Socio-demographic profile of new sputum smear positive tuberculosis patients in tuberculosis unit Khammam

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Abstract:

Background: Tuberculosis is an infectious disease caused by Mycobacterium tuberculosis. The disease primarily affects lungs and causes pulmonary tuberculosis. Problem of tuberculosis is enormous and makes it a major public health problem in India. Under the Revised National Tuberculosis Control Program (RNTCP), priority is given to the smear-positive cases. Every smear-positive person if left untreated has potential to infect 10-15 persons per year, thereby increasing the pool of infected persons. **Materials & methods:** All the new sputum smear positive patients registered in Khammam TU during the second and third quarters of 2009 were enrolled as study subjects. A total of 413 patients were registered as per the inclusion criteria under six Designated Microscopic Centres (DMCs). **Results:** A total of 413 patients were enrolled in the present study and followed up prospectively for complete duration of their treatment. Out of them 77 (18.64%) were females and 336 (81.36%) were males. Of the total males in this study 0.59% was in the age group ≤ 14 years and 24.7% were in the age group of 35-44years. Of the total females in this study 1.3% was in the age group ≥65 years and 27.28% were in the age group of 15-24years. **Conclusion:** Present disease cure rate of 85.47% should be improved by ensuring 100% compliance to the treatment by continuous motivation and DOT providers need to be trained to motivate enrolled patients to go for regular periodic sputum follow up examination.

Key words: Tuberculosis; New sputum smear positive; Khammam; Designated Microscopic Centres

Introduction

Tuberculosis is an infectious disease caused by Mycobacterium tuberculosis. The disease primarily affects lungs and causes pulmonary tuberculosis. It can also affect intestines, meninges, bone and joints, lymph glands, skin and other tissues of the body causing extra-pulmonary tuberculosis. The disease also affects animals like cattle, causing Bovine tuberculosis, which may sometimes be communicated to man [1]. Tuberculosis is an

infectious disease caused by Mycobacterium tuberculosis. In India tuberculosis is silently killing 500000 of people every year, more than 1000 per day and more than two every three minutes [2]. Thus the problem of tuberculosis is enormous and makes it a major public health problem in India. Majority of the tuberculosis patients are in the age group of 15-54 years, men and women in their most productive period. This adds to the implications of this disease not only on health but also on social and economic development in the region. While two thirds of the cases are male, tuberculosis takes a disproportionately larger toll among young females, with more than 50% of female cases occurring before 34 years of age [3]. Eighty percent of all incident TB cases were found in 22 countries, with more than half the cases occurring in five Southeast Asian countries. Nine out of 10 countries with the highest incidence rates per capita were in Africa. The global burden of tuberculosis remains enormous, mainly because of poor control in Southeast Asia, sub-Saharan Africa, and eastern Europe, and because of high rates of Mycobacterium tuberculosis and HIV coinfection in some African countries [4].

Objective

To describe the socio-demographic profile of New Sputum Smear Positive Tuberculosis patients enrolled under Revised National Tuberculosis Control Programme in Tuberculosis Unit Khammam.

Materials & Methods

All the new sputum smear positive patients registered in Khammam TU during the second and third quarters of 2009 were enrolled as study subjects. A total of 413 patients were registered as per the inclusion criteria under six Designated Microscopic Centres (DMCs). **Inclusion criteria:** Patients aged above 12 years with new sputum smear positive pulmonary tuberculosis who never had treatment for tuberculosis or treated for less than four weeks, who are residing in the DMC catchment area and who gave oral consent for the study. **Exclusion criteria:** Refusal for inclusion in study and patients who are not residing in the DMC catchment area. Consent was taken from all the study participants. **Study Period**: The Study was conducted from 1st April 2009 to 30th September 2010. **Study design:** The present study is a prospective study of patients registered under RNTCP in Khammam TU. The study subjects were interviewed at DMC and at their residence. Information was collected on socio-economic and demographic profile.

RESULTS:

Table 1: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their age group and sex (n=413)

Age group (years)	Male	Female	Total
≤14	2 (0.59%)	4 (5.19%)	6 (1.45%)
15-24	35 (10.42%)	21 (27.28%)	56 (13.56%)
25-34	60 (17.86%)	17 (22.08%)	77 (18.64%)
35-44	83 (24.7%)	13 (16.88%)	96 (23.25%)
45-54	80 (23.81%)	14 (18.18%)	94 (22.76%)
55-64	43 (12.8%)	7 (9.09%)	50 (12.11%)
≥65	33 (9.82%)	1 (1.3%)	34 (8.23%)
Total	336 (100%)	77 (100%)	413 (100%)

Note: Figures in parenthesis indicate column percentages.

A total of 413 patients were enrolled in the present study and followed up prospectively for complete duration of their treatment. Out of them 77 (18.64%) were females and 336 (81.36%) were males. Of the total males in this study 0.59% was in the age group ≤ 14 years and 24.7% were in the age group of 35-44years. Of the total females in this study 1.3% was in the age group ≥65 years and 27.28% were in the age group of 15-24years.

Figure 1: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their religion (n=413)
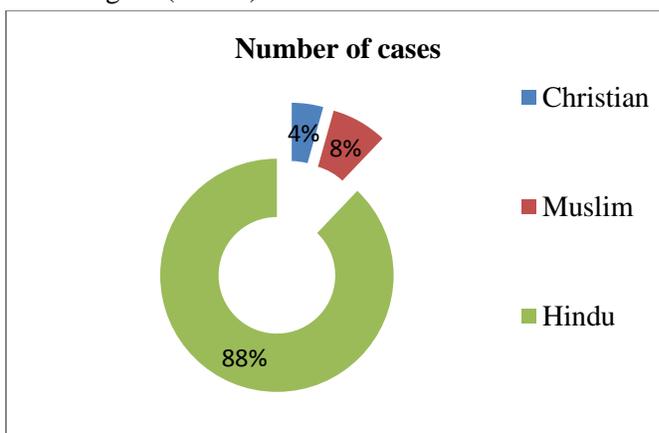
Of the enrolled patients, 4.36% belonged to Christian religion and 87.89% belonged to Hindu religion.

Figure 2: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their caste (n=413)
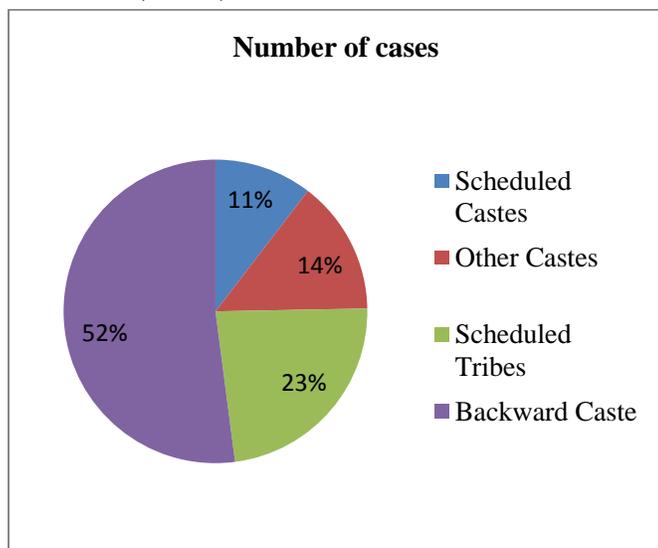
In this study 10.41% belonged to Scheduled Castes and 52.06% of the enrolled patient's belonged to Backward Castes.

Table 2: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their locality (n=413)

Locality	Number of cases	Percentage
Tribal	65	15.74%
Urban	138	33.41%
Rural	210	50.85%
Total	413	100%

Of the enrolled patients, 15.74% were from tribal area and 50.85% were from rural area,

Table 3: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their marital status (n=413)

Marital status	Number of cases	Percentage
Divorce	3	0.73%
Widowed	9	2.18%
Separated	11	2.66%
Unmarried	36	8.72%
Married	354	85.71%
Total	413	100%

Of the enrolled patients, 0.73% were divorcee and 85.71% were married.

Table 4: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their family type (n=413)

Type of family	Number of cases	Percentage
Three Generation	39	9.44%
Joint or Extended	48	11.62%
Nuclear	326	78.94%
Total	413	100%

In the study population 9.44% were from three generation family and 78.94% of the enrolled patients were from nuclear family.

Table 5: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their type of house (n=413)

Type of house	Number of cases	Percentage
Pucca	54	13.08%
Kutcha	140	33.9%
Semi Pucca	219	53.03%
Total	413	100%

Among the enrolled cases, 13.08% were living in Pucca houses and 53.03% were living in Semi Pucca houses.

Table 6: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to status of overcrowding (n=413)

Over Crowding	Number of cases	Percentage
Absent	81	19.61%
Present	332	80.39%
Total	413	100%

Table 7: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their literacy status (n=413)

Literacy Status	Number of cases	Percentage
Illiterate	221	53.51%
Primary school	82	19.86%
Secondary school	74	17.92%
Intermediate	15	3.63%
Graduate and above	21	5.08%
Total	413	100%

In the present study 3.63% of the patients had completed intermediate education and 53.51% of the enrolled patients were illiterates.

Table 8: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their employment status (n=413)

Employment status	Number of cases	Percentage
Un-employed	115	27.85%
Employed	298	72.15%
Total	413	100%

In this study of the enrolled patients 27.85% were unemployed and 72.15% were employed.

Table 9: Distribution of registered New Sputum Smear Positive Tuberculosis patients according to their per capita monthly income (n=413)

Per capita monthly income in rupees	Number of cases	Percentage
<500	26	6.29%
500-1500	318	77%
1500-2500	34	8.23%
2500-3500	27	6.54%
3500 and above	8	1.94%
Total	413	100%

In this study, 1.94% had per capita monthly income of rupees 3500 and above and 77% had per capita monthly income of rupees 500-1500. In this study 80.39% of the households of the study subjects were overcrowded.

Discussion:

In the present study 78.21% of the enrolled patients were in the age group of 15-54 years, 8.23% were above 65 year age group and 1.45% of them were below 14 year age group. Among the enrolled patients 81.36% were males and 18.64% were females. The ratio of males to females was 4.36:1. The mean age was 40.74 years. Studies by Pandit et al in Anand district (Gujarat) reported that 85% of study population was in the age group of 15-55 years, which is the productive age and the age group of <14years contributed only about 1.45% and those above 54 years constituted 20.34%. The mean age was 36.6 years [5]. Talay et al in their study at Istanbul stated that the mean age of enrolled smear positive cases was 33 years [6], while Mukherjee et al carried out a study in Nadia, West Bengal reported that mean age of enrolled new smear positive cases 44.4 years [7]. Overall there seems to be a higher prevalence of disease in males compared to females, maybe because they are more exposed to environmental factors facilitating tuberculosis. Tuberculosis seems to be more prevalent in the productive age group of 15-49 years who are usually the bread winners of their family and their sickness can bring untold misery to their family.

A study done in Chandigarh by Kaur et al (87.1%) [8] and Kumar Mahesh et al (68.39%) also stated a higher enrollment of patients belonging to Hindu religion [9]. Ahsan et al in their study at

Bangladesh stated that 92.2% of the patients were Muslims and 7.8% were Hindus [10].

Study by Moharana et al in Brahmapur municipality (Orissa) reported stated that 26% were from SC population and 7% belonged to ST population [11]. While a study by Sen et al in North 24 Parganas district (West Bengal) showed that 54% belonged to Scheduled Caste and Scheduled Tribe among enrolled new smear positive patients [12]. Kaulagekar and Radkar in their study reported that prevalence of TB is in descending order for Scheduled Tribes (1.07% for males and 2.63% for females), Scheduled Castes (0.74% for males and 0.54% for females), Other Backward Castes (0.66% for males and 0.43% for females) and other advanced caste groups (0.47% for males and 0.39% for females) [13].

A study done by Ahsan et al in their study at Bangladesh stated that 73% of the patients were married and 19.9% were unmarried [10]. In a study done by Rathi 61.3% of the patients were unmarried [14].

Muniyandi M et al in their study from South India stated that 30% lived in Kutcha houses. The prevalence of TB was higher among patients living in Kutcha houses suggesting that TB disproportionately affects those with a low standard living index [15]. Kaulagekar et al in their study noticed that prevalence of TB is high who are staying in Kutcha houses [13] Rathi et al noticed that poor housing conditions seem to contribute to the spread of TB [14].

A study done by Moharana et al stated that overcrowding was present in 64% of the households [11]. while Ahsan et al stated that 19.9% of the patients were unemployed [10]. Narayanan et al stated that 44.18% were having income less than rupees 1500 [16]. A study done by Moharana et al stated that 70% of the patients belonged to low socio economic status [11]. Kaur et al in their study stated that 89% belonged to low socio economic status [8]. Kaulagekar et al in their study stated that prevalence of TB is seen highest among population with a low standard of living [13].

Conclusion & Recommendations:

1. To encourage studies to estimate prevalence among women since there is a gender inequality in accessing health services of tuberculosis programme.

2. To enhance community awareness about signs and symptoms of tuberculosis to enable early diagnosis.

3. General socio economic standards to be improved.

4. Universal access to education to be enhanced.

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