

Research Article

Socio-demographic Profile of Patients Registered under Revised National Tuberculosis Control Programme in Pune City

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Abstract

Introduction: Tuberculosis is called 'Social Disease' because of the prevalence of various social factors like poverty, illiteracy, ignorance, poor standard of living, overcrowding etc. which are all inter-related and contribute to the prevalence of disease.

Objectives: The present study was carried out to assess the Socio-demographic profile of patients registered under RNTCP Programme of India and to correlate sociodemographic characteristics of study participants with their current health status.

Methods: All TB patients who had been registered during the period of 1st January 2007 to 31st December 2007 under RNTCP were included as study participants. All the participants along with their addresses were contacted by door-to-door visit. Relevant information about sociodemographic characteristics of participants, detailed information regarding present complaints and its duration, past history and family history pertaining to tuberculosis was recorded in pretested and structured proforma. History of risk habits like tobacco, smoking, alcohol with their duration and frequency was also noted. Statistical analysis like Chi-Square test, Monte-Carlo Chi-Square test was carried out by using analysis tool pack from Epi-Info 7 and SPSS 15 statistical package.

Results: Out of 861 registered participants in the year 2007, only 328(38.09%) participants could be actually traced. there was significant association between habits of participants and their study outcome.

Conclusion: there was significant association between habits of participants and their study outcome. However significant association was not observed between age, sex, religion, occupation, education, marital status, family size, family members, overcrowding, ventilation, socioeconomic class and study outcome of participants.

Keywords: Socio-demographic Profile, tuberculosis, RNTCP

1. Introduction

World Health Organization (WHO) estimates that there are nearly 3 million cases and 7,000,000 deaths occur annually from Mycobacterium Tuberculosis in South-East Asia.¹ India accounts for nearly one fifth of global burden of tuberculosis. Everyday more than 20,000 people become infected with TB bacilli.²

Morbidity and mortality due to tuberculosis is brought down to the significant level by an application of WHO recommended strategy of DOTS which is a part of Revised National Tuberculosis Control Programme (RNTCP).

Tuberculosis is called 'Social Disease' because of the prevalence of various social factors like poverty, illiteracy, ignorance, poor standard of living, overcrowding etc. which are all inter-related and contribute to the prevalence of disease. Several studies have shown the significant association of these social components with tuberculosis. The socio-demographic characteristics of DOTS patients were found to be of such levels that could have a pivotal role in the treatment success of tuberculosis.³ They also need to be addressed under the program in such a manner that those characteristics don't prove to be a barrier to treatment success.³

The present study was undertaken to identify various sociodemographic characteristics of tuberculosis patients registered under RNTCP Programme of India.

1.1 Objectives

1. To assess the Socio-demographic profile of patients registered under RNTCP Programme of India.
2. To correlate sociodemographic characteristics of study participants with their current health status.

2. Material and Methods

A cross sectional study was conducted in areas covered by one of the Tuberculosis Units of Pune Municipal Corporation, Pune. All TB patients who had been registered during the period of 1st January 2007 to 31st December 2007 under RNTCP were included as study participants. A list of study participants during specified period was obtained from Tuberculosis Register (TB Register) maintained at respective unit.

All the participants along with their addresses were contacted by door-to-door visit with the help of Social Workers and Peer Educators of communities. Informed consent was taken from participants after explaining the purpose of the study.

Relevant information about sociodemographic characteristics of participants, detailed information regarding present complaints and its duration, past history and family history pertaining to tuberculosis was recorded in pretested and structured proforma. History of risk habits like tobacco, smoking, alcohol with their duration and frequency was also noted.

2.1 Statistical Methods

Entire data was collected and entered into Microsoft Office Excel Sheet. Statistical analysis like Chi-Square test, Monte-Carlo Chi-Square test was carried out by using analysis tool pack from Epi-Info 7 and SPSS 15 statistical package.

3. Results and Discussion

Out of 861 registered participants in the year 2007, only 328(38.09%) participants could be actually traced. Of these, 44(5.11%) participants were not willing to participate in the study. Hence follow up outcome was studied amongst 284 (32.98%) participants only. Of remaining 533(61.90%) participants, 165(19.16%) could not be traced out due to migration and 368(42.74%) participants were not found due to improper or wrong address mentioned in TB register.

In present study, the information regarding certain sociodemographic characteristics could be elicited in 185 study participants only. These sociodemographic characteristics of participants were correlated with their current health status. Out of 185 participants, 9(4.86%) had various symptoms while 176(95.14%) participants were asymptomatic.

