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Research Article

# Awareness about Tuberculosis among Adult Patients Attending OPD of a Tertiary Health Care Hospital: A Cross-Sectional Study

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## I N F O

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## A B S T R A C T

*Background:* Tuberculosis disease is a major threat to the society. Awareness about tuberculosis is insufficient in the community which contributes to its spread. This study was conducted to assess awareness about tuberculosis among adult patients attending the Outpatient Department (OPD) of a tertiary healthcare hospital.

*Material and Methods:* A descriptive cross-sectional study was conducted using purposive sampling method among adult patients attending OPD of a tertiary health care hospital in Thane in the month of June 2024. Necessary permissions and approvals were obtained. Inclusion and exclusion criteria were defined. 422 patients were interviewed to assess their awareness about tuberculosis and the data was recorded in the proforma. Data was entered in Microsoft Excel and analysed. Chi-square test was applied. The statistical level of significance was fixed at $p < 0.05$.

*Results:* 422 patients were included in the study, of which 197 (46.68%) were male and 225 (53.32%) were female. 55 (13.03%) subjects were illiterate and 367 (86.97%) were literate. 349 (82.70%) patients were from urban and 73 (17.30%) were from rural areas. 223 (52.84%) were aware of tuberculosis of which 119 (53.36%) were male and 104 (46.64%) were female ($p < 0.05$), 202 (90.58%) were literate and 21 (09.42%) were illiterate ($p < 0.05$), 119 (53.36%) were employed/ self-employed and 104 (46.64%) were retired/ homemakers ($p < 0.05$). The gender-wise distribution of awareness about tuberculosis among subjects more than 60 years of age was statistically significant ($p < 0.05$).

*Conclusion:* Only 52.84% of adult patients were aware of tuberculosis. Efforts should be made to enlighten the community about tuberculosis and its consequences. Awareness in society will help to break the chain of transmission of tuberculosis infection crucial for its elimination.

**Keywords:** Awareness, Tuberculosis, Patients, Tertiary Health Care Hospital

## Introduction

Tuberculosis, a deadly disease has been prevalent in the Indian community for ages. It is a disease mainly seen in developing and underdeveloped countries. India accounts for 21.00% of TB incidence globally. In India, tuberculosis continues to be a serious public health issue. The disease's current state in India highlights the urgent need to treat it as a social issue that requires creative solutions in order to be effectively controlled, rather than just a medical or even public health issue.[1] To raise knowledge and dispel misconceptions about tuberculosis in urban slum communities, extensive health education aimed at changing attitudes through community involvement is required.[2] One infectious disease that is quite important in our nation is tuberculosis. The issue has gotten worse since the start of the HIV/AIDS pandemic.[3] India continues to have the biggest global burden of tuberculosis and one of the highest rates of drug-resistant forms of the disease. The most productive age group and high-risk rural communities are frequently affected by tuberculosis, which has a significant socioeconomic impact.[4] The world's largest number of TB cases is found in India. In order to treat tuberculosis in India, it is crucial that the entire public is aware of the condition.[5]

The prevalence of tuberculosis is very high in underdeveloped nations like India. To lessen its burden, the World Health Organization and the Indian government have occasionally adopted a number of different tactics. Nonetheless, the best results from these tactics are obtained when people are well informed on the disease's epidemiology.[6] The infectious disease tuberculosis, which typically affects the lungs, is brought on by the mycobacterium tuberculosis. A key factor in the prevention and management of tuberculosis may be raising community knowledge of the illness.[7] One of the biggest obstacles to reducing disease transmission in rural areas is the lack of knowledge on the causes, risk factors, treatment, and prevention of tuberculosis.[8] Due to the stigma associated with the disease, most TB sufferers conceal it from their loved ones and the community. An effort could be undertaken to raise knowledge among the uneducated in order to dispel myths and misconceptions, alleviate the stigma associated with it in society, and lessen the spread of tuberculosis.[9]

