Original article:

A study of socio-demographic profile and treatment outcome of tuberculosis patients in an urban slum of Mumbai, Maharashtra

Dnyaneshwar M. Gajbhare[1], Rahul C. Bedre[2], Harsha M. Solanki[3]

[1]Assistant Professor, Dept. of Community Medicine, Topiwala National Medical College and B. Y. L. Nair Charitable Hospital, Mumbai, Maharashtra

[2]Assistant Professor, Dept. of Community Medicine, Bidar Institute of Medical sciences, Bidar, Karnataka

[3]Assistant Professor, Government Medical College, Bhavnagar, Gujarat

Corresponding author: Dr. Dnyaneshwar M. Gajbhare

Abstract:

Objectives: To study socio-demographic profile & treatment outcome of TB patients in an urban slum area Mumbai, Maharashtra.

Methodology: Community based longitudinal study was carried out for 12 months in field practice area of UHC facilitated by Community Medicine Department of KEM Hospital, Mumbai, Maharashtra. All patients registered during study period (103) were included of which 85 were able to follow till completion of study.

Results: Most of TB patients were in productive age group (15-44 years) & males were mostly affected. Category wise distribution of TB patients was 46.6%, 22.3% & 31.1% for cat 1, cat 2 &cat 3 respectively. Treatment success rate was 85.52% & it was almost good in all age groups, was more in males, educated patients, those who were unemployed & those who were in middle socioeconomic class. Statistical analysis was done by using SPSS 15.0 version

Conclusion: In the present study treatment success rate was good & sociodemograhic factors such as education, employment & socioeconomic class affects it.

Key Words: TB patients, sociodemograhic profile, Treatment outcome, urban slum

Introduction:

'if the importance of a disease for mankind is measured by the number of fatalities it causes, then tuberculosis must be considered much more important than those most feared infectious diseases, plague, cholera and the like. One in seven of all human beings dies from tuberculosis. If one only considers the productive middle-age groups, tuberculosis carries away one-third, and often more.'

Robert Koch, 24 march 1882 [1]

Tuberculosis remains a major public health problem in the world. It infect one third of world population at any given point of time. In 2013, 9 million people around the world became sick with TB disease. There were around 1.5 million TB-related deaths worldwide. The developed country was able to control the disease to certain extent but due to HIV infection the disease started appearing again. TB is a leading killer of people who are HIV infected. [2.3]

India has the highest burden of tuberculosis (TB) globally, accounting for one fifth of the global incidence and two thirds of the cases in South-East Asia. Nearly 40% of the Indian population is already infected with the TB bacillus. India has more new TB cases annually than any other country, ranking first among the 22 high-burden TB countries worldwide according to the *World Health Organization (WHO) Global TB Report 2006*. TB remains one of the leading infectious causes of mortality in India, resulting in 364,000 deaths annually. There were more than 1.8 million new TB cases in India in 2004, representing over one-fifth of all TB cases worldwide. The estimated incidence rate in 2004 was 168 per 100,000 people. India began a Revised National Tuberculosis Control Program (RNTCP) with Directly Observed Therapy, Short-Course (DOTS) implementation in 1997. According to WHO, DOTS was available to 84 percent of the population in 2004 and in March 2006 complete India was covered under DOTS.[5.6]

In 2014, the slogan for World Tuberculosis Day is "Reach the 3 million". TB is curable, but current efforts to find, treat and cure everyone who gets ill with the disease are not sufficient.

Of the 9 million people a year who get sick with TB, a third of them are "missed" by health systems. Many of these 3 million people live in the world's poorest, most vulnerable communities or are among marginalized populations such as migrant workers, refugees and internally displaced persons, prisoners, indigenous peoples, ethnic minorities and drug users. Tuberculosis (TB) affects the most productive age group and the resultant economic cost for society is high. Even though diagnostic and treatment services under TB control are offered free of cost, There are several studies on effect of RNTCP on the treatment outcome of patient. The present study was a small attempt to study the sociodemographic factor and its effect on treatment outcome.

Material and Methods:

The present community based longitudinal study was carried out for 12 months in field practice area (Malvani Urban slum area) of UHC facilitated by community medicine department of KEM Hospital, Mumbai, and Maharashtra. Malvani is divided into Gates and areas of which Gates extend from Gate No1 to Gate No 8. The UHC is located at Gate No.7 Malvani which is served by two health posts. The area under the health post which is attached to UHC was taken for study. All the patients registered during study period (from 1[ts] September 2005 till 31th December 2005) to health post i.e. 103 were included of which 85 were able to be followed till completion of study.

All the patients who registered at the Health Post were interviewed as early as possible after registration. The initial interviews were non formal only to build rapport. This time was

utilized for clarification of drought and misconceptions about Tuberculosis. The importance of accurate information was explained to patient. After this the history of patient regarding illness and socio-demographic details were recorded. They were followed till they completed treatment to know their treatment outcome.

Data analysis: Data entry and analysis was done using SPSS software version 15. This was cross checked by manual calculation.

Observations and Results:

Table 1: Sociodemograhic Profile of the TB patients

Variables	No.	%
Age (years)		
00- 14	10	09.70
15 – 24	36	35.00
25 – 34	24	23.30
35 – 44	16	15.50
45 – 54	08	07.80
More than 54	09	08.70
Sex		
Male	57	55.33
Female	46	44.67
Education of patient		
Illiterate	26	25.24
Primary	23	22.34
Secondary	28	27.18
Higher secondary	10	09.71
Above tenth	16	15.53
Occupation		
Unemployed	51	49.51
Employed	52	50.49
Socio-economic class		
Upper-Middle Class	20	19.4
Middle Class	48	46.6
Lower Middle Class	28	27.2
Lower class	07	06.8

Although Tuberculosis affects all age group, but has its greatest impact on are the most economically productive individuals (15 to 59 years); children as well as elderly group depend on them for survival. In present study, maximum number of patients (35.00%) was in age group of 15-24 yrs followed by 25- 34 yrs (23.30%). Thus Tuberculosis affects highly productive age group individuals i.e. 15-34 years & here it contributes 58.30%.Similar study conducted by R. Rajeswari [7] showed that 69% male and 84% female were in the economically productive age group 15 to 49 yrs.

In present study the distribution of study population shows that the male were 55.33% and the female were 44.67%. Similarly another study by Dheeraj Gupta [8] titled as "Role of socioeconomic factors in tuberculosis prevalence" shows that more males (67.2%) were affected as compared to females. There is another similar finding in a study conducted by M. Muniyandi [9] shows that there were 73% male contribute to the study population.

A large number of study populations were uneducated 26 (25.24%). As level of education is an important factor in association with knowledge about disease and the various services available at government centers. Educational status of the community is very key factor for the success or failure of the treatment in tuberculosis. Health seeking behavior of individual depends on the educational level; in present study only 17 out of 26 (65.04%) go to

health provider in first 30 days of their sickness. In study population individuals educated till primary classes were 22.34% while only 15.53% were educated above tenth standard. A study named "cost to patient with tuberculosis treated under DOTS programme" conducted by M. Muniyandi [9] showed that 43.29% study population was illiterate. A similar study conducted by R. Rajeswari [7] in India showed that 25% male and 34% female were illiterate.

In present study there were 49.51% unemployed individuals (Students, Retired person and Housewives) while there were 52 (50.49%) employed individuals in study population (Government employee, Private employee and daily workers). Employment status affects the treatment outcome as well as treatment adherence. Unemployment status was 21.31% in a study named "cost to patient with tuberculosis treated under DOTS programme" conducted by M. Muniyandi [9]. In another study by R. Rajeshwari [7] the employment status of 52.30% study individuals was employed.

There were no cases from upper class in present study. This shows that Tuberculosis affects middle class and lower class. In present study it affects 46.6% were from middle class while 34% were from Lower Middle Class and Lower Class. Unemployment, lower Educational Level, unhealthy living environment and Overcrowding etc. may be reason for TB in lower class. In a study by M. Muniyandi [9] shows that the 61.75% cases belong to Below Poverty Line (BPL).

Graph 1: Categorization of patient as per Disease category.

Majority of patient 48 (46.6%) belongs to Category 1 followed by category 3 (31.1%) while Category 2 contributes to 23 (22.3%).
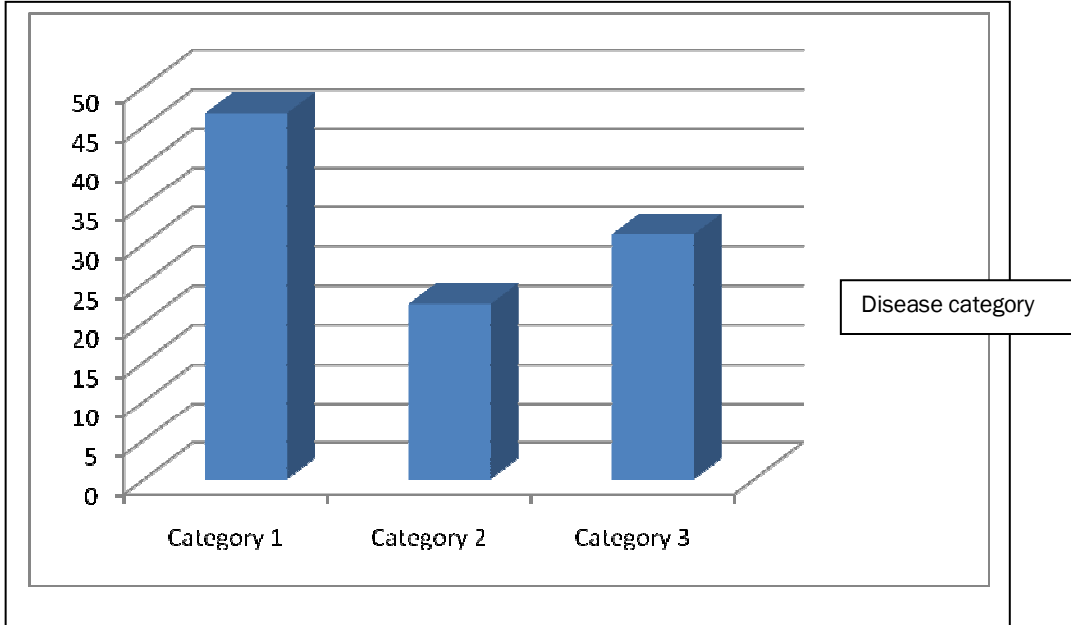
Over all treatment success is 85 (82.52%). Treatment failure includes Failure, transfer out, defaulter and death. Treatment failure is 18(17.47%). The treatment success rate was found more in Category 1 followed by Category 2 and Category 3. Treatment failure was more in disease category 2. In a study by Khatri G R & Frieden T R[10] it was observed that the treatment success was achieved in 81% of new smear-positive patients, 82% of new smear-negative patients, 89% of patients with extra-pulmonary TB and 70% of re-treatment patients.

Medworld asia

Dedicated for quality research

www.medworldasia.com

Graph 2: Outcome of treatment and Category of disease.
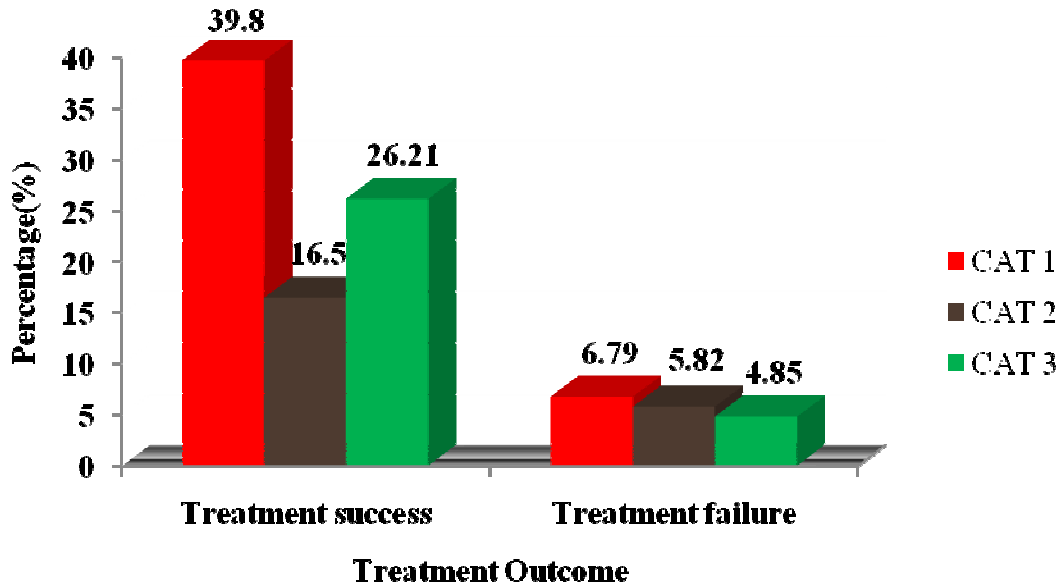
Table 2: Impact of Sociodemograhic profile on treatment outcome

Variables	Treatment outcome		Significance
	Treatment success (n=85)	Treatment failure (n=18)	
	No. (%)	No. (%)	
Age (years)			
00- 14	08	02	Chi-square =4.701,
15 – 44	63	13	df =2,
More than 45	14	03	P = 0.260
Sex			
Male	48	9	Chi-square = 0.713
Female	37	9	df=2; P = 0.700
Education of patient			
Illiterate	21	5	Chi-square = 0.123
Above 10th	51	10	df=2;
Below 10th	13	03	P = 0.940

Occupation			
Unemployed	41	11	Chi-square =0.537,
Employed	44	07	df = 1, P = 0.464
Socio-economic class			
Upper-Middle Class	17	3	Chi-square =1.512,
Middle Class	41	7	df =3;
Lower Middle Class	21	7	P = 0.930
Lower class	6	1	

Treatment success was good success in all age groups. However treatment failure was more among 15-44 years age group TB patients. In a study by S. N. Gaur [11] shows that treatment success rate decreases in older age group. There is no significant association between the age group and the treatment outcome in present study.

The present study shows that the treatment success rate was more in male as compared to females. This may be due to the delayed health seeking behavior of female patient as compared to male individual. Statically there was no association between the sex of individual patient and the treatment outcome of disease. Those educated have more cure rate than those who are uneducated. The relationship was found to be statically non significant.

The treatment success rate was more in unemployed individuals as compared to the Employed individuals. It may be due to inability of employed individuals to visit the health center every alternate day during intensive phase and weakly during continuation phase. The time may be the main constrain for the individual. There is no statically significant association between

treatment success and employment status of an individual.

Treatment success rate was highest in Middle class 41/48 (85.40%). Treatment success rate was 21/28 (75%) in Lower Middle Class while it is 6/7 (85.7%) in Lower Class. Defaulter was observed in Lower Middle Class 3/4 i.e. 75 and lower Class 1/4 i.e. 25%. The lower success rate and higher defaulter rate in lower class show the lack of awareness of severity of disease. The lower class individuals are either daily workers or private employee, thus they could not give enough time for there own health. There was no association between treatment success and Socio-economic class of an individual.

Conclusions:

Tuberculosis affects mainly the productive age group of society thus it hampers the social and economical development of individual, society and the nation. It is mostly seen in the middle and below middle class community which are already struggling for their survival in day to day life. Educational level, lack of knowledge of health facility provided by government, type of work, lengthy working hour may be the various reasons for negligence of personal and family

56

health in the study population. Majority of patient 48 (46.6%) belongs to Category 1 followed by category 3 (31.1%) while Category 2 contributes to 23 (22.3%). Over all treatment success is 85 (82.52%).

Treatment success was good success in all age groups, more in male as compared to females, more in educated patients, more in unemployed individuals, highest in those from Middle socioeconomic class.

Recommendations:

The study population was only those taking treatment from government health centre. There is need for health awareness in the population with effective information, Education and Communication (IEC) activities, so as to make them aware of common symptoms of disease and to avail the facilities at government centers to the earliest for diagnosis and treatment. It is strongly recommended that all effort should be made to ensure that correct, regular and complete treatment is taken by the patient.

References:

1. http://www.ias.ac.in/currsci/jan102004/3.pdf

2. http://www.who.int/tb/en/

3. http://www.nj.gov/health/cd/tbhistry.htm

4. http://indianchestsociety.org/Faimly.htm

5. J Kishore's National Health Programs of India, 7th Edition page no-168.

6. World Health Organization (WHO) Global TB Report 2006.

7. Rajeshwari R, R Balasubramanian, Muniyandi M, Geetharamani, X. Thresa, P. Venkatesh. Socio-economic impact of tuberculosis on patients and family in India. Ind J Tuberc Lung Dis 1999; 3(10): 869-77.

8. Dheeraj Gupta, Kshaunish Das, Balamughesh, T., Aggarwal, A. N., Jindal, K. Role of socio-economic factors in tuberculosis prevalence. *Indian J Tuberc* 2004, 51:27-31.

9. M Muniyandi , R Ramachandran , R Balasubramanian , P R Narayanan. Socio-economic dimensions of tuberculosis control: review of studies over two decades from Tuberculosis Research Center. *J Commun Dis*. 2006 Mar; 38 (3):204-15 17373353.

10. Khatri G R & Frieden T R. The status and prospects of tuberculosis control in India. *INT J TB & LUNG DIS* 2000, 4, 193-200.

11. Gaur SN, Dhingra VK, Rajpal S, Aggarwal JK and Meghna. Tuberculosis in the elderly and their treatment Outcome under dots. *Indian J Tuberc* 2004, 51:83-87.

12. Kulkarni A P, Baride. Text book of community medicine.2nd edition, page no 123.