

# Knowledge, Attitude and Practices Towards Tuberculosis: Study Amongst Urban Adults Visiting the Community Health Center

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## ABSTRACT

**Background:** Tuberculosis (TB) constitutes the major challenge as a Communicable disease in the world. Its impacts are higher in resource-constrained settings. **Objectives:** We wish to explore the knowledge-attitude-practice (KAP) towards TB among the primary health center visitors in Mumbai. **Methods:** The cross-sectional-self-administered interview-based survey was conducted at a primary health center of a community healthcare setup at Mumbai. Experiences of study participants, with and without family history of TB towards KAP were compared. **Results:** We obtained 130 valid responses (65% were females), 28% reported to have history of TB to self or family members. In total responders 60% of said to have good knowledge about TB, 88.5% of respondents seen to have favourable attitude, and 73.1% informed following good preventing TB practices. **Conclusion:** Among total responders, two in five, eight in ten and seven in ten had a good knowledge attitude and practice about TB respectively. Among the participants with and without history of TB and we found no differences in KAP parameters.

**Key words:** Tuberculosis, Knowledge, Attitude, Practice, Community.

## INTRODUCTION

Tuberculosis (TB) burden has consistently been associated with various societies' sections with dominance in specific geographical locations. The last few decades have witnessed global, national, and regional efforts towards the control of TB.<sup>1</sup> Despite all the efforts globally, more than 9.5 million people get infected with TB, among which 17% (1.7 million) die per year.<sup>2</sup> When it comes to India, infections due to TB are the second-highest infectious cause of death in India.<sup>1,3</sup> Revised National TB Control Programme (RNTCP) progressively addressed TB control in the country. Similarly, the National Strategic Plan (NSP) 2017-2025 to eliminate TB has emerged with innovative steps.<sup>4</sup> Although due to massive policy efforts, there was a 10.9% decadal reduction in TB deaths in absolute numbers fatalities.

TB is caused by bacteria *Mycobacterium tuberculosis*, which most often affect the lungs. TB is curable, and prevention can help to control the spread. When people with pulmonary TB cough, sneeze or spit, they propel the TB germs into the air. A person needs to inhale only a few of these germs to become infected. About one-third of the world's population has latent TB, which means people have been infected by TB bacteria but are not (yet) ill with the disease and cannot transmit the disease. India bears one-fourth of the global TB burden with 26% cases of fatalities due to TB.

Raising community awareness can help to control the spread of disease. Positive associations in knowledge with treatment adherence and prevention is reported in studies. While stigma is seen to be associated with avoiding or delaying treatment or poor compliance.<sup>5,6</sup> Incorrect knowledge or awareness leads to stigmatization and discrimination in TB and myths about TB.<sup>7</sup> Having appropriate or adequate knowledge helps address psycho-social factors adequately. Considering the significance of knowledge attitude and practice (KAP), we decided to explore these factors' relationship with TB. Study will also delve into comparison of KAP differences among respondent with and without the family history of the TB.

## METHODOLOGY

A prospective observational interview-based study was performed. The study location was the dispensary of the comprehensive healthcare service scheme (CHSS) at Mumbai, located at Mandala. Beneficiaries of CHS scheme comprises of urban, educated and middle-income population. Details about the healthcare setup and the scheme are published elsewhere.<sup>8,9</sup> Study participants were selected from the beneficiaries visiting the study center during the period starting from 08/2019 to 12/2019. The visiting patients or their companion of the age more than 18 years of were potential

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eligible for this study. Those who were unable to read and respond to the questionnaire were excluded from the study. Persons who expressed their willingness to participate in the survey were briefed about the research and the details. Those who agreed to participate in the study were requested for signed consent form and to respond the self-administered questionnaire. Considering baseline population of 11500 individuals mapped to the study dispensary and considering precision of 8%, we calculated sample size of 130 individuals for this study.

