Knowledge about TB and Health Seeking Behaviour among Adult Chest Symptomatic (CS) Population Living in Urban Slums of Hyderabad City

Baseline Study Report: 2016-17

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Knowledge about TB and Health Seeking Behaviour among Adult Chest Symptomatic (CS) Population Living in Urban Slums of Hyderabad City
A Baseline Study Report: 2016-17

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TABLES & FIGURES

ACRONYMS

AWW	Anganwadi Worker
BL	Base-line
CGHS	Central Government Health Scheme
CS	Chest Symptomatic (person with symptoms of pulmonary TB)
DMC	Designated Microscopy Centre
DOTS	Directly Observed Treatment, Short Course
ESI	Employees' State Insurance
FLW	Front-line Workers / Field Level Workers
GH	Government Hospital
GoI	Government of India
HIV	Human Immunodeficiency Virus
IEC	Information Education and Communication
ICT	Information Communication Technology
KHPT	Karnataka Health Promotion Trust
MH	Municipal Hospital
MDR	Multi-drug Resistant (TB)
NGO	Non-government Organization
ORW	Outreach Workers
PHC	Primary Health Centre
PPS	Probability Proportion to Size
PSU	Primary Sampling Unit
RNTCP	Revised National Tuberculosis Control Program
RSBY	Rashtriya Swasthya Bima Yojana
SSM	Sputum Smear Microscopy
STCI	Standards for TB Care in India
TB	Tuberculosis
TBAI	TB Alert India
TB-H	TB Hospital
THALI	Tuberculosis Health Action Learning Initiative
TU	Tuberculosis Unit
UFWC	Urban Family Welfare Centre
UHC	Urban Health Centre
UHP	Urban Health Post
USAID	United States Agency for International Development

FOREWORD

The Government of India has set ambitious targets to eliminate TB by 2025 in the country. Health seeking behaviour of the individuals having symptoms suggestive of TB is the first step in identifying the persons with TB. An individual's knowledge, attitudes, and perceptions about TB influence his/her behaviour. These factors influence health seeking, their understanding of the diagnosis, and treatment, and their readiness to start and adhere to treatment. Thus, it is important to understand the levels of knowledge and health seeking behaviour for TB among the general population as well as persons had/having symptoms suggestive of TB, especially among the urban poor. Karnataka Health Promotion Trust (KHPT), Bengaluru, conducted a program evaluation in the selected slum areas of Hyderabad in partnership with TB Alert India. This was carried out to understand the current level of knowledge and health seeking behaviour for TB among adult population. The evaluation is in the context of a USAID funded Tuberculosis Health Action Learning Initiative (THALI).

The assessment was conducted in Bengaluru and Hyderabad cities. A sample of population from 60 slum areas and 480 households was drawn up to determine whether adults in the households of urban poor know about TB. In addition, adult persons who reported having persistent cough during the past 6 months from the same geography, were interviewed for their knowledge and health seeking behaviour in relation to symptoms suggestive of TB.

This report is prepared by the Karnataka Health Promotion Trust (KHPT) in partnership with TB Alert India, Hyderabad. The information will help programme managers to plan focused communication activities and specific messages for people who are most vulnerable to TB. This will aid in TB prevention and control activities among the urban poor in Hyderabad, Bengaluru and across other cities in India.

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State TB Officer
Telangana State

ACKNOWLEDGEMENTS

The baseline study on "Knowledge about TB and Health Seeking Behaviour among Adult Chest Symptomatic (CS) Population Living in Urban Slums of Hyderabad City" was successfully completed due to the efforts and involvement of numerous organizations and individuals at different stages of the survey. To the extent possible, we would like to thank everyone who was involved in the survey and made it a success.

First of all, we are grateful to USAID, New Delhi, India for funding this study as a part of the larger project, namely, the Tuberculosis Health Action Learning Initiative (THALI), which aims to establish a holistic approach to TB control efforts in selected Indian cities through implementation of TB prevention activities and patient-centric models of care and support. We gratefully acknowledge the continuous guidance and support from the various staff of KHPT in Bengaluru for this study, and with preparation of the report. Our heartfelt thanks goes out to the Institutional Ethics Committee of St. John's Medical College and Hospital, Bengaluru, for approving the study.

We are thankful to the Joint Director (TB) and State TB Officer, Telangana State, District TB Officers of Hyderabad City and other State and District RNTCP staff for extending their support. Special thanks to the local officials in all the sample areas for facilitating data collection.

We also thank the program outreach workers for their hard work in conducting the mapping of slum areas. We appreciate and acknowledge the commitment and hard work put in by the study coordinator, field supervisors and field interviewers in collecting the data.

Finally, we acknowledge all the respondents of the study (eligible women and men of Hyderabad) who gave their time and responded to the lengthy questionnaires with tremendous patience and without any expectation from the study team.

01 INTRODUCTION

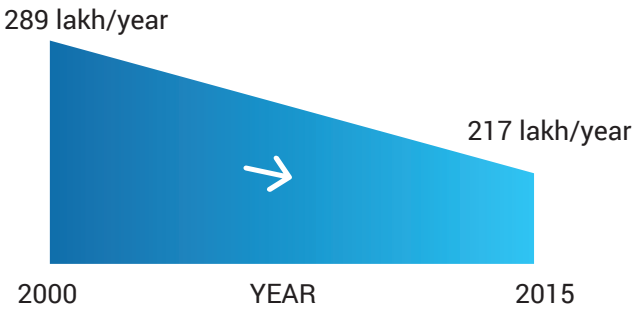
Background

India accounts for one-fourth of the global burden of tuberculosis (TB). In 2015, an estimated 28 lakh cases occurred and 4.8 lakh people died due to TB. India has highest burden of both TB and MDR TB based on estimates reported in the Global TB Report 2016. An estimated 1.3 lakh incident multi-drug resistant TB patients emerge annually in India which include 79,000 MDR-TB patients estimated among notified pulmonary cases. India bears the second highest number of estimated HIV-associated TB cases in the world. An estimated 1.1 lakh HIV-associated cases of TB occurred in 2015 and 37,000 are estimated to have died among them.

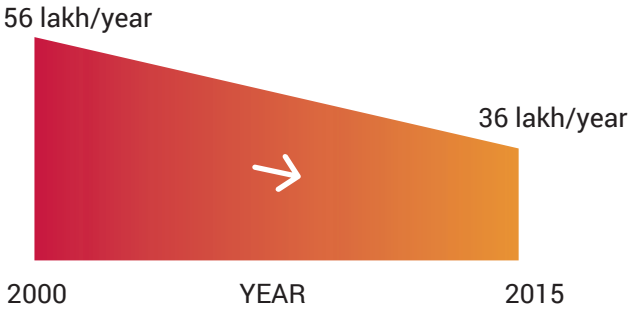
The estimates of TB for India have been revised upwards based on newer evidence. This apparent increase in the disease burden reflects the incorporation of more accurate data. With backward calculations, both tuberculosis incidence and mortality rates show a declining trend from the year 2000 to 2015.

The incidence of TB has reduced from 289 per lakh per year in 2000 to 217 per lakh per year in 2015 and the mortality due to TB has reduced from 56 per lakh per year in 2000 to 36 per lakh per year in 2015.[1]

INCIDENCE OF TB



MORTALITY DUE TO TB



[1] TB-India 2017 (RNTCP-Annual Status Report)

Project brief - THALI

The United States Agency for International Development (USAID) awarded multiple Tuberculosis Health Action Learning Initiative (THALI) awards in January 2016 with the goal of gaining improvement in national tuberculosis (TB) notification and treatment success rates across India over four years.

Under one such award, THALI, implemented by Karnataka Health Promotion Trust (KHPT) in partnership with TB Alert India, improves health seeking by the urban poor, TB diagnosis, notification and treatment outcomes. THALI works in collaboration with the Revised National Tuberculosis Control Program (RNTCP) and focuses on developing successful models of patient-centred care and support to help vulnerable populations gain access to quality TB services from health providers of the patient's choice. THALI focuses on the objective of improved urban TB control in two cities – Bengaluru (Karnataka) and Hyderabad (Telangana), which since June, 2018, has expanded to more geographies. THALI now operates in 15 districts in Karnataka, six districts in Telangana and three in Andhra Pradesh. KHPT implements THALI in Karnataka, while TBAI implements the project in Telangana and Andhra Pradesh.

Key Principles for TB prevention and care

1. Appropriate health seeking behaviour of people with symptoms
2. Evidence-based diagnosis
3. Standard, evidence-based treatment
4. TB notification
5. Treatment follow-through

Priority population

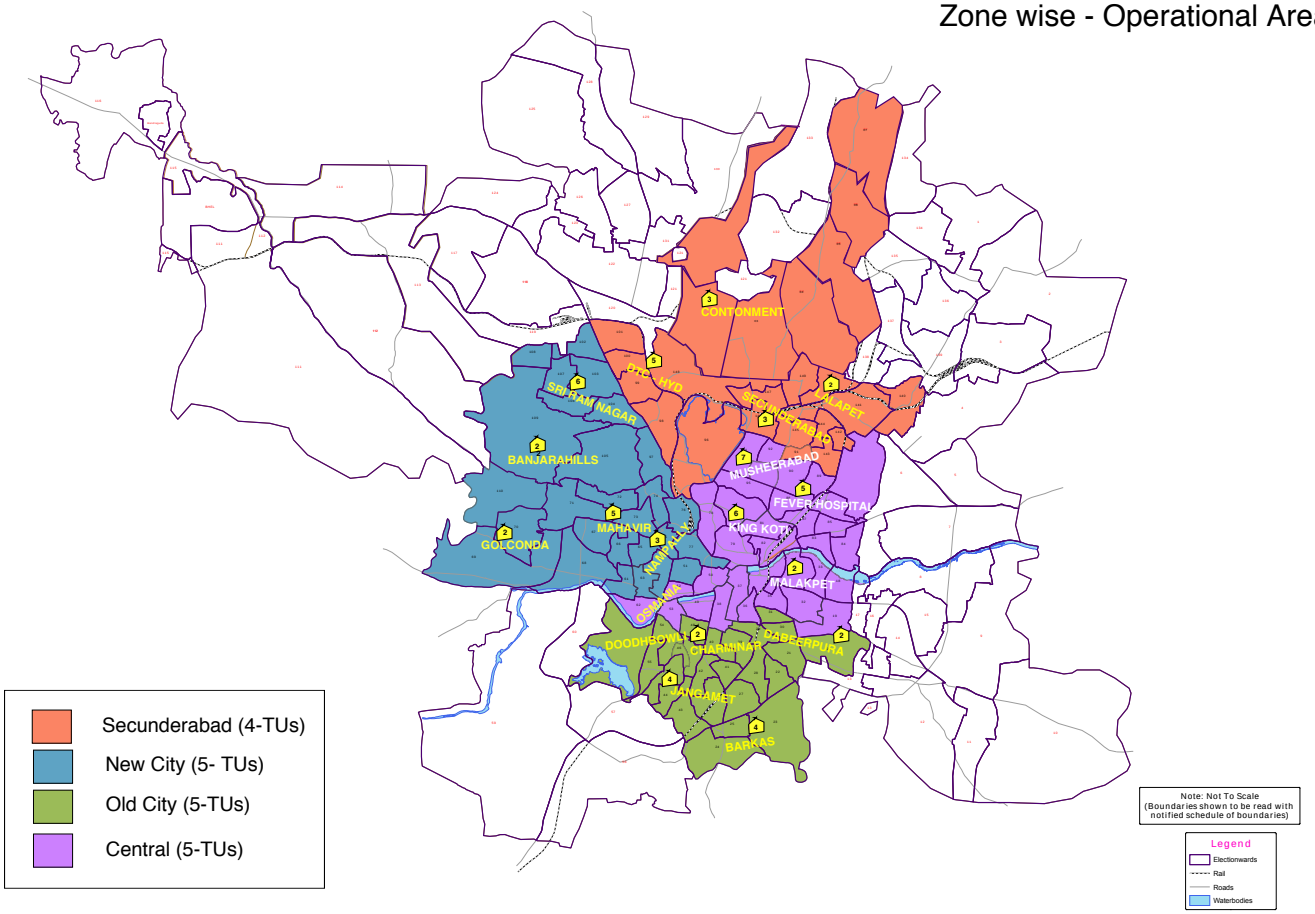
The urban poor are largely concentrated in overcrowded urban communities or slums. About three million people live in the slums of Bengaluru (2 RNTCP districts) and Hyderabad (1 RTNCP district) where THALI currently operates.

Within the urban slum communities, THALI lays particular emphasis on reaching and supporting the more vulnerable groups among the urban poor. They include:

- Women, children and the elderly, who tend to be additionally marginalized, neglected and prone to inequitable access to health care in a social environment that prioritizes health care for people considered to be economically productive.
- Persons with co-morbidities, especially HIV-AIDS and conditions like diabetes and undernutrition, which enhance the onset of TB disease, and complicate, compromise and/or delay treatment outcomes.
- Persons prone to developing TB from working in overcrowded workplaces and exposed to indoor or outdoor dust, smoke and fumes, and those in occupations which compromise lung function, such as mining, construction and textile industries.
- Migrant workers who lack family and social support systems and who are at risk of treatment interruptions.

Geