

Original Research Article

Association of socio-demographic characteristics with knowledge and perception about disease among newly diagnosed pulmonary tuberculosis patients in western Uttar Pradesh: a cross-sectional study

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ABSTRACT

Background: TB is one of the top 10 causes of death worldwide. The risk of TB is high among populations living in poverty, low socioeconomic groups, low income, immune-suppressed (including AIDS), and extreme age (old age and children) groups, etc.

Methods: The study was conducted in TB and chest department of Sarojini Naidu medical college Agra city. The total number of patients registered during the period of July to September 2017 was 518; out of these 288 were new pulmonary and extrapulmonary patients. Out of 288 subjects, 123 were pulmonary patients. All the 123 new pulmonary tuberculosis patients (both smear +ve and smear -ve) were included in the study. 18 patients were lost to follow up after registration thus final effective sample size was 105 for further follow-up study.

Results: Overwhelming (84.76%) patients belonged to a lower socioeconomic class. The maximum number (85.33%) of the study subjects among upper lower socioeconomic status had no knowledge regarding causative microbes of the disease ($p=0.001$).

Conclusions: The majority of patients belong to illiterate, lower socioeconomic group, married and other than general cast, living in a joint, overcrowded family with more than four family members. About half of the subjects not knowing the method of prevention & consequence of treatment interruption. Most of them felt that quality of life affected after disease and about 1/4th of them felt hurtful behaviour of family members.

Keywords: Tuberculosis, Sociodemographic factors, Knowledge, Perception

INTRODUCTION

Tuberculosis has disease of public health importance since ages and affect large quantum of socioeconomic cost on the society. The risk of TB transmission also increases with overcrowding, intimacy, duration of contact and infectiousness of the TB patients.¹

The epidemiology of tuberculosis reflects how these social determinants are distributed, with a clear influence in all stages of TB pathogenesis: risk of exposure,

susceptibility to progression of disease, time to diagnosis and treatment, compliance and successful treatment.² Major problems in controlling TB burden is poor knowledge of transmission and prevention of TB.^{3,4}

Aim

With this back ground this study was designed to identify the sociodemographic factors associated with knowledge and perception about TB transmission, symptoms and treatment among adult population of Agra.

METHODS

Study design and duration

The study was descriptive cross sectional type and conducted in Agra city. Newly diagnosed pulmonary tuberculosis patients of age 18 years and above registered under RNTCP in tertiary care DOTS center of Sarojini Naidu Medical College Agra were included in the study for during three month period from July to september 2017.

Data collection

The questionnaire was prepared in hindi and contained both closed and open ended questions. Data was collected by personal interview method after obtaining informed written consent by the participants. A pilot study was under taken among 10% of subjects and preliminary analysis was done to reformat and to prepare the final questionnaire. The data was collected at designated microscopic centre located in TB and chest department of S.N.M. college Agra.

Sample size

Total number of patients registered during the period of three month were 518, out of which 288 were 'new pulmonary' and 'new extra pulmonary' patients. Of the 288 new pulmonary and extrapulmonary patients, 123 were pulmonary patients. 18 patients were loss to follow up after registration thus final effective sample size was 105 for further study.

Inclusion and exclusion criteria

All the 123 new pulmonary tuberculosis patients (both smear +ve and smear -ve) were included in the study. In current study if one or more windows were open in living room or in open area was considered as adequate ventilation. The patients who were seriously ill & infected with HIV, extrapulmonary TB and other than category-I and not reside in Agra were excluded from our study.

Statistical analysis

The information collected in Microsoft excel sheet and then it was cleaned for missing values and typing errors. The age, gender, education, caste, socio-economic status, types of family, number of members in the family and addiction were determined in number and percentage. Also for categorical variable chi square test and fisher exact test was used. The p value less than 0.05 was considered statistically significant. Case definition; classification based on history of TB treatment and lost to follow-up: TB patients who did not start treatment or whose treatment was interrupted for 2 consecutive months or more. New patients: have never been treated for TB or have taken anti-TB drugs for less than 1 month.

RESULTS

Out of 105 patients more than half (57%) were male. One third of male patients (22 out of 60) were in the age group of 18-25 years.

Table 1: Characteristics of study population (n=105).

Characteristics	N	%
Age group (years)		
≤35	61	58.09
35	44	41.91
Gender		
Male	60	57.14
Female	45	42.86
Education		
Illiterate	45	42.85
Upto 5 th class	20	19.04
Upto 12 th class	29	27.61
Graduation and above	11	6.66
Caste		
General	22	20.95
OBC	63	60.00
SC/ST	20	19.04
Socioeconomic status		
Upper	2	1.90
Middle	14	13.33
Lower	89	84.76
Type of family		
Joint	89	84.76
Nuclear	16	15.23
Number of family member		
4≤	20	19.04
5-6	38	36.19
7-8	26	24.76
>8	21	20.00
Addiction		
No	60	57.14
Yes	45	42.85
History of contact with tuberculosis disease person		
Absent	63	60.00
Present (occupational, family members contacts)	42	40.00
Living condition (overcrowding, ventilation)		
Poor	75	71.42
Good	30	28.57

Nearly half of female (21 out of 45) were in the age group of 18-25 years. In almost all the age groups, male to

female ratio was 1:1 except for the older age (≥ 46 years). 42.85% subjects were illiterate. Overwhelming (84.76%) belonged to lower class. More than half (60%) of the patients come under other backward class. Maximum number (84.76%) of study subjects were living in a joint family. More than half (57.14%) of study subject had no history of addiction. 40% of the study population had some history of close contact with other TB patients in family, neighbourhood and at their place of work. Almost two third (64.76%) of the study subject were living in a overcrowding condition (according to number of persons living per room). Nearly one third of the study subjects (31.42%) were living in poorly ventilated house (Table 1). Among all subjects, only 20.95% had correct knowledge that disease is caused by a microorganism. 40.95% knew that it is transmitted by cough and sneezing from a patient. Majority of the subjects had no knowledge (49.52%) of its mode of transmission. Multiple responses were obtained from subject regarding symptom of the disease and commonest responses was cough >2 week (96.19%) and other common responses were weakness (75.23%), fever (58.09%), breathlessness (45.71%), and weight reduction (45.71%) (Table 2).

Table 2: Knowledge regarding disease causative agents, mode of transmission and disease symptoms*.

Cause of tuberculosis	%
By microorganism	20.95
By dirt and cold environment	26.66
Don't Know	58.09
Mode of transmission	
Coughing	40.95
Hand shake	10.47
Sharing food	20.00
Black magic	2.85
Don't know	49.52
Disease symptom	
Cough more than two weeks	96.19
Weakness	75.23
Fever	58.09
Breathlessness	45.71
Weight reduction	40.00
Chest pain	15.03
Haemoptysis	13.33
Night sweat	13.33
Decreasing appetite	6.66

*(multiple responses)

76.19% of study subjects felt ashamed after being diagnosed as a case of TB. Nearly one third think about disease occur to any person. Family member of most of the study subjects (94.28%) knew about the disease status of the subject. But the behaviour of the family member towards the patients is not satisfactory in one fourth (26.26%) of the subjects. Quality of life were deteriorated due to disease in maximum number of subjects (98.09%) (Table 3). Maximum number (85.33%) of the study subjects among upper lower socioeconomic status had no

knowledge regarding causative microbes of the disease. Socio-economic status wise comparison of their knowledge regarding causative microbes was done, differences were found to be statistically highly significant (p value=0.001) (Table 4).

Table 3: Perception of study group regarding tuberculosis disease (n=105)*.

Perception regarding disease	N	%
Feeling after knowing disease status*		
Ashamed	80	76.19
Tb is result of old sin	16	15.23
TB is due to curse	3	2.85
TB occur to anyone	31	29.52
Want to die	2	1.90
Disease status known to family member		
Know	99	94.28
Don't know	6	5.72
Behavior of family members after disclosure		
Hatred	32	30.47
Helpful	73	73.73
Effect of disease on quality of life		
Affected	103	98.09
Not much affected	2	1.90