Tuberculosis has turned out to be one of the most complex health issues worldwide. It is still perceived as a taboo disease causing its spread. Many people were not aware of this disease. Several misconceptions about the disease still exist amongst the people in rural areas.[10] The National Prevalence Survey of India (2019–2021) estimated 31.00% tuberculosis infection burden among individuals above 15 years of age. The prevention of tuberculosis by the treatment of tuberculosis infection is largely undervalued but remains a valuable component of the National Strategic Plan 2017–25 for ending tuberculosis in India by 2025, five years ahead of the sustainable development goals.[11] In view of this, this study was conducted to assess the awareness about tuberculosis among adult patients attending OPD of a tertiary health care hospital.

## Materials And Methods

This is a descriptive cross-sectional study conducted using purposive sampling method among adult patients attending OPD of a tertiary health care hospital in Thane in the month of June 2024. Necessary permissions and approvals were obtained from the hospital authority. Inclusion and exclusion criteria were developed. Those patients who were willing to participate in the study were included and those who were not willing to participate in the study were excluded. Serious patients and patients less than eighteen years of age were excluded. Verbal informed consent was obtained from each subject. 422 patients were interviewed to assess their awareness of TB. Pre-designed and pre-tested formatted proforma was used to record the relevant data. Data was entered in Microsoft Excel and analysed. Descriptive and inferential statistics were applied. Results were represented in the form of tables. Chi-square test was applied to test the significance and to interpret the results. The statistical level of significance was fixed at $p < 0.05$.

## Results

A total of 422 adult patients were included in the study and interviewed, of which, 197 (46.68%) were male and 225 (53.32%) were female. 223 (52.84%) subjects were aware of tuberculosis disease while 199 (47.16%) were unaware. Of the 223 aware, 119 (53.36%) were male and 104 (46.64%) were female. Of the 197 (46.68%) male subjects, 119 (60.41%) while of the 225 (53.32%) female subjects, 104 (46.22%) were aware of tuberculosis ($p < 0.05$) (Table 1).

The ages of the subjects ranged from 18 to 89 years. 138 (32.70%) subjects were in the age group of 18–60 years while 284 (67.30%) were more than 60 years of age. Of the 138 (32.70%) subjects in the age range of 18–60 years, 66 (47.83%) were aware of tuberculosis while of the 284 (67.30%) subjects above 60 years of age, 157 (55.28%) were aware of tuberculosis. The gender-wise distribution of awareness about tuberculosis among subjects more than 60 years of age was statistically significant ($p < 0.05$) (Table 2).

368 (87.20%) subjects were literate and of them, 202 (54.89%) were aware of tuberculosis while 54 (12.80%) subjects were illiterate and of them, 21 (38.89%) were aware of tuberculosis. The distribution was statistically significant ($p < 0.05$) (Table 3).

349 (82.70%) subjects were from urban areas, of which, 182 (52.15%) were aware of tuberculosis while 73 (17.30%)

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subjects were from rural areas, of which, 41 (56.16%) were aware of the disease (p > 0.05) (Table 4).

Of the 381 (90.28%) subjects who had directly come to the hospital for treatment, 199 (52.23%) were aware of the tuberculosis disease, while of the 41 (10.76%) patients who were referred to this tertiary healthcare hospital by private practitioners, primary health centres or secondary healthcare hospitals for higher management, 24 (58.54%) were aware of tuberculosis (p > 0.05) (Table 5).

223 (52.84%) subjects were aware of tuberculosis. The source of information for 111 (49.78%) subjects was 'word of mouth' and for 64 (28.70%) subjects, it was 'mass media'. Other sources were educational institutes (04.04%) and healthcare workers (03.14%). Of the 422 subjects, 32 (07.58%) had suffered or were suffering from tuberculosis. For these 32 (14.35%) subjects who had awareness, their own experience 'past history of tuberculosis' was the source of information (Table 6).