The questionnaire was designed based on various approaches about KAP-related aspects. We obtained content and face validity based on the pilot of five responses. The self-explanatory, non-intentional nature of questions was considered in the questionnaire after the piloting. Fifteen question of background characteristics, followed by eight about knowledge, ten about attitude and six questions about practices were considered for this study. All the responses received were anonymously considered for the purpose of the inference.

The score of each correct response was calculated for knowledge and practice. For attitude, five Likert-scale-based questions excluded from the score while the remaining five were considered for the score calculation. Total correct responses were grouped across those participants who had a family history of TB or those who have ever been diagnosed with the TB. Overall, KAP characteristics were compared across socio-economic parameters of the study responders.

All the data were analyzed using Microsoft Office Excel 2019 for Windows and Statistical Package for Social Sciences (SPSS version 25) for Windows. Responders' data were analyzed for socio-demographic parameters across variables under consideration. Total responders were compared between those individuals who ever had a history of TB in their family as well as those who ever was diagnosed with the disease. The score of correct and non-correct responses were given for the KAP domain for each socio-demographic parameter. Cross-tabulation data with row percentages were shown for analysis. Chi-square test of significance and non-parametric test applied. *P*-value below 0.05 was considered to be statistically significant.

## RESULTS

Overall, 130 participants with valid records were considered for the study. Out of the total respondents, 65% were females, and 35% were males. The majority of participants (43%) are from the 31-40 years age group. 80% of the study population were living in a nuclear family group. (Table 1) There were 13% of respondents reported to be diagnosed with TB in the past. While 21% reported to have family member ever diagnosed with TB. Among responder demographic characteristics and their (or family member) history of TB diagnosed no statistically significant difference was found except family types ( $p > 0.05$ ). In nuclear family 32.4 reported to have family history of TB same was 8% in joint family responders ( $p$  value 0.014). Three in five responders reported to have good and adequate knowledge about the TB. Nine in ten responder seem to have positive or favourable attitude towards the practices to avoid TB occurrence or spread. Three in four reported to have agreed for the good practices.

History of TB to the responder or in the family seems to have no effect in TB related KAP responses of an individual. No statistically significant difference was noticed in TB related responses ( $p$  value  $> 0.05$ ).

### Knowledge about TB.

From overall respondents, 60% of participants had good knowledge about TB (knowledge score value is more significant than mean knowledge score value). 58.46% of participants reported that TB occurs due to bacteria. 14.62% reported that it occurs genetically. Only 33.08% of participants mentioned that they know about the BCG vaccine for TB. 53.85% of participants were fully aware of TB symptoms. Only 6.92%

of respondents know about all the modes of the transmission of TB. The majority of respondents (83.08%) think that TB is curable and the treatment for the same is free of cost (80%).

### Attitude towards TB

Overall, favorable attitude present in the community towards TB (88.05%). The majority of respondents (86.15%) are willing to share their information about TB with others. Also, people favor undergoing family screening to detect Tuberculosis if any family member is diagnosed with TB (85.38%). The majority of participants (88.46%) also believe that wearing a mask in pulmonary TB is a preventable measure to stop the spreading of TB. Only 27.69% of respondents believe that interaction with TB Patients Contributes to possible stigma.

### Prevention practice for TB

Most of the respondents have done immunization for their child with BCG (82.31%). Almost all (98.46%) the participants maintain the proper hygiene at home. Only one-seventh of participants attended a health education program for prevention and management of TB. Seven in eight participants have an adequately ventilated house. 76.92% of participants mentioned that nutrition plays an essential role in tuberculosis management. (Table 2).

## DISCUSSION

The present study revealed a varied knowledge base (33% - 83%) about Tuberculosis (TB) among the study participants. This tells awareness of TB as an infectious disease among study participants. Literature mentions that the significance of accurate knowledge can influence practices towards the prevention of infectious disease.<sup>10</sup> The finding of mean knowledge level among participants in the current study (60%) is better than the study done in Ethiopia (52%)<sup>2</sup> and slightly lower than Iranian (62%) and Myanmar (72%) responders from another study.<sup>11,12</sup> Knowledge about the infectious disease's causal factor is more important as it eventually leads towards preventive practices.

