

Determinants of tuberculosis patients attending Directly Observed Treatment Short course (DOTS) centre for prevention of default in TB treatment

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Abstract

Introduction: It was necessary to understand the reasons for default after initiation of the treatment and plan strategies to reduce default and thereby increase the success of treatment outcome.

Materials and Methods: The present observational cross-sectional study was carried out in selected DOTS centers of district Ghaziabad Department of Community Medicine, Santosh Medical College, Ghaziabad. All new sputum smear positive pulmonary tuberculosis patients were taking treatment from sampled DOTS Centers. The study was carried out in one year from May 2014 to April 2015.

Results: 45.7% tuberculosis patients were unemployed. 35.29% of TB patients were educated up to primary 24.70% pt were illiterate. 54.11% of TB patients belong to upper lower class. 34.11% were in lower class. Among the TB patients 76.47% were smoker whereas 23.53% were non smoker. Among the TB patients 77.65% were alcoholic whereas 22.35% were non alcoholic. 83.53% TB patients had no family h/o of contact while 16.47% TB patients had Family h/o of contact. Among tuberculosis patients 77.65% were aware about the curability of tuberculosis while 22.35% were not aware about the curability of TB. 34.12% patients were aware about Modes of Transmission of Tuberculosis and 65.88% TB patients were not aware about Modes of Transmission of Tuberculosis.

Conclusion: It was concluded that socioeconomic standard of tuberculosis is low and give health education to improve personal habit and stop TB Transmission. Awareness about modes of transmission of tuberculosis was low. Awareness about curability of tuberculosis and knowledge and proper treatment of pulmonary Tuberculosis is poor.

Keywords: curability, DOTS Centre, mode of transmission, occupation, socioeconomic status, TB patients.

Introduction

It was the first infectious disease declared by the WHO as a Global health emergency.¹ Men are more commonly affected than women. The case notifications were higher in males than in females most countries. There were 1.4 million smear-positive TB cases in men and 775,000 in women in 2004.² The association between poverty and TB is well recognized, and the highest rates of TB were found in the poorest section of the community.³ TB occurs more frequently among low-income people living in overcrowded areas and persons with little schooling.⁴ Poverty may result in poor nutrition which may be associated with alterations in immune function. On the other hand, poverty resulting in overcrowded living conditions, poor ventilation, and poor hygiene-habits is likely to increase the risk of transmission of TB.⁵

Fundamentally TB control is based on preventing the transmission of the infectious agent causing TB. This can be achieved by identifying people with infectious TB and curing them of their disease so that they cannot transmit the disease further.

TB is a communicable disease requiring prolonged treatment. The World Health Organization (WHO) declared TB a global public health emergency in 1993 and since then intensified its efforts to control the disease worldwide.⁶ Tuberculosis affects one third of the world's population and India alone accounts for one-fifth of the world's new TB cases.⁷

Global Tuberculosis report (2015) released by the WHO has revealed that there were an estimated 9.6 million new TB cases 5.4 million among men, 3.2 million among

women and 1.0 million among children in the year 2014.⁸ Since the advent of HIV, the incidence of TB had steadily increased and it is responsible for 26% of all avoidable adult deaths in the developing world.⁹ There were also 1.5 million TB deaths (1.1 million among HIV-negative people and 0.4 million among HIV-positive people) in 2014. With a timely diagnosis and correct treatment almost all people with TB can be cured. TB is slowly declining each year and it estimated that 43 million lives were saved between 2000 and 2014 through effective diagnosis and treatment.⁸ Hence this study therefore attempts to study the determinants of Tuberculosis patients attending Directly Observed Treatment Short course (DOTS) centre for prevention of default in TB treatment.

Materials and Methods

The present observational cross-sectional study was carried out in selected DOTS centers of district Ghaziabad Department of Community Medicine, Santosh Medical College, Ghaziabad. All new sputum smear positive pulmonary tuberculosis patients were taking treatment from sampled DOTS Centers. The study was carried out in one year from May 2014 to April 2015.

Sample size

According to Government of India (2007) by using overall prevalence of defaulter 10.2% among patients put on DOTS (82).

The sample size was calculated by the formula ($n = Z \cdot Z \cdot P \cdot Q / L \cdot L$).

Sample Size (n) = $1.96 \times 1.96 \times 10.2 \times 89.8 / 2.04 \times 2.04 = 845.52$
 = 846

n is the desired sample size

P is prevalence of Defaulters among DOTS patient = 10.2%

Q = (100-p)

L = 20%

Substituting all the values we get sample size (n) = 846

Round figure is 850.

Inclusion criteria

All new sputum smear positive pulmonary tuberculosis patient attended treatment in sampled dots centers whose age was >15 years from October 2014 till my desired sample size 850 patient were seen on working days.

Exclusion criteria

1. Patient, whose contact information was incomplete.
2. Patient, who died or transferred to other DOTS centre.

Sampling technique

Multistage sampling was used to cover the sample size for present study.

Stage-1 Selection of tuberculosis unit (TU)

The list of tuberculosis unit along with their designated microscopic centers and DOTS centers was obtained from district tuberculosis center. There were two TU in Ghaziabad city named as 1. District tuberculosis clinic Ghaziabad 2. ESI hospital Sahibabad selected for study.

Stage –II Selection of designated microscopic centers (DMCs)

In second stage three designated microscopic centers (DMCs) from each TU were selected randomly. District tuberculosis clinic Ghaziabad (TU) had five DMCs out of these three DMCs 2,3 and 5 were selected randomly,

ESI Hospital Sahibabad had five DMCs named as out of five DMCs 1, 4 and 5 were selected randomly.

Stage III Selection of DOTs centers

All the DOTS centers under these selected DMCs were taken for study. All the new sputum smear positive (NSP) patients put on treatment on selected DOTS centers during the study period were taken for study till the desired sample size was achieved.

The selected DOTS were visited and the TB patients were carefully briefed about the purpose of the study with a written consent so as to get full co-operation in conducting the study. These were 850 TB patients from all selected DOTS questioned with self-administered well-designed pre-tested and close-ended questionnaire with prior permission from the patients.

Data processing and analysis

Data was coded and transferred to a master chart and simple and correlated tables were prepared and analyzed using SPSS.

Results

41.17% of TB patients were from 15-25yrs age group, 30.58% from 26-35yrs, 23.52% from 36-45yrs and 4.70% from >45 yrs age group. Table 1 Majority 54.1% of Tb patients were females and 45.9% males. 75.29% TB patients were Hindus, 22.35% Muslims and 2.35% Sikh/Christian.

Almost half (49.41%) of TB Patients were from other backward category (OBC), 35.29% from scheduled caste (SC), and 15.29% from general category. 44.71% were from nuclear family, 31.76% from joint family and 23.53% from three generation family.

Table 1 indicates that 45.7% tuberculosis patients were unemployed, 20% from skilled worker, 14.1% unskilled worker, 9.4% semiskilled, 5.9% semi professional, 4.7% professional and 1.2% were having their own shop.

Table 1: Occupation wise distribution of tuberculosis patients

Occupation	Number (n)	Percentage (%)
Un employed	380	45.70
Un skilled worker	120	14.10
Semiskilled worker	80	9.40
Skilled worker	170	20.0
Clerical/shop owner	10	1.20
Semi professional worker	50	5.90
Professional worker	20	4.70
Total	850	100

Majority 54.11% of Tb patients were from upper lower class. 34.11% from lower class followed by 10.58% from lower middle class, and 1.17% from upper middle class (Table 2).

Table 2: Socio-economic status wise distribution of tuberculosis patients as per Kuppaswamy's scale

Socio-economic status	Number	Percentage (%)
Lower class	290	34.11
Upper lower class	460	54.11
Lower middle class	90	10.58
Upper middle class	10	1.17
Total	850	100

Regarding h/o of contact 83.53% TB patients had no Family h/o of contact and 16.47% Tb patients had the history of contact with TB case in home/work place (Table 3).

Table 3: Distribution of study subject according to the history of contact with TB case in home/work place

Family h/o of contact	Number (n=850)	Percentage (%)
Yes	140	16.47
No	710	83.53
Total	850	100

Table 4 indicates that 77.65% were know about the curability of tuberculosis 22.35 were not know about the curability of TB.

Table 4: Distribution of study subjects according to knowledge of curability of tuberculosis

Awareness	Numbers	Percentage (%)
Curable	660	77.65
Not curable	190	22.35
Total	850	100

Table 5 indicates that 34.12% patient knew and 65.88% TB patient didn't not know about the modes of transmission of TB.

Table 5: Distribution of study subjects according to the knowledge about modes of transmission of tuberculosis

Awareness	Numbers	Percentage (%)
Yes	290	34.12
No	560	65.88
Total	850	100

Table 6 depicts that 77.65% TB patient were know about hazards of irregular treatment and 22.35% were not know.

Table 6: Distribution of study subjects according to knowledge of hazards of irregular treatment

Awareness	Numbers	Percentage (%)
Aware	660	77.65
Not aware	190	22.35
Total	850	100

It was observed that 62.35% of TB patients aware about the duration of treatment and 37.65% not aware of duration of treatment.

Table 7: Distribution of study subjects according to knowledge about correct duration of treatment

Awareness	Numbers	Percentage (%)
Aware	530	62.35
Not aware	320	37.65
Total	850	100

Discussion

In my study 45.7% tuberculosis patients were unemployed, 20% skilled worker, 14.1% unskilled worker, 9.4% semiskilled, 5.9% semi professional, 4.7% professional and 1.2% their own shop. A similar study by P.G. Gopi et al¹⁰ 2007 in south-India showed in their study that 35% were unemployed.

In my study 54.11% of TB patients were from upper lower class, 34.11% from lower class, 10.58% from lower middle class, and 1.17% from in upper middle class. In a similar study done by S.K. Juvekar et al¹¹ 1995 in showed that 59% of TB pt were from lower socioeconomic class. A similar study by Kar M and Logaraj M¹² 2010 conducted in

Tamil Nadu showed that More than 70% of the people belonged to lower income group.

In this study shows that 77.65% knew about the curability of tuberculosis while 22.35 did not know about the curability of TB. In a similar study done by S.K. Juvekar et al¹¹ 1995 showed that majority (88%) believed that tuberculosis is completely curable. Only 7% denied curability, probably due to their experience of persistent symptoms, not getting any relief from drugs, suffering from side-effects of drugs, etc. Madhu Vidhani, Parul Vadgama¹² 2010 conducted a study in Surat, Gujarat showed that 95.5% patients thought that tuberculosis is curable. Salman Khalil et al¹⁴ 2011 conducted a study in Aligarh showed that Majority of the patient 95.5% believed that tuberculosis is curable.

In my study shows that regarding knowledge about modes of transmission, 34.12% patients knew about mode of transmission and 65.88% TB patients did not know. Kar M and Logaraj M¹² 2010 conducted a study in Tamil Nadu showed that only 20% patients were aware about the mode of spread and the rest 80% didn't have any knowledge or wrong knowledge about the mode of spread of TB. Madhu Vidhani, Parul Vadgama¹³ 2010 conducted a study in Surat, Gujarat showed that (46.6%) patients were aware that tuberculosis infection could be transmitted from one individual to another through close contact and coughing. Salman Khalil et al¹⁴ 2011 conducted a study in Aligarh showed that 96.6% of patient were aware that tuberculosis could be transmitted from one person to another. Ekwaro A Obuku et al¹⁵ 2012 conducted a study in Uganda showed that (54.3%) were aware about the mode transmission.

In this study shows that awareness about hazards of irregular treatment was high, 77.65 TB patients knew and 22.35% did not know. In a similar study done by S.K. Juvekar et al¹¹ 1995 Showed that majority of the patients (83%) were of opinion that health deteriorates or disease worsens due to irregular/intermittent treatment. Madhu Vidhani, Parul Vadgama¹³ 2010 conducted a study in Surat, Gujarat showed that almost all the patients were aware that if anti tubercular drug is not taken than it could adversely affect their health.

In this study shows that 62.35% of TB patients were knew and 37.65% did not know about the correct duration of treatment. Similar study done by Madhu Vidhani, Parul Vadgama¹³ 2010 conducted a study in Surat, Gujarat showed that Awareness about the duration (6–9 months) was correctly known to only (32.9%) patients.

Conclusion

It was concluded maximum tuberculosis patients were unemployed. One fourth of TB patients were illiterate. 54.11% of TB patients belong to upper lower class. Among the TB patients 76.47% were smoker whereas 23.53% were non smoker. Among the TB patients 77.65% were alcoholic whereas 22.35% were non alcoholic. Regarding Family h/o of contact, it was seen that 83.53% TB patients had no family h/o of contact while 16.47% TB patients had Family h/o of contact. Among tuberculosis patients 77.65% were

aware about the curability of tuberculosis while 22.35% were not aware about the curability of TB. Regarding awareness about modes of transmission, it was observed that 34.12% patients were aware about Modes of Transmission of Tuberculosis and 65.88% TB patients were not aware about Modes of Transmission of Tuberculosis.

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Conflict of Interest

None.

Ethical Approval

Permission for the study was obtained from the College authorities prior to commencement.

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