304 (72.04%) subjects had consulted in medicine and allied OPDs, of which, 169 (55.59%) were aware of tuberculosis. 90 (21.33%) subjects were from surgery and allied OPDs, of which, 42 (46.67%) were aware of tuberculosis. 28 (06.63%) subjects consulted in obstetrics and gynaecology OPD, of which, 12 (42.86%) knew about tuberculosis (p > 0.05) (Table 7).

188 (44.55%) subjects were employed or self-employed, of which, 119 (63.30%) were aware of tuberculosis. 234 (55.45%) subjects were homemakers/ retired of which 104 (44.44%) were aware of tuberculosis. The difference was statistically significant (p < 0.05) (Table 8).

**Table 1.Gender-wise Distribution of Awareness about TB among Patients Attending OPD**

N = 422

| Gender | Frequency N = 422 | Percentage | Awareness about Tuberculosis | | | |
|---|---|---|---|---|---|---|
| | | | Yes (N = 223, 52.84%) | | No (N = 199, 47.16%) | |
| | n | % | n | % | n | % |
| Male | 197 | 46.68 | 119 | 60.41 | 78 | 39.59 |
| Female | 225 | 53.32 | 104 | 46.22 | 121 | 53.78 |
| $x^2$ test | | | $x^2$ = 8.48 | | p = 0.003 | |

**Table 2.Age and Gender Wise Distribution of Awareness about TB among the Patients**

N = 422

| Age Groups (In Years) | Gender | Number N = 422 | Frequency | Awareness about Tuberculosis | | | |
|---|---|---|---|---|---|---|---|
| | | | | Yes (N = 223) | | No (N = 199) | |
| | | n | % | n | % | n | % |
| 18–60 | Male | 60 | 43.48 | 29 | 48.33 | 31 | 51.67 |
| | Female | 78 | 56.52 | 37 | 47.44 | 41 | 52.56 |
| Total | | 138 | 32.70 | 66 | 47.83 | 72 | 52.17 |
| $x^2$ test | | | | $x^2$ = 0.01 | | p = 0.92 | |
| > 60 | Male | 137 | 48.24 | 90 | 65.69 | 47 | 34.31 |
| | Female | 147 | 51.76 | 67 | 45.58 | 80 | 54.42 |
| Total | | 284 | 67.30 | 157 | 55.28 | 127 | 44.72 |
| $x^2$ test | | | | $x^2$ = 11.61 | | p = 0.0006 | |

**Table 3.Literacy Status-wise Distribution of Awareness about TB among the Patients**

N = 422

| Literacy Status | Number (N = 422) | Percentage | Awareness about Tuberculosis | | | |
|---|---|---|---|---|---|---|
| | | | Yes (N = 223) | | No (N = 199) | |
| | n | % | n | % | n | % |
| Illiterate | 54 | 12.80 | 21 | 38.89 | 33 | 61.11 |
| Literate | 368 | 87.20 | 202 | 54.89 | 166 | 45.11 |
| $x^2$ test | | | $x^2$ = 4.84 | | p = 0.02 | |

**Table 4.Locality-wise Distribution of Awareness about TB among the Patients**

N = 422

| Locality | Number N = 422 | Percentage | Awareness about Tuberculosis | | | |
|---|---|---|---|---|---|---|
| | | | Yes (N = 223) | | No (N = 199) | |
| | n | % | n | % | n | % |
| Urban | 349 | 82.70 | 182 | 52.15 | 167 | 47.85 |
| Rural | 73 | 17.30 | 41 | 56.16 | 32 | 43.84 |
| $x^2$ test | | | $x^2$ = 0.39 | | p = 0.53 | |

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**Table 5.Reporting Status-wise Distribution of Awareness about TB among the Subjects**