We found that the study participant had a positive attitude (88.1%) toward dealing with TB aspects and was aware of TB as a disease with severe consequences. Among responders, 80% of participants were aware of free TB treatment at Government facilities, and however, for diagnosed patients, sympathy was expressed by 68% of the responders. Having diagnosed TB as an uncomfortable feeling reported in the literature from various studies.<sup>2,13,14</sup> Despite positive attitudinal values, 23% of our responders have expressed the possibility of stigma while dealing with patients, which may vary in other studies reported from India.<sup>5,7</sup>

BCG vaccination to children at home were confirmed by 82% of the responders. Simultaneously, almost all had hygiene maintained (99.7%) at their place with (87.3%) adequately ventilated house. Since many of the responders were not related to healthcare services, they encountered a health education program of 13.8%. For practice-related aspects, we found that being urban educated and economically stable healthy practices were in place; however, associated stigma with known TB patients was expressed by one in four individuals. An effort to de-stigmatization may be needed, and other studies from the Indian context mention it. Related things are mentioned in national guidelines with TB-related reports.<sup>4,5,15,16</sup> Health stigma-related aspects need to be evaluated specifically; however, such aspects are beyond this study's scope. We also acknowledge that the study population doesn't involve all Indian populations, and generalizations of findings may need to be considered in a specified context. This study, however, concludes that participants had overall good knowledge (60%) about Tuberculosis, its causation, prevention, and related factors. In comparison, participants report positive attitudes and related practices.

**Table 1: Socio-economic Distribution of participants characteristics and Knowledge, Attitude and Practices towards TB.**