Table 1: Age and sex wise outcome of study participants.

| Sr. No | Age (yrs) | Male | | | Female | | | Total (%) |
|--------------|-----------|-------------------|----------------------|-------------------|-------------------|----------------------|------------------|-----------------|
| | | With symptoms (%) | With no symptoms (%) | Total (%) | With Symptoms (%) | With no symptoms (%) | Total (%) | |
| 1. | ≤20 | 01(0.54) | 06(3.24) | 07(3.78) | 0 | 07(3.78) | 07(3.78) | 14(7.57) |
| 2. | 21-30 | 01(0.54) | 31(16.76) | 32(17.30) | 0 | 31(16.76) | 31(16.76) | 63(34.05) |
| 3. | 31-40 | 01(0.54) | 27(14.59) | 28(15.14) | 0 | 15(8.11) | 15(8.11) | 43(23.24) |
| 4. | 41-50 | 03(1.62) | 19(10.27) | 22(11.89) | 01(0.54) | 12(6.49) | 13(7.03) | 35(18.93) |
| 5. | ≥51 | 02(1.08) | 21(11.35) | 23(12.43) | 0 | 07(3.78) | 7(3.78) | 30(16.21) |
| Total | | 8(4.32) | 104(56.22) | 112(60.54) | 1(0.54) | 72(38.92) | 73(39.46) | 185(100) |

Row no 1 to 2 and 3 to 5 are pooled together.

There was no significant association between age as well as sex of study participants and their study outcome. (Yates corrected $\chi^2 = 0.746$, df = 1, p = 0.387 for age, Yates corrected $\chi^2 = 0.048$, df = 1, p = 0.825 for males and Yates corrected $\chi^2 = 0.001$, df = 1, p = 0.966 for females).

Table 2: Religion and study outcome of participants

| Sr. No. | Religion | Study Outcome | | | | | |
|--------------|----------|---------------|-------------|------------------|--------------|------------|------------|
| | | With symptoms | % | With no symptoms | % | Total | % |
| 1. | Hindu | 09 | 4.86 | 164 | 88.65 | 173 | 93.51 |
| 2. | Muslim | 0 | 0 | 07 | 3.78 | 07 | 3.78 |
| 3. | Buddhist | 0 | 0 | 05 | 2.71 | 05 | 2.71 |
| Total | | 09 | 4.86 | 176 | 95.14 | 185 | 100 |

Row no 2 and 3 are pooled together.

Statistically no significant association was observed between religion of participants and their study outcome. (Yates corrected $\chi^2 = 0.013$, df = 1, p = 0.907).

Finch *et al*⁴ in study of the 620 Asian immigrants with tuberculosis notified that Hindus were at a significantly greater risk of tuberculosis than Muslims (Hindu: Muslim risk ratio 5.5 for women and 3.7 for men).

The increased susceptibility to tuberculosis of Hindus, particularly Hindu women, may be related to a culturally acquired immunodeficiency caused by vegetarianism and associated vitamin deficiency. This contrast study finding with present study might be due to their immigrant nature.

Table 3: Marital status and study outcome of participants

| Sr. No. | Marital Status Category | Study Outcome | | | | | |
|--------------|-------------------------|---------------|-------------|------------------|--------------|------------|------------|
| | | With symptoms | % | With no symptoms | % | Total | % |
| 1. | Married | 07 | 3.78 | 132 | 71.36 | 139 | 75.14 |
| 2. | Single Category | 02 | 1.08 | 44 | 23.78 | 46 | 24.86 |
| Total | | 09 | 4.86 | 176 | 95.14 | 185 | 100 |

Single category consisted of unmarried, widow, widower and separated participants.

Statistically no significant association between study outcome of participants and their marital status was found in present study (Yates corrected $\chi^2 = 0.043$, df = 1, p = 0.835).

Table 4: Education status and study outcome of participants

| Sr. No. | Education status | Study Outcome | | | | | |
|--------------|------------------|---------------|-------------|------------------|--------------|------------|------------|
| | | With symptoms | % | With no symptoms | % | Total | % |
| 1. | Graduate | 0 | 0 | 09 | 4.86 | 09 | 4.86 |
| 2. | Higher Secondary | 01 | 0.54 | 14 | 7.57 | 15 | 8.11 |
| 3. | Secondary | 04 | 2.16 | 83 | 44.86 | 21 | 11.35 |
| 4. | Primary | 02 | 1.08 | 51 | 27.57 | 53 | 28.65 |
| 5. | Illiterate | 02 | 1.08 | 19 | 10.27 | 87 | 47.03 |
| Total | | 09 | 4.86 | 176 | 95.14 | 185 | 100 |

Row no 1 to 4 are pooled together to make it single category i.e. literate.

Yates corrected $\chi^2 = 0.265$, df = 1, p = 0.606

Statistically no significant association between educational status of participants and their study outcome was observed in present study. No subject with postgraduate or diploma qualification was found in present study.

Similarly Jussara and Silveira³ found no significant correlation between frequency of tuberculosis and educational level (Crude Odds ratio = 0.46, Adjusted Odds ratio = 0.39, p=0.1). In support of this finding, he mentioned the lack of power of study sample size since of the 204 individuals studied, only 6 of those developing tuberculosis had more than 8 years of schooling. The findings are nearly similar to present study where out of 284 traced participants, only 3(1.05%) had developed tuberculosis.

