

**ORIGINAL ARTICLE****AWARENESS REGARDING PULMONARY TUBERCULOSIS -  
A STUDY AMONG PATIENT TAKING TREATMENT OF  
TUBERCULOSIS IN RURAL SURAT, GUJARAT****Madhu Vidhani<sup>1</sup>, Parul Vadgama<sup>2</sup>**<sup>1</sup>Associate Professor, Department of Community Medicine, C.U. Shah Medical college, Surendar nagar, Gujarat;<sup>2</sup>Associate Professor, Department of TB and Chest, SMIMER, Surat**Correspondence:** Dr. Madhu Vidhani, Email: drmadhuvidhani@gmail.com**ABSTRACT**

**Background:** Pulmonary tuberculosis (PTB) is one of the most grave public health problem and account for four fifth of all tuberculosis cases. PTB is the key source of spread of mycobacterium. Revised National Tuberculosis Control Programme (RNTCP) adopted passive surveillance strategy of the chest symptomatic for identification of cases of PTB. Therefore, it is utmost important that the basic information about PTB and services provided under the program is clear in community.

**Methodology:** A cross sectional observational study was conducted among 176 patient taking treatment of PTB from Health Centers of Surat District.

**Results:** More than 80 percent of the respondents were aware of symptomatology of PTB. Almost all (96.7%) of patient were aware about one person to other person mode of transmission of tuberculosis. Almost half were aware about the infective organism as cause of disease and more than one third patients were aware of diagnostic investigations of PTB. However only 9% of patients were know about BCG immunization as means of prevention for tuberculosis. Most of the respondents 95% believed that tuberculosis is curable.

**Conclusion:** The current study revealed that although awareness regarding certain basic aspect of tuberculosis was adequate; however there is a great need to improve awareness in illiterate individuals and females. Importance of BCG vaccination needs to be appreciated in community through continuation and innovations in IEC.

**Key words:** Pulmonary tuberculosis, knowledge and awareness survey.

**INTRODUCTION**

Tuberculosis is remains to be a major public health problem in our country and is the largest cause of healthy life years in the productive age group.<sup>1</sup> Though tuberculosis control program has been in vogue for more than 30 years, it has not made a measurable impact on the disease situation.<sup>1</sup> In spite of nearly half of bacillary cases of tuberculosis approaching general health institution, for relief of their symptoms, <sup>2</sup> the case finding and case holding efficiency of these agencies is generally poor. It has been reported that a majority of chest symptomatic in cities, first approach the private sector for relief, and even in rural areas 1/3rd of the diagnosed cases have approached the private treating agencies.<sup>3, 4</sup> Patients' adherence to the treatment depends on many psychological and sociological factors including age, education level and patient's own idea about the disease.<sup>5</sup>

Over the last three decades, there has been an accelerated growth of private practitioner and

nongovernmental organization catering to health needs<sup>1</sup>. However, the diagnostic and curative abilities of these agencies were not standardized and only a fraction of the diagnosed cases completed treatment resulting in unsatisfactory cure rates. Thus it is important that the basic and correct knowledge of the disease and the free treatment availability is clear among the people. Equally importance is to assess incorrect practices of people, if any. Such studies are more relevant in remote and backward areas inhabited mostly by poor people with limited access to health care.

**OBJECTIVES**

The present study was undertaken with the following objectives -

1. To assess correct knowledge regarding symptoms, mode of transmission and etiology of pulmonary tuberculosis

2. To assess knowledge regarding investigation, prevention and treatment of tuberculosis

## MATERIAL AND METHODS

This cross sectional study was conducted at Rural Health Centres (12) of Surat District located in south Gujarat. These centers provide curative as well as preventive health services to the people on and around the adjoining areas. The study was conducted among all the 176 patients (study subjects) aged 15 – 55 years currently under treatment for Pulmonary Tuberculosis at selected centres. Patients were interviewed at the center. Each interview was conducted at a time when patient came to receive ATT from the center. A questionnaire containing socio-demographic variable such as age, sex, religion, literacy status, and knowledge about symptoms, mode of transmission, etiology, investigation, prevention and treatment of tuberculosis was prepared as study tool and tested. Each interview lasted for about 30 minutes. The collected data was entered in Microsoft Excel and transformed to SPSS statistical package for suitable statistical analysis and inferences were drawn. Z-test for difference between two proportions was applied for statistical significance.

