

Associated socioeconomic status with illness behavior in tuberculosis patients undergoing DOTS therapy

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ABSTRACT

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The aim of the present study was to investigate whether socioeconomic status can influence the illness behaviour of tuberculosis patient. The present study was a prospective for which we compared tuberculosis patients (case, group-I) with other respiratory disease patients (control, group-II) on the basis of illness behaviour questionnaire (IBQ) and observed for possible differences between the two patient subgroups. Number of patients enrolled for the study were 82 out of whom, 41 patients served as case (i.e. group-I) and 41 patients as control (i.e. group-II). Group-I received standard Directly Observed treatment Shortcourse (DOTS) therapy as per Revised National TB Control Program (RNTCP) guidelines and was categorized as illness behavior under DOTS therapy. The group-II diagnosed patients of chronic respiratory disease like Chronic Obstructive Pulmonary Disease (COPD), Asthma, Chronic bronchitis etc. by the respective physicians. The data were fed into the computer programme SPSS and 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 present study reveals that socioeconomic status in tuberculosis patients tends to develop more intense illness behaviour as compared to other respiratory disease patient. Tuberculosis not only affects the body but it also affects the behavior of the patients. Therefore, management of illness behaviour should also be included in management of tuberculous patients.

Keywords: Tuberculosis, DOTS, RNTCP, respiratory disorders

INTRODUCTION

Globally, tuberculosis is a major issue in public health.¹ One-third of the world's burden of tuberculosis (TB), or about 4.9 million prevalent cases, were found in the World Health Organization (WHO) in South-East Asia Region.²

Tuberculosis continues to remain one of the most pressing health problems in India. India is the highest TB burden country in the world, accounting for one fifth of the global incidence- an estimated 1.96 million cases annually. Approximately 2.9 million die from TB each year worldwide; about one fifth of them in India alone. India has 2% of the land area of the world and 15% of its total population. About 500,000 died from the disease and more than 1000 per day – one in every minute. Nearly 40% of the Indian population is infected with the TB bacillus.^{3,4,5}

TB is major barrier to economic development because it is more prevalent in highly economic productive age group 20 to 50 year, therefore affecting the economic development of the country thus TB costing India 13000 crores a year. On an average a TB patient loose 3-4 months of wage equivalent to 20 to 30% of annual house hold income, thereby making the poor poorer. TB has devastating social cost as data suggested that each year; more than 300,000 children are forced to leave school on account of TB.⁶

Illness behaviour refers to the activities undertaken by individuals in response to symptom experience. It typically includes mental debate about the significance and seriousness of these symptoms, lay consultation, decision about action including self-medication, and constant with health professionals.⁷ Perception of illness has been found to vary with cultural, ethnicity, education, family structure and socioeconomic difference.⁸ 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.⁹ Also, among foreign born patients, if considerable social stigma associated with active TB leaving the individual feeling shunned and isolated from

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their friends and families.¹⁰ Among aboriginal and marginalized inner city populations, there is a lack of knowledge regarding the disease process and its treatment which may contribute to feelings of helplessness and anxiety¹¹ and education also play an important role in changing the patients health behaviour by providing them with information that motivates them to follow the treatment plan.¹²

Awareness about depression and its role in the outcome of chronic disorders like rheumatoid arthritis and COPD has increased over the years.¹³ Depression is common in patients with TB, affecting up to 52% patients.¹⁴ The patients suffering from tuberculosis shows a higher degree of neuroticism. This could be because of the nature of illness, prolonged treatment, stigma, misconceptions about illness, reactions of family members, and economical stress (either because of medication, follow-up or decrease in productivity). These patients develop psychosocial reactions such as denial, hopelessness about life, fear of neglect by the spouse, family and society. Tuberculosis, like any other chronic infection, needs treatment for a prolonged period. It carries social stigma and result in adverse psychological reactions.^{15,16} A study showed that depression is more prevalent among elderly persons and in female, labor class patients, illiterates, separated or widowed and those with low per capita income.¹⁷

Low socioeconomic status (SES) is generally associated with high psychiatric morbidity, more disability, and poor access to health care. Among psychiatric disorders, depression exhibits a more controversial association with SES.¹⁸ 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.¹⁹ The impact of socioeconomic status on symptoms, respiratory morbidity and mortality is important because it may influence behavior towards health seeking.²⁰ The low-income population also suffer from overcrowding and malnutrition, and therefore is predisposed to developing TB.²¹

STUDY DESIGN AND METHODOLOGY

The present study was a prospective study to find out “the association of socioeconomic status with illness behaviour in tuberculosis patients, undergoing DOT Therapy” at DOTS centre of defined Lala Ram Sarup-**Revised National TB Control Program** (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 diseases like COPD, Asthma, Chronic bronchitis, Emphysema, Cystic fibrosis, Sinusitis, Lung cancer and Obstructive sleep apnoea by their physicians in respective dispensaries. The patients attending OPD with record of pre-diagnosed chronic respiratory diseases by allopathic doctor were also included in the control group. The socioeconomic status with illness behavior 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 350 patients were enrolled in LRS-RNTCP defined area for treatment, out of which 82 were enrolled in this study. 41 patients served as case (i.e. group I) and 41 patients as control (i.e. group II). The group I received standard DOTS therapy as per RNTCP guidelines and was categorized as illness behavior under DOTS therapy. The group II was diagnosed patients of chronic respiratory diseases.