N = 422

| Variables | Number N = 422 | Frequency | Awareness about Tuberculosis | | | |
|---|---|---|---|---|---|---|
| | | | Yes (N = 223) | | No (N = 199) | |
| | n | % | n | % | n | % |
| Self-reported | 381 | 90.28 | 199 | 52.23 | 182 | 47.77 |
| Referred | 41 | 09.72 | 24 | 58.54 | 17 | 41.46 |
| $x^2$ test | | | $x^2$ = 0.59 | | p = 0.44 | |

**Table 6.Sources of Information about Tuberculosis among the Patients Attending OPD**

N = 223

| Sources of Information | Frequency (N = 223) | Percentage |
|---|---|---|
| Word of mouth | 111 | 49.77 |
| Mass media | 64 | 28.70 |
| Educational institutes | 09 | 04.04 |
| Healthcare workers | 07 | 03.14 |
| Past h/o tuberculosis (N = 32) | 32 | 14.35 |

**Table 7.OPD-wise Distribution of Awareness about TB among the Patients**

N = 422

| Variables | Frequency N = 422 | Percentage | Awareness about tuberculosis | | | |
|---|---|---|---|---|---|---|
| | | | Yes (N = 223) | | No (N = 199) | |
| | n | % | n | % | n | % |
| Medicine and allied | 304 | 72.04 | 169 | 55.59 | 135 | 44.41 |
| Surgery and allied | 90 | 21.33 | 42 | 46.67 | 48 | 53.33 |
| Obstetrics and gynecology | 28 | 06.63 | 12 | 42.86 | 16 | 57.14 |
| $x^2$ test | | | $x^2$ = 3.42 | | p = 0.18 | |

**Table 8.Occupation-wise Distribution of Awareness about TB among the Patients**

N = 422

| Occupation | Frequency N = 422 | Percentage | Awareness about tuberculosis | | | |
|---|---|---|---|---|---|---|
| | | | Yes (N = 223) | | No (N = 199) | |
| | n | % | n | % | n | % |
| Employed/ self-employed | 188 | 44.55 | 119 | 63.30 | 69 | 36.70 |
| Retired/ homemakers | 234 | 55.45 | 104 | 44.44 | 130 | 55.56 |
| $x^2$ test | | | $x^2$ = 14.87 | | p = 0.0001 | |

## Discussion

In the present study, 422 adult patients were included and interviewed, of which, 223 (52.84%) were aware of tuberculosis disease while 199 (47.16%) were unaware. Of the 223 (52.84%) aware of the disease, 119 (53.36%) were male and 104 (46.64%) were female. Of the 197 (46.68%) male subjects, 119 (60.41%) were aware of tuberculosis while of the 225 (53.32%) female subjects, 104 (46.22%) were aware of tuberculosis ($p < 0.05$). Research has been done to assess the knowledge, attitudes and practices with regard to tuberculosis, among different sections of the population in India. Gothankar in her school-based interventional study in Pune, observed a highly significant increase in the knowledge of school students after the tuberculosis awareness programme by medical undergraduate students.[1] Awareness about tuberculosis in the community is very important to break the chain of transmission of tuberculosis infection.

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In our study, we observed that 223 (52.84%) subjects were aware of tuberculosis disease. The source of information to 111 (49.78%) subjects was 'word of mouth' followed by 'mass media' in the case of 64 (28.70%) subjects. 32 (07.58%) subjects had a history of tuberculosis or were currently suffering from tuberculosis and thus their own experience became their source of information. In a study by Singh et al. in an urban slum community in Delhi, a 28.40% tuberculosis literacy rate was observed among adults aged 16–70 years.[2] 83.60% heard of tuberculosis mainly from neighbours and 62.10% through friends. Only 02.30% knew that tuberculosis was caused by a germ. Only 12.60% knew that the duration of treatment was six to eight months and 01.70% knew about the preventive role of BCG vaccine. Gopichandran et al. in their study in Vellore among high school children observed that 77.00% of the students were aware that tuberculosis was caused by a bacterium and 85.00% were aware that it could spread from person to person.[3]