## RESULTS

A total of 176 patients (study subjects) between the age group of 15 – 55 years suffering from Pulmonary Tuberculosis were interviewed. Out of these 176 patients, 108 (61.4%) were male and 68 (38.6%) were female. Majority of the patients 138 (78.4%) were Hindu while rest 38 (21.6%) were Muslims. As far as literacy status was concerned, 56 (32%) were illiterate. Majority of the females 60 (88%) were housewives while 76 (70.4%) male were farmers.

Majority of the patients were aware regarding symptoms of tuberculosis. Cough with sputum 132 (75%) was the commonest symptom known, followed by weight loss 96 (54.5%), fever 84 (47.8%), weakness and breathlessness 68 (38.6%), anorexia 64 (36.4%), hemoptysis 56 (31.8%) and chest pain 10 (5.7%). About 34 (19.3%) patients were not aware about any symptom of tuberculosis. Males 92 (85.2%) were more aware about symptoms than females 50 (73.6%). As far as literacy status was concerned, literate 114 (95%) were more aware about symptoms than illiterate 28 (50%). (Table 1)

**Table 1: Relationship of knowledge of symptoms with sex and literacy**

Symptoms	Male (n=108)	Female (n=68)	Illiterate (n=56)	Literate (n=120)
Cough with expectoration	88 (81.5)*	44 (64.7)*	28 (50.0)*	104 (86.7)*
Weight loss	64 (59.3)	32 (47.1)	12 (21.4)*	84 (70.0)*
Fever	48 (44.4)	36 (52.9)	20 (35.7)	64 (53.3)
Hemoptysis	44 (40.7)*	12 (17.6)*	16 (28.6)	40 (33.3)
Anorexia	48 (44.4)*	16 (23.5)*	16 (28.6)	48 (40.0)
Weakness	44 (40.7)	24 (35.3)	8 (14.3)*	60 (50.0)*
Pain in chest	8 (7.4)	2 (2.9)	2 (3.6)	8 (6.7)
Not aware	16 (14.8)	18 (26.5)	28 (50.0)	6 (5.0)

Figure in parenthesis indicate percentage; \*Statistically significant by Z test at 95% CI

As many as 82 (46.6%) patients were aware that tuberculosis infection could be transmitted from one individual to another through close contact and coughing. About 48 (27.3%) patients cited TB transmission via air and 40 (22.7%) of patients cited food and utensils as the route of spread. In this regard

female constituted a significantly higher percentage 28 (41.2%) as compare to male 12 (11.1%). As far as literary status was concerned, literate 118 (98.8%) and illiterate 54 (96.4%) both are almost having same knowledge regarding mode of transmission. (Table 2)

**Table 2: Relationship of knowledge of mode of transmission with sex and literacy**

Mode of Transmission	Male (n=108)	Female (n=68)	Illiterate (n=56)	Literate (n=120)
Air	40 (37.0)*	8 (11.8)*	10 (17.9)	38 (31.7)
Coughing & Close contact	54 (50.0)	28 (41.2)	22 (39.3)	60 (50.0)
Food & Utensils	12 (11.1)*	28 (41.2)*	20 (35.7)*	20 (16.7)*
Not aware	2 (1.9)	4 (5.9)	4 (7.1)	2 (1.7)

Figure in parenthesis indicate percentage; \*Statistically significant by Z test at 95% CI

Majority of the patients 92 (52.3%) have no idea about correct etiology of the disease. About 84 (47.7%) patients attributed the correct etiology of disease i.e. infective organism. In this regard males outnumbered

females, among those with literacy status, literate 80 (66.7%) were more aware of correct etiology than illiterate 4 (7.1%). Other causes cited by the patients includes smoking and alcohol consumption along with

poor diet 30 (17.0%), heredity 10 (5.7%), curse 10 (5.7%) while 42 (23.9%) were not aware of any etiology regarding the disease. (Table 3)

**Table 3: Relationship of knowledge of etiology with sex and literacy**

Etiology	Male (n=108)	Female (n=68)	Illiterate (n=56)	Literate (n=120)
Heredity	4 (3.7)	6 (8.8)	4 (7.1)	6 (5.0)
Infective organism	68 (63.0)*	16 (23.5)*	4 (7.1)*	80 (66.7)*
Curse	4 (3.7)	6 (8.8)	6 (10.7)	4 (3.3)
Smoking/alcohol/poor diet	24 (22.2)	6 (8.8)	8 (14.3)	22 (18.3)
Not aware	8 (7.4)*	34 (50.0)*	34 (60.7)*	8 (6.7)*

Figure in parenthesis indicate percentage; \*Statistically significant by Z test at 95% CI

Majority of patients 102 (57.9%) were not aware of investigations carried out to diagnose the disease. About 56 (31.8%) stated sputum examination, 48 (27.3%) stated X-ray while 14 (8.0%) stated other investigation like urine of stool examination as to be done in a suspected case of tuberculosis.