Narration	TB History (Family or Self)			Knowledge (r%)		Attitude (Favourable) (r%)		Practices (r%)	
	Yes (r%)	No (r%)	Total (c%)	Good	Poor	Yes	No	Good	Poor
Overall	36 (27.69%)	94 (72.31%)	130	78 (60%)	52 (40%)	115 (88.5%)	15 (11.5%)	95 (73.1%)	35 (26.9%)
<b>Age Group</b>									
18-30	7 (35)	13 (65)	20 (15.4)	13 (65%)	7 (35%)	17 (85%)	3 (15%)	13 (65%)	7 (35%)
31-40	12 (21.4)	44 (78.6)	56 (43.1)	32 (57.1%)	24 (42.9%)	53 (94.6%)	3 (5.4%)	46 (82.1%)	10 (17.9%)
41-50	11 (31.4)	24 (68.6)	35 (26.9)	21 (60%)	14 (40%)	29 (82.9%)	6 (17.1%)	23 (65.7%)	12 (34.3%)
51-60	6 (31.6)	13 (68.4)	19 (14.6)	12 (63.2%)	7 (36.8%)	16 (84.2%)	3 (15.8%)	13 (68.4%)	6 (31.6%)
<b>Gender</b>									
Female	16 (35.6)	29 (64.4)	45 (34.6)	48 (56.5%)	37 (43.5%)	72 (84.7%)	13 (15.3%)	62 (72.9%)	23 (27.1%)
Male	20 (23.5)	65 (76.5)	85 (65.4)	30 (66.7%)	15 (33.3%)	43 (95.6%)	2 (4.4%)	33 (73.3%)	12 (26.7%)
<b>Marital Status</b>									
Married	6 (35.3)	11 (64.7)	17 (13.1)	66 (58.4%)	47 (41.6%)	101 (89.4%)	12 (10.6%)	83 (73.5%)	30 (26.5%)
Single	30 (26.8)	82 (73.2)	112 (86.2)	12 (70.6%)	5 (29.4%)	14 (82.4%)	3 (17.6%)	12 (70.6%)	5 (29.4%)
<b>Education</b>									
PG	6 (50)	6 (50)	12 (9.2)	23 (74.2%)	8 (25.8%)	30 (96.8%)	1 (3.2%)	24 (77.4%)	7 (22.6%)
Graduation	11 (31.4)	24 (68.6)	35 (26.9)	34 (65.4%)	18 (34.6%)	46 (88.5%)	6 (11.5%)	43 (82.7%)	9 (17.3%)
Secondary	14 (26.9)	38 (73.1)	52 (40)	17 (48.6%)	18 (51.4%)	30 (85.7%)	5 (14.3%)	22 (62.9%)	13 (37.1%)
Primary	5 (16.1)	26 (83.9)	31 (23.8)	4 (33.3%)	8 (66.7%)	9 (75%)	3 (25%)	6 (50%)	6 (50%)
<b>Family Type</b>									
Nuclear	34 (32.4)	71 (67.6)	105 (80.8)	63 (60%)	42 (40%)	93 (88.6%)	12 (11.4%)	77 (73.3%)	28 (26.7%)
Joint/ Extnded	2 (8)	23 (92)	25 (19.2)	15 (60%)	10 (40%)	22 (88%)	3 (12%)	18 (72%)	7 (28%)
<b>Family Income</b>									
<1Lakh	0 (0)	5 (100)	5 (3.8)	2 (40%)	3 (60%)	5 (100%)	0 (0%)	5 (100%)	0 (0%)
1-5 Lakh	19 (38.8)	30 (61.2)	49 (37.7)	22 (44.9%)	27 (55.1%)	41 (83.7%)	8 (16.3%)	28 (57.1%)	21 (42.9%)
5-10 Lakh	11 (28.2)	28 (71.8)	39 (30)	23 (59%)	16 (41%)	35 (89.7%)	4 (10.3%)	28 (71.8%)	11 (28.2%)
> 10 Lakh	6 (16.2)	31 (83.8)	37 (28.5)	31 (83.8%)	6 (16.2%)	34 (91.9%)	3 (8.1%)	34 (91.9%)	3 (8.1%)
<b>Residential duration</b>									
<2 Years	1 (25)	3 (75)	4 (3.1)	2 (50%)	2 (50%)	4 (100%)	0 (0%)	4 (100%)	0 (0%)
2-5 Year	6 (42.9)	8 (57.1)	14 (10.8)	11 (78.6%)	3 (21.4%)	13 (92.9%)	1 (7.1%)	11 (78.6%)	3 (21.4%)
5-10 Year	6 (26.1)	17 (73.9)	23 (17.7)	13 (56.5%)	10 (43.5%)	21 (91.3%)	2 (8.7%)	18 (78.3%)	5 (21.7%)
>10 Years	23 (25.8)	66 (74.2)	89 (68.5)	52 (58.4%)	37 (41.6%)	77 (86.5%)	12 (13.5%)	62 (69.7%)	27 (30.3%)
<b>Personal Habits</b>									
Yes	29 (25.4)	85 (74.6)	114 (87.7)	9 (56.3%)	7 (43.8%)	15 (93.8%)	1 (6.3%)	10 (62.5%)	6 (37.5%)
No	7 (43.8)	9 (56.2)	16 (12.3)	69 (60.5%)	45 (39.5%)	100 (87.7%)	14 (12.3%)	85 (74.6%)	29 (25.4%)
<b>Co-Morbid Condition</b>									
Yes	27 (27)	73 (73)	100 (76.9)	18 (60%)	12 (40%)	26 (86.7%)	4 (13.3%)	19 (63.3%)	11 (36.7%)
No	9 (30)	21 (70)	30 (23.1)	60 (60%)	40 (40%)	89 (89%)	11 (11%)	76 (76%)	24 (24%)
<b>Family History</b>									
Yes				21 (75%)	7 (25%)	25 (89.3%)	3 (10.7%)	21 (75%)	7 (25%)
No				57 (55.9%)	45 (44.1%)	90 (88.2%)	12 (11.8%)	74 (72.5%)	28 (27.5%)
<b>Diagnosed with TB</b>									
Yes				10 (58.8%)	7 (41.2%)	13 (76.5%)	4 (23.5%)	15 (88.2%)	2 (11.8%)
No				68 (60.2%)	45 (39.8%)	102 (90.3%)	11 (9.7%)	80 (70.8%)	33 (29.2%)

