural area (31.71%). The illness behaviour was more in married patients (64.63 %) in comparison to unmarried patients (35.37 %). The outcome of the present study indicates that low socio-economic status has great influence to invite illness behaviour in tuberculosis. Therefore, illness behaviour must be considered during the treatment of tuberculosis patients.

**Key word:** Tuberculosis, Illness behaviour, Socio-economic factors, Respiratory disease

#### INTRODUCTION

Tuberculosis (TB) is a chronic infectious disease caused by *Mycobacterium tuberculosis* and one of the most leading causes of mortality worldwide.<sup>1, 2</sup> Almost one third of the world's population, approximately two billion people, are infected with *Mycobacterium tuberculosis*.<sup>3</sup> Personal experiences, perceived aetiology of the disease, stigma, beliefs and attitudes which are associated with tuberculosis are important in health-seeking behaviour. Focus group discussions in Vietnam revealed 4 perceptions of tuberculosis, 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. Problem arises 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 or malnutrition and therefore is predisposed to developing tuberculosis.<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 tuberculosis requires prolonged therapy (at least 6 months) with multiple and potentially toxic drugs which 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 tuberculosis 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 tuberculosis treatment are very high and for poor patients in particular, can lead to further spiralling into poverty.<sup>19</sup> The study indicates that physical functioning, social functioning and role functioning were all adversely affected by tuberculosis. In addition, the participants reported a wide range of psychological reactions including fear, depression and anger.<sup>20</sup> The term illness behaviour refers to both to overt action, such as consulting a physician and to a patients emotional and psychological reaction to illness. The illness behaviour questionnaire (IBQ) is introduced to the patients as survey, containing a number of questions about their illness and its affects. The questions in the illness behaviour questionnaire is concerned with the attitudinal

and emotional component of illness behaviour rather than with overt behaviour.<sup>21, 22</sup>

**MATERIALS AND METHODS**

The present study was a prospective study to find out effect of social factors on tuberculosis patients. The study has been carried out at directly observed treatment short course centre of defined Lala Ram Swarup Institute of Tuberculosis and Respiratory Diseases- Revised National Tuberculosis Control Programme (LRS-RNTCP) area. The study was performed on patients receiving combination of anti-tubercular therapy for the management of tuberculosis registered under Revised National Tuberculosis Control Programme for directly observed treatment short course regimen. The category I patients of Lala Ram Swarup Institute of Tuberculosis and Respiratory Diseases- Revised National Tuberculosis Control Programme (LRS-RNTCP) defined area were enrolled in the study.

A total of 164 patients were enrolled in this study, divided into two groups (group I and group II) on the basis of treatment. Group I served as case, consist of 82 patients, received short course chemotherapy as per Revised National Tuberculosis Control Programme guidelines i.e. four drugs (Isoniazid, Rifampicin, Pyrazinamide and Ethambutol) thrice weekly for two months in the intensive phase. Group II served as control, consist of 82 patients, was diagnosed as chronic respiratory disease like chronic obstructive pulmonary disease (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 prior approval of the protocol by the Research and Ethical committee at Lala Ram Swarup Institute of Tuberculosis and Respiratory Diseases [S. No. AMS/EC/2010/10835]. A written informed consent was obtained from each patient before collecting data according to the Hindi translation of illness behaviour questionnaire (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 illness behaviour questionnaire (IBQ) as some degree of illness behaviour may be seen in them too. Out patients register were selected, having taken care that complete addresses of attenders had been recorded during the period. The period of intake in all directly observed treatment short

course centre of Lala Ram Swarup 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 illness behaviour questionnaire (IBQ) is a self administered questionnaire that uses a yes/no response format.

**Inclusion criteria**

- All tuberculosis patients as a case group recommended for directly observed treatment short course regimen, at all directly observed treatment short course centre of defined Lala Ram Swarup Institute of Tuberculosis and Respiratory Diseases- Revised National Tuberculosis Control Programme (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 chronic obstructive pulmonary disease (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 tuberculosis, health service factor, psychological factors, and knowledge about directly observed treatment short course strategy.

**Sources of data**

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

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

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

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

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

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

Groups	2 persons in 1 room	3 persons in 1 room	4 persons in 2 room	7 persons in 3 room	10 persons in 4 room	Total
	No of patients (%)	No of patients (%)	No of patients (%)	No of patients (%)	No of patients (%)	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	Urban	Semi Urban	Urban slum	Total
	No. of patients (%)	No. of patients (%)	No. of patients (%)	No. of patients (%)	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

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

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

P> 0.05, statistically non significant

**RESULTS AND DISCUSSION**

**Distribution of illness behaviour of patients in Group I and II according to gender**

Table I represents the distribution of the patients according to gender where 59 (71.95%) were male as compared to 23 (28.05%) were female tuberculosis patients. The Indian society is male prominent where male are working as compared to females in the family and come in contact with undiagnosed tuberculosis at their working place and during the travel. The above finding was confirmed with Bhatia et al.,<sup>23</sup> who reported 76% male and 24% female. Perhaps the reason why more men than woman get tuberculosis is because they work and live in crowded and unsanitary condition.<sup>24</sup> [Table 1]

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

Table II depicts the distribution of tuberculosis patients according to type of family. The tuberculosis 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>23</sup> where 52% were found in joint family [Table 2].

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

Table 2 depict the distribution of the tuberculosis patients according to crowding. Majority of tuberculosis patients belongs to low socioeconomic strata. Living in one room set among them a considerable number of patients were migratory therefore they were living in one room set on rent. In present study tuberculosis 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>25</sup>

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

Table 4 represents the distribution of the tuberculosis patient according to living area. In the present study tuberculosis was most prevalent in rural area (31.17%). In this way the illness behaviour was 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>26</sup>

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

Table 5 depicts the distribution of tuberculosis patients according to marital status. Tuberculosis was 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 their health.

**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 Ministry of Human Resource Development (MHRD) about providing facilities, awareness campaigning, active involvement of electronic and printing media regarding do's and dont's during tuberculosis treatment. The campaigning must cover the rural and remote corners of India with help of Non-Governmental Organization (NGO) and active participation of local doctors and directly observed treatment short course provider. Then we can control the morbidity and mortality due to tuberculosis and will make India a tuberculosis free country within couple of years.

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