Majority of the patients 170 (96.6%) stated that some precaution must be taken if they are diagnosed to be having tuberculosis. A total of 40 (22.7%) of patients stated separate utensils and food as the commonest precaution. Other stated covering of mouth during coughing 44 (25.0%), proper sputum disposal 52 (29.5%), good diet and clean environment 30 (17.0%) and only 4 (2.3%) patients were of the opinion that they should stay separately. BCG vaccine was known to only 16 (9.1%) in spite of coverage of 94% of infant in the area.

Most of the patients 168 (95.5%) thought that tuberculosis is curable. Awareness about anti-tubercular drug being given free of cost at government health centers was known to 130 (73.9%), whereas 4 (2.3%) stated that treatment was not free of cost and 24 (23.8%) were not aware of their status. The duration (6 – 9 months) was correctly known to only 58 (32.9%) patients. Almost all the patients were aware that if anti tubercular drug is not taken than it could adversely affect their health.

## DISCUSSION

India has the highest number of TB cases in the world and it has to be addressed at any cost. <sup>6</sup> Knowledge and awareness regarding various aspect of tuberculosis is very important among the masses to curb it. The mass survey carried out by Central TB Division, Ministry of Health, Government of India, reported poor level of awareness among general population and very poor among disadvantaged section of the society. <sup>7</sup> Literacy has been identified as the key deciding factor for level of awareness. The KAP study among sandstone quarry workers in

Rajasthan, conducted by Yadav et al, showed literate people having significantly higher level of awareness and knowledge regarding TB. <sup>8</sup> Devey J reported that only 21% of people from Northern part of Bihar knew how TB is spread and the level of knowledge was

determined by educational and economic status of the person. <sup>9</sup> All these findings are almost consistent with our findings. However, the study conducted in rural Delhi in 2001 showed encouraging results with more than 95% participants being aware of cause of TB. <sup>10</sup> In a study conducted by Kar M and Logaraj M regarding knowledge about mode of spread of the disease, only 20% replied cough or sputum as the mode of spread and the rest 80% didn't have any knowledge or wrong knowledge about the mode of spread of TB. Literacy status was the key factor in determining level of awareness about TB. <sup>11</sup> These findings are also found to be consistent with our observation.

In the present study, cough with sputum (75.0%), weight loss (54.5%), fever (47.8%), weakness and breathlessness (38.6%), anorexia (36.4%), hemoptysis (31.8%) and chest pain (5.7%) have been reported to be the chief symptoms of tuberculosis. In another study conducted on patient attending the DOTS Center at Safdarjung Hospital, New Delhi, fever (50.6%), cough (59.3%), weight loss (20.6%), expectoration (11.3%), hemoptysis (11.3%) were reported to be the main symptoms of tuberculosis, known to the people. <sup>12</sup>

In a study conducted in south Indian rural population, cough, fever and hemoptysis were known to 66%, 13% and 15% of the individual respectively. <sup>13</sup> In another study conducted in rural population of Delhi, it was found that cough and sputum (73.7%), weakness and breathlessness (40.4%), fever (34.3%) and hemoptysis were known to be the symptom of tuberculosis among the people. <sup>14</sup> Hence it is encouraging to note the greater awareness of these symptoms among individuals in the present study to improve passive case finding. As far as awareness regarding transmission of tuberculosis is concerned, 96.6% of the patients were aware that tuberculosis could be transmitted from one individual to another. Educating about the misconception of food and utensils as route of transmission so as to remove the stigma attached to the disease. Such misbelieve is also reflected as 22.7% of patients stated provision of separate utensil and food when a member of the family had tuberculosis and this fact has been substantiated by the worker of others. <sup>14</sup>

In our study, as regard the knowledge of etiology of tuberculosis is concerned, 47.7% of patients were

aware about the correct etiology i.e. infective organism. Some patients have got incorrect knowledge about the cause such as curse, heredity, smoking, alcoholism and poor diet. These wrong misconceptions about etiology of the disease may delay the timely treatment seeking behavior of patients to the health institution. As regard the investigation to be carried out for tuberculosis, 31.8% stated sputum examination and 27.3% stated X-ray while 8% stated urine and stool. However in contrast to our findings, in a study conducted at DOTS Centre, Safdarjung Hospital, New Delhi, 62.6% of the patients were of the opinion that for diagnosis of tuberculosis sputum examination was the most preferred test followed by X-ray.<sup>12</sup>

A prominent finding in our study was that only 9.1% of patient knew that tuberculosis can be prevented by BCG vaccine in spite of coverage of 94% of infant in the area. In a study done in rural south Indian community, BCG as a vaccine for tuberculosis was known to only 15.6% individuals<sup>7</sup> and in another study at Delhi, it was reported as 9.8%.<sup>14</sup> Thus the mass media and IEC activities should continued giving messages about importance of BCG and other vaccine preventable diseases.

Most of the participants thought that tuberculosis is curable. The duration (6 – 9 month) was correctly known to only 32.9% of the patients. In a study done at DOTS Centre Safdarjung Hospital, New Delhi, 53.3% of the patient knew that the treatment for tuberculosis was to be taken for a span of 6 – 9 month.<sup>12</sup> Here again comes the vital role of health education/IEC messages. More stress should be put upon the completion and the duration of tuberculosis treatment through IEC messages.

In our study, lower level of knowledge about symptoms, transmission and etiology of the disease were observed in females and in illiterate patient. From the forgoing awareness study of patients, we would infer that although knowledge regarding etiology, symptoms, mode of transmission was satisfactory, however female and illiterate individual need to be focused on a priority basis for education regarding the disease. Misconceptions and incorrect knowledge like utensils and food as mode of transmission need to be removed. World Health Organization also recognizes the importance of tuberculosis-related knowledge, attitude and practice surveys in advocacy,

communication and social mobilization strategy planning.<sup>15</sup>

## REFERENCES

1. Vijay RA., Chada VK, Shashidhara AN, Jaigopal MV and Selvam. A study of knowledge, Attitude and practices of patients currently under treatment for tuberculosis and defaulter in a backward area of South India. *NTI Bulletin* 1997; 33/1 & 2: p.3 – 8.
2. Banerji D and Anderson S. A sociological study of awareness of symptoms among persons with pulmonary TB. *Bull WHO*; 1963; 26, p. 665
3. Upleker, M. and Rangan, S. Private doctor and TB control in India. *J of Tuberc and Lung Dis* 1993; 74: 332
4. Uplekar M and Rangan S. *Tackling TB – the search for solution*. Foundation for Research in Community Health; 1996
5. Bakke PS, Honoo R and Culsuik A. Educational level and obstructive lung disease, given smoking habits and occupational airborne exposure: A Norwegian Community Study. *Am. J. Epidemiol.*; 1995; 141: 1080
6. WHO Report. *Global Tuberculosis Control: Surveillance, Planning, Financing*; 2008.
7. IEC Baseline survey: Central TB Division; August 2007.
8. Yadav SP, Mathur ML and Dixit AK. Knowledge and attitude towards tuberculosis among sandstone quarry workers in desert parts of Rajasthan. *Indian J Tuberc* 2006; 53:187-95
9. Devey J. Report on a knowledge, attitude, and practice (KAP) survey regarding tuberculosis conducted in Northern Bihar. 23 April 2001.
10. Fochsen G, Deshpande K, Diwan V, Mishra A, Diwan VK, and A. Thorson. Health care seeking among individuals with cough and tuberculosis: a population-based study from rural India. *Int J Tuberc & Lung Dis* 2006; 10(9): 995 – 1000.
11. Kar M and Logaraj M. Awareness, attitude and treatment seeking behavior regarding Tuberculosis in a rural area of Tamil Nadu. *Indian J Tuberc* 2010; 57: 226 – 229.
12. Matta S, Singh D, Bhalla S, Rasania S, Singh S and Sachdev TR. A study on knowledge and family attitude of patients regarding Pulmonary Tuberculosis attending the DOTS Center of Safdarjang Hospital, New Delhi. *Indian J. Prev. Soc. Med.* 2005; 36/1&2: 16 – 20.
13. Subramaniam T et al. Knowledge of tuberculosis in a South Indian rural community, initially and after health education. *Indian J. Tuberc*; 1999; 46: 251 – 4.
14. Malhotra R et al. Awareness regarding tuberculosis in a rural population of Delhi. *Indian J. of Com. Med*; 2002; 26(2): 62 – 68.
15. World Health Organization. *Advocacy, communication and social mobilization for TB control. A guide to developing knowledge, attitude and practice surveys*; 2008.