Table 5: Occupation and study outcome of participants

| Sr. No. | Occupation | Study outcome | | | | | |
|--------------|------------|---------------|-------------|------------------|--------------|------------|------------|
| | | With symptoms | % | With no symptoms | % | Total | % |
| 1. | Business | 01 | 0.54 | 29 | 15.68 | 30 | 16.22 |
| 2. | Service | 0 | 0 | 21 | 11.35 | 21 | 11.35 |
| 3. | Retired | 0 | 0 | 02 | 1.08 | 02 | 1.08 |
| 4. | Farming | 0 | 0 | 03 | 1.62 | 03 | 1.62 |
| 5. | Labourer | 07 | 3.78 | 71 | 38.38 | 78 | 42.16 |
| 6. | Student | 0 | 0 | 14 | 7.57 | 14 | 7.57 |
| 7. | Housewife | 0 | 0 | 29 | 15.68 | 29 | 15.68 |
| 8. | Unemployed | 01 | 0.54 | 07 | 3.78 | 08 | 4.32 |
| Total | | 09 | 4.86 | 176 | 95.14 | 185 | 100 |

Pearson $\chi^2 = 7.534$, df = 7, Monte Carlo p value⁶ = 0.356

Out of 185 study participants, nearly half of them i.e.78 (42.16%) were labourers. Amongst them, 7 (77.78%) were symptomatic out of total 9 symptomatic participants.

As distribution of variables in above mentioned table is sparse one, Monte-Carlo Chi-Square test of significance⁶ was used to find out the association between occupation and study outcome of participants. However such association could not be found.

Table 6: Socioeconomic class and study outcome of participants

| Sr. No. | Socioeconomic class | With symptoms | % | With no symptoms | % | Total | % |
|--------------|---------------------------------|---------------|-------------|------------------|--------------|------------|------------|
| 1. | Class I (Upper) | 04 | 2.16 | 17 | 9.19 | 21 | 11.35 |
| 2. | Class II (Upper middle) | 03 | 1.62 | 69 | 37.30 | 72 | 38.92 |
| 3. | Class III (Lower middle) | 01 | 0.54 | 75 | 40.54 | 76 | 41.08 |
| 4. | Class IV (Upper lower) | 01 | 0.54 | 14 | 7.57 | 15 | 8.11 |
| 5. | Class V (Lower) | 0 | 0 | 01 | 0.54 | 01 | 0.54 |
| Total | | 09 | 4.86 | 176 | 95.14 | 185 | 100 |

Pearson $\chi^2 = 11.428$, df = 4, Monte Carlo p value⁶ = 0.059

Nearly all symptomatics i.e.8 participants (88.89%) out of 9 were found from upper and middle class. Amongst 176 asymptomatic study participants, majority were from upper middle and lower middle class i.e. 69 and 75 participants respectively. Statistically no significant association was observed between socioeconomic class and study outcome of participants in present study.

The present study finding is supported by Schoeman *et al*⁷ who mentioned that the role of socioeconomic status for the risk of developing tuberculosis was unclear. In addition, he also could not find conclusive evidence to establish relationship between socioeconomic factors and the risk of developing tuberculosis.

Similarly, significant association was not observed between family size, family members, ventilation and study outcome of participants.

Table 7: Habits and study outcome of participants

| Sr. No. | Habits | Study outcome | | | | | |
|--------------|--------------------|---------------|-------------|------------------|--------------|------------|------------|
| | | With symptoms | % | With no symptoms | % | Total | % |
| 1. | Alcohol | 02 | 1.08 | 09 | 4.86 | 11 | 12.94 |
| 2. | Alcohol + Smoking | 0 | 0 | 01 | 0.54 | 01 | 0.54 |
| 3. | Smoking | 01 | 0.54 | 07 | 3.78 | 08 | 4.32 |
| 4. | Tobacco and Gutkha | 04 | 2.16 | 18 | 9.73 | 22 | 11.89 |
| 5. | Mishery | 01 | 0.54 | 10 | 5.41 | 11 | 5.95 |
| 6. | No habit | 01 | 0.54 | 131 | 70.81 | 132 | 71.35 |
| Total | | 09 | 4.86 | 176 | 95.14 | 185 | 100 |

Row no 1 to 5 are pooled together to make it two categories i.e. category of participants with habits and category of participants with no habits.

Yates corrected $\chi^2 = 13.84$, df = 1, p < 0.001.

However there was significant association between habits of participants and their study outcome. In support to present study, Maiti *et al*⁸ revealed that smoking as well as alcohol alone significantly and synergistically even in greater extent increased TB severity in urban and rural part of Eastern India.

Vendhan Gajalakshmi and Richard Peto⁹ in their 'Population Based Case Control Study' demonstrated an increased incidence of pulmonary tuberculosis among smokers and alcoholics. However Gopi *et al*¹⁰ found no statistical association between smoking or alcohol habits and tuberculosis.

4. Conclusions

In present study, there was significant association between habits of participants and their study outcome. However significant association was not observed between age, sex, religion, occupation, education, marital status, family size, family members, overcrowding, ventilation, socioeconomic class and study outcome of participants.

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