Note: R%: Row percentages across subgroups, C%: Column percentage

**Table 2: Questionnaire and respondents with correct responses.**

Question	Correct Answer	Family History of TB (row %)		No Family history of TB (row %)		Total (col %)	p-value
		Correct Response	Wrong Response	Correct Response	Wrong Response	Correct Responses	
<b>Knowledge towards TB</b>							
How does TB occur?	Bacteria	23 (64%)	13 (36%)	53 (56%)	41 (44%)	76(58)	0.437
Is there any vaccine for TB prevention	BCG Vaccine	11 (31%)	25 (69%)	32 (34%)	62 (66%)	43(33)	0.705
Does TB transmit from person to person?	Yes	27 (75%)	9 (25%)	68 (72%)	26 (28%)	95(73)	0.76
IS TB Curable	Yes	32 (89%)	4 (11%)	76 (81%)	18 (19%)	108(83)	0.274
Can TB be prevented?	Yes	32 (89%)	4 (11%)	71 (76%)	23 (24%)	103(79)	0.093
What are the symptoms of TB?	All	25 (69%)	11 (31%)	45 (48%)	49 (52%)	70(54)	0.027
How does TB transmit?	Cough/ Breath	4 (11%)	32 (89%)	5 (5%)	89 (95%)	9(7)	0.244
What are the preventive measures of TB?	All Of These	14 (39%)	22 (61%)	29 (31%)	65 (69%)	43(33)	0.383
<b>Attitude towards TB</b>							
TB treatment is free of cost at public health facilities?	Yes	30 (83%)	6 (17%)	74 (79%)	20 (21%)	104(80)	0.557
Feeling towards Tuberculosis affected individual/family	Yes	24 (67%)	12 (33%)	65 (69%)	29 (31%)	89(68)	0.785
Willingness to share your information on Tuberculosis with others	Yes	33 (92%)	3 (8%)	79 (84%)	15 (16%)	112(86)	0.26
Undergoing family screening can be helpful for early detection of Tuberculosis, if anyone diagnosed with TB	Yes	31 (86%)	5 (14%)	80 (85%)	14 (15%)	111(85)	0.885
Wearing a face mask is important in pulmonary Tuberculosis.	Yes	29 (81%)	7 (19%)	86 (91%)	8 (9%)	115(88)	0.081
Interaction with TB Patients Contributes possible stigma	Yes	6 (18%)	28 (82%)	24 (28%)	63 (72%)	30(23)	0.255
<b>Practice towards prevention of TB</b>							
Have you immunized your child with BCG	Yes	29 (81%)	7 (19%)	78 (83%)	16 (17%)	107(82)	0.746
Proper hygiene is maintained at home	Necessary	36 (100%)	0 (0%)	94 (100%)	0 (0%)	130(100)	0
Is Nutritional diet plays an important role in Tuberculosis management	Yes	31 (86%)	5 (14%)	69 (73%)	25 (27%)	100(77)	0.124
Do you have an adequately ventilated house?	Yes	32 (89%)	4 (11%)	82 (87%)	12 (13%)	114(88)	0.797
Do you maintain proper isolation if your sputum test is positive	Yes	21 (58%)	15 (42%)	62 (66%)	32 (34%)	83(64)	0.418
Have you attended any health education for prevention and management of TB	Attended	4 (11%)	32 (89%)	14 (15%)	80 (85%)	18(14)	0.576

## CONCLUSION

Our findings highlight the scope towards the improvement in the awareness about the disease TB. A positive attitude plays a pivotal role and needs evaluation and consideration masses to lead to good practices in the management of TB patients in the community. Such research emerged as an evaluation step towards the Revised National TB Control Programme (RNTCP) of the national government. Larger evaluation across the rural and urban populations is warranted.

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