The present study was initiated after prior approval of the protocol by the Research and Ethical committee at LRS Institute of Tuberculosis and Respiratory Diseases. A written informed consent was obtained from every patient before collecting data according to the Hindi translation of internationally accepted illness behaviour questionnaire (IBQ) (e.g. "Do you worry a lot about health?"). In order to have a valid estimation of the illness behavior due to low socioeconomic condition of tuberculosis patients an equal number of patients of same age and sex matched control were also given the IBQ as some degree of illness behavior may be seen in them too. During the study period of four months (January 2010 to April 2010) complete addresses of patients/attendees were recorded from out-patient register. The data was fed into the computer programme SPSS and 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.

RESULTS AND DISCUSSION

1. Distribution of Illness behavior in group I and II patients according to gender

The distribution of the patients (Table 1) according to gender shows that 59 (71.95%) were male as compared to 23 (28.05%) were female TB patients. The Indian society is male dominant where more male are working as compared to

Table 1: Distribution of Illness behavior in group I and II patients 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)

female in the family and come in contact with undiagnosed TB patients at their working place and during the travel. Perhaps the reason why more men than woman get TB is because they work and live in crowded and unsanitary conditions.²²

2. Distribution of Illness behavior in group I and II patients according to education

Table 2 shows the distribution of TB patients according to their education status. As per the RNTCP Report, TB is most prevalent in less educated and poor people. Education plays an important role to change the patient's health behavior by providing them with information that motivate them to follow the treatment plan.¹² Tuberculosis was observed in primary school educated people which is more (57.32%) as compared to graduate (3.66%) and none in post graduation and above qualified patients. So the illness behaviour is more in less educated people.

3. Distribution of Illness behaviour in group I and II patients according to occupation

Table 3 indicates the distribution of TB patients as per

occupation. According to RNTCP Report, TB is mostly prevalent in less educated and poor people, similarly illness behaviours were observed highest in unskilled worker (36.59%) too and in semiskilled worker is (29.27). Low occupation status was associated with poor physical health and a poor coping style was associated with psychiatric illness. Therefore, the illness behavior is inversely proportional to better occupation of patients. A positive correlation between occupation and occurrence of depression has also been observed by Natani et al., 1985.

4. Distribution of Illness behavior in group I and II patients according to family income

Table 4 represents the distribution of TB patients according to income of the family. According to RNTCP Report, TB is most prevalent in low income peoples. In the present study TB is most common in patients who have family income between Rs. 2,041 to Rs. 6,100 (53.66%) than in patient who have income between Rs.6,101 to Rs.10,161 (28.05%). As the income per month increases the illness behaviour rate decreases. A reduced status in the family and their small contribution to family income, due to ill-health, may be the

Table 2: Distribution of Illness behaviour in group I and II patients according to education

Group	Professional	Graduate degree PG & above	Intermediate/ Post high school	High school	Primary school	Illiterate	Total
	No. of Patients %	No. of patients (%)	No. of patients (%)	No. of patients (%)	No. of patients (%)	No. of patients (%)	No. of patients (%)
Group I	0(0)	3 (3.66)	8 (9.75)	20 (24.39)	47 (57.32)	4(4.88)	82(100)
Group II	2(2.44)	6(7.32)	14(17.07)	24(29.27)	34(41.46)	2(2.44)	82 (100)

P < 0.05, statistically significant

Table 3: Distribution of Illness behaviour in group I and II patients according to occupation

Group	Professional	Semi professional	Clerk, shop owner, farm owner	Skilled worker	Semi skilled worker	Unskilled worker	Unemployed	Total
	No. of Patients %	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients %
Group I	10(0)	1(1.22)	8(9.76)	14(17.06)	24(29.27)	30(36.59)	5(6.10)	82(100)
Group II	110(0)	0(0)	10(12.19)	31(37.80)	26(31.71)	11(13.42)	4(4.88)	82(100)

P < 0.05, statistically significant

Table 4: Distribution of Illness behaviour in group I and II patients according to family income

Group	>40,407	20,361 to 40,700	15,281 to 20,360	10,161 to 15,280	6,101 to 10,160	2,041 to 6100	<2,040	Total
	No. of Patients %	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients (%)	No. of Patients %
Group I	0(0)	0(0)	0(0)	4(4.88)	23(28.05)	44(53.66)	11(13.41)	82(100)
Group II	0(0)	0(0)	0(0)	3(3.66)	24(29.27)	50(60.98)	5(6.09)	82(100)

P < 0.05, statistically significant

reasons for their frustration and dissatisfaction.²³ Thus, illness behaviour is inversely related to income per month.

CONCLUSION

The present study concludes that the illness behavior is most prominent in male gender patients. Frequency of tuberculosis was found to be decreased very rapidly as the degree of education increases and was zero in case of postgraduates. Occupation status has a great role in illness behavior as the low occupation status triggers the obsession. The per capita income of an individual has great impact on his social status as well as satisfaction. Thus, socioeconomic status has a tremendous role in illness behaviour of tuberculosis patients undergoing DOTS therapy.

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REFERENCES

1. Dye C, Scheele S, Dolin P, Pathania V, Raviglione MC. Consensus statement. Global burden of tuberculosis: estimated incidence, prevalence and mortality by country. WHO Global Surveillance and Organization project. *JAMA* 1999; 282:677-86.
2. Epidemiology, strategy, financing: WHO report, Geneva: World Health Organization; 2009 (WHO/HTM/TB/2009.411).
3. RNTCP Communication Strategy for a health. Published by Central TB Division Directorate General of Health Service Ministry of Health and Family Welfare Government of India, 2008.
4. Global Tuberculosis Control Report 2009, Available from; URL. http://www.who.int/tb/Publications/global_report/2009/pdf/full_report.Pdf. Accessed November 30, 2009.
5. <http://www.tbcindia.nic.in/pdfs/TB%20India%202009.pdf>.
6. Chauhan, L.S, Agarwal, S.P. Revised national Tuberculosis Control Programme. Tuberculosis in India chapter 3, 2008: 23-34.
7. Tones K. Health education, behaviour change and public health. Oxford textbook of public health (ed. 3rd), vol 2, New York: Oxford University Press, 1997: 786.
8. Rabin D, Schach E. Medicaid, Morbidity and Physician. *Medical Care* 1975; 13:68-73.
9. Yee D, Valiquette C, Pelletier M, Parisien I, Rocher I, Menzies D. Incidence of serious side effects from first-line antituberculosis drugs among patients treated for active tuberculosis. *Am J Respir Crit Care Med* 2003; 167:1472-7.
10. Yamada S, Caballero J, Matsunaga DS, Agustin G, Magana M: Attitudes regarding tuberculosis in immigrants from the Philippines to the United States. *Fam Med* 1999; 31:448-77.
11. Peterson TJ, Castle White M, Young JA, Meakin R, Moss AR: Street talk: knowledge and attitudes about tuberculosis and tuberculosis control among homeless adults. *Int J Tuberc Lung Dis* 1999; 3:528-33.
12. Babcock DE and Miller MA. Client Education: Theory and practice. Baltimore: Mosby Year Book Inc.; 1994.
13. Kunik ME, Roundy K, Veazey C, et al. Surprisingly high prevalence of anxiety and depression in chronic breathing disorders. *Chest* 2005; 127(4):1205-11.
14. Aydin IO, Ulusahin A. Depression, anxiety, comorbidity and disability in tuberculosis and chronic obstructive pulmonary disease patients: Applicability of GHQ-12. *Gen Hos Psych* 2001; 23(2):77-83.
15. Dubey KK, Bhasin SK, Bhatia MS. Psychological reactions amongst patients, their family members and the community regarding hospitalized tuberculosis patients in Delhi. *Psychiatry Today* 1998; 11:30-3.
16. Moudgil AC, Persadh D. Psychosocial survey of tuberculosis patients in a sanatorium. *Indian J Tub* 1972; 19:34-7.
17. Natani GD, Jain N.K, Sharma TN et al. Depression in tuberculosis patients: correlation with duration of disease and response to anti-tuberculous chemotherapy. *Indian Journal of Tuberculosis* 1985; 32(4):195-8.
18. Lorant V, Deliège D, Eaton W, Robert A, Philippot P, Ansseau M. Socioeconomic Inequalities in Depression: A Meta-Analysis. *American Journal of epidemiology* 2002; 157:98-112.
19. Marmot M, Feeny A. General expression for social inequalities in Health. *IARC Sci Public* 1997; 38:207-8.
20. Prescott E, Vestbo J. Socio economic status and chronic obstructive pulmonary disease. *Thorax* 1999; 5:737-41.
21. Akhtar S, White F, Hassan R et al. Hyperendemic pulmonary tuberculosis in peri-urban areas of Karachi, Pakistan. *BMC Public Health* 2007; 3(7):70.
22. Bobbin, C. Pathological Basis of Disease, New York, Saunders. 1984.
23. Arora VK, Johri A, Verma RP. Post treatment adjustment problem and coping mechanism in pulmonary tuberculosis patients. *Ind Jour Tub* 1992; 39:181.