DISCUSSION

It was observed that more males (57.5 %) were affected than females (42.85%) and among male age groups 18-25 years were maximally affected (36.66%), while among female it was in the age group 18-35 years (70%). It was further observed that tuberculosis affected more in younger 18-25 years age group (40.95%) and older age groups ≥ 46 years (28.57%) as compared to 36- 45 years age group (13.33%). A study carried out among newly diagnosed pulmonary TB patients in Chennai by found that males were affected more (61.9%) as compared to female (38.1%) which is similar to our finding.² Similar observation was also made by a in his study carried out in Wardha Maharashtra.⁵⁻⁹ Also in their prospective study in Aligarh, Uttar Pradesh also observed higher case detection rate in males (72.2%) as compared to the females (27.8%) and also maximum number of cases (43.4%) were in the younger age group of 15-30 years.¹⁰ In present study majority (84.76%) of subjects belonged to lower class, similarly in their study found maximum subjects belonged to lower socioeconomic status.¹¹ While contrary to present study, Jebamalar et al in their study reported maximum number of tuberculosis patients belong to middle class followed by upper middle and least among lower class, which may be because their study drew patients from a municipal corporation zone of a metropolitan city, the zone might have predominantly habited by middle and upper class. In present study maximum (42.85%) patients were illiterate. Esmal et al in their study also found pulmonary tuberculosis was more among illiterates.

Table 4: Association between socio-demographic characteristics with disease characteristics.

Know- ledge Charact- eristics	Causative agent		P value	Disease prevention		P value	Curability of disease		P value	Consequences of treatment interruption		P value
	Correct	Incorrect		Correct	Incorrect		Know	Don't Know		Know	Don't Know	
Age (years)												
≤35	20 (32.7)	41 (67.21)	0.004	33 (54.0)	28 (45.9)	0.023	50 (82.0)	11 (18.0)	0.984	34 (55.7)	27 (44.3)	0.298
>35	2 (4.4)	42 (95.4)		14 (31.8)	30 (68.1)		36 (81.8)	8 (18.2)		20 (45.5)	24 (54.5)	
Sex												
Male	17 (28.3)	43 (71.6)	0.031	28 (46.7)	32 (53.3)	0.650	56 (93.3)	4 (6.66)	0.000	39 (65.0)	21 (35.0)	0.001
Female	5 (13.33)	40 (88.8)		19 (42.2)	26 (57.8)		30 (66.6)	15 (33.3)		15 (33.3)	30 (66.6)	
Socioeconomic status												
Upper SES	3 (60.0)	2 (40.0)	0.028	4 (80.0)	1 (20.0)	0.05	2 (40.0)	3 (60.0)	0.013	4 (80.0)	1 (1.0)	0.190
Lower SES	19 (19.0)	81 (81.0)		43 (43.0)	57 (57.0)		84 (84.0)	16 (16.0)		50 (50.0)	50 (50.0)	
Education												
Upto12 th class	15 (16.0)	79 (84.0)	0.000	39 (41.5)	55 (58.5)	0.047	78 (83.0)	16 (17.0)	0.403	44 (46.8)	50 (53.2)	0.005
Above 12 th class	7 (63.6)	4 (36.4)		8 (72.7)	3 (27.3)		8 (72.7)	3 (27.3)		10 (90.9)	1 (9.1)	
Type of family												
Nuclear	7 (43.7)	9 (56.2)	0.014	7 (43.8)	9 (56.3)	0.930	8 (50.0)	8 (50.0)	0.000	9 (56.3)	7 (43.8)	0.675
Joint	15 (16.8)	74 (83.1)		40 (44.9)	49 (55.1)		75 (84.2)	14 (15.7)		45 (50.6)	44 (49.4)	
History of contact												
Present	14 (33.3)	28 (66.6)	0.010	19 (45.8)	23 (54.8)	0.936	38 (90.5)	4 (9.5)	0.05	27 (64.3)	15 (35.7)	0.025
Absent	8 (12.6)	55 (87.3)		28 (44.4)	35 (55.2)		48 (76.2)	15 (23.8)		27 (42.9)	36 (57.1)	
Living condition												
Good	12 (40.0)	18 (60.0)	0.002	14 (46.6)	16 (3.33)	0.015	29 (96.6)	1 (3.33)	0.012	16 (53.3)	14 (46.7)	0.805
Poor	10 (13.3)	65 (86.6)		28 (37.3)	47 (62.6)		57 (76.0)	18 (28.5)		38 (50.7)	37 (49.3)	

However in another study reported that maximum number of cases were among primary to high school educated people and minimum among the illiterate which is contrary to our finding and might be because of regional variations, and the difference in study design as theirs was a community based study in a zone of metropolitan city Chennai corporation and hence reflects zone specific characteristics while the present study being in medical college catered to wide range of patients from urban slums as well as rural areas.² In our study majority of the subject belong to SC/ST and other backward caste (79.04%). Prevalence of tuberculosis among SC/ST and OBC reported higher.¹³ In the present study majority of the tuberculosis patients belonged to joint family (84.7%).

Majority of patients belonged to family size of more than 4 members (81.96%). Aurora et al in his study also observed that most of them lived in joint family (88.7%) In the present study more than one third of the study subjects had some or the other type of addiction, of which tobacco and smoking was the commonest (25.7% and 21.9% respectively).¹⁴ Overcrowding was present in 64.76% subjects. Similarly reported in their study that 29% of the tuberculosis patients correctly knew the cause of TB.¹⁵ In our study 40.95% of respondent were knew the fact that disease is transmitted by coughing and sneezing while half (49.9%) of the subjects said that they do not knew the mode of transmission. Sharma et al found that 70.6% study subject have correct knowledge of mode

of transmission which is higher than that in our study and it might be because study was conducted in metropolitan city Delhi where level of literacy and awareness is much higher than present study area. Shreeramareddy et al. reported slightly higher (55.5%) of the study subjects correctly knowing the mode of transmission than the present study the variation may be because study was based on analysis of secondary data.¹⁶ More than half (55.23%) of the subjects had no knowledge of disease prevention, while 44.0% said that the disease could be prevented, among them all knew that the disease could be prevented by covering mouth and nose during coughing and sneezing. In variance to ours study one fourth (25%) of the respondent were not aware of any methods of prevention, the difference might be because the study was community based on general population of tribal area of MP, while ours was hospital based among TB patients. In another study reported that majority (98.2%) responded said that the disease is preventable, comparatively better knowledge regarding prevention of the disease may be because of the study was carried out in general population of metropolitan city Delhi.¹⁵ In the present study most (84.0%) people opined that the disease is cured by allopathic medicine. Almost two third (68.57%) responded that treatment duration is long and almost all (95.23%) responded that treatment is freely available. When asked about the consequence of the treatment interruption, almost half (48.5%) of subjects knew about it. Similarly, Shreeramareddy et al observed that 83.5% of the study subjects knew that TB is curable. Palashdas et al also found that 82.7% study subject had correct knowledge about the disease curability. Two third (68.57%) of the study subjects knew that tuberculosis required long duration of treatment. Putera et al also found in their study that 77.62% of the study population correctly knew the long duration of the treatment, also reported in their study that 60.64% of the study participants correctly knew the long duration of the disease.¹¹ In our study almost three fourth (76.19%) of the study subjects felt ashamed after knowing their disease status, and nearly one fourth (26.26%) of study subjects felt hatred by behaviour of their family members. Almost all (98%) of the study subjects felt that their quality of life was affected due to disease. In the present study 18.09% subjects believed that the disease is result of their old sin or curse. Similar finding reported by (in their study).¹⁵ Mushtaq et al in their study also found that 76.3% of their participants felt shameful or embarrassed due to disease. 72.2% of study subjects said that the behaviour of the family members was helpful while 8.1% study subjects were hated by their family members. Also in another study they found that 95.4% of the patient's family members were cooperative to the subject.¹⁵

CONCLUSION

Females of 18 to 35 years of age group were more vulnerable to disease; females and for male of age 46 or more and 18-25 years respectively were more affected. Majority of them belong to illiterate, lower

socioeconomic group, married and other than general cast, living in joint, overcrowded family with more than four family members. About 40% of subject having history of contact and contact were mainly from family. About 1/3rd of them correctly know the cause of tuberculosis and mode of transmission. Most common perceived symptoms were found as cough, weakness and fever. About half of subject not knowing the method of prevention and consequence of treatment interruption. Most of them felt that quality of life affected after disease and about 1/4th of then felt hurtful behaviour of family members.

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