In the present study, the age range of the subjects was from 18 to 89 years. 138 (32.70%) subjects were in the age group of 18–60 years while 284 (67.30%) were more than 60 years of age. Of the 138 (32.70%) subjects in the age range of 18–60 years, 66 (47.83%) were aware of tuberculosis while of the 284 (67.30%) subjects above 60 years of age, 157 (55.28%) were aware of tuberculosis. The gender-wise distribution of awareness about tuberculosis among subjects aged more than 60 years of age was statistically significant ($p < 0.05$). Shashikantha and Sheethal, in their study in rural Karnataka among subjects aged 18–65 years of age, observed that 76.10% of subjects had heard about tuberculosis disease.[4] More than 50.00% of the subjects mentioned 'coughing' by an infected person as the main reason for the spread of tuberculosis. More than 60.00% of the subjects knew that tuberculosis diagnostic facilities and treatment modalities are available free of cost in any government health centre.

In the current study, it was observed that 368 (87.20%) subjects were literate and of them, 202 (54.89%) were aware of tuberculosis, while 54 (12.80%) subjects were illiterate and of them, 21 (38.89%) were aware of tuberculosis. The distribution was statistically significant at $p < 0.05$. Kala et al., in their study in rural Tamil Nadu, observed that adequate knowledge of tuberculosis among 75.70% of the subjects.[5] There was a significant association between the knowledge of tuberculosis among the study population and the demographic variables of educational and marital status. Shankar and Ramakrishnan, in their study among adults visiting tertiary healthcare centres as patients or attendees, observed that about 73.60% of the study participants felt that tuberculosis was a genetic disorder while only 12.40% of them were aware that the infection was transmitted through coughing.[6] Vanaja et al., in their study among senior school children in Bangalore, India, observed significant knowledge improvement about tuberculosis from 01.59% (pre-education) to 49.67% (post-education).[7]

We observed, 188 (44.55%) subjects were employed or self employed of which 119 (63.30%) were aware of tuberculosis. 234 (55.45%) subjects were homemakers/ retired of which 104 (44.44%) were aware of tuberculosis. The difference was statistically significant at $p < 0.05$. Dumpeti et al., in their study in rural Telangana, observed that 79.60% of subjects knew that the cause of tuberculosis is bacteria.[8] 93.60% of subjects knew that this disease primarily affects the lungs. The authors observed poor knowledge of the availability of DOTS centres and services offered through RNTCP among the rural population in Telangana. Das et al., in their study in Bengal among general patients attending the outpatient department of tertiary health hospital, observed that 91.38% of subjects had heard about tuberculosis.[9] 62.07% of subjects correctly answered that cough was the commonest symptom. They observed that literacy status had a significant influence on awareness about tuberculosis.

Bobba and Venugoppal, in their study among patients attending rural health centres in Tamil Nadu, observed that 80.00% of patients had heard about tuberculosis disease which is better compared to awareness being only 52.84% observed in our study among adult patients attending OPD of a tertiary health care hospital.[10] Selvaraju et al. observed about one-fourth (22.60%) of the individuals were infected with tuberculosis in our country.[12] Targeted interventions for the prevention of tuberculosis and close monitoring are essential to reduce the burden of tuberculosis.

## Conclusion

This study elicited that only 52.84% of the subjects were aware of tuberculosis. Also, gender disparity was observed regarding knowledge on tuberculosis. Lack of awareness is a hurdle in the implementation of various policies related to the prevention and control of tuberculosis. Chapters on tuberculosis must be introduced in primary education. Stigma reduction of this deadly disease is also a necessity for its prevention and control. It is important for policymakers and public health programme implementation experts to develop health literacy campaigns to create awareness among the people about tuberculosis so as to enhance the successful mitigation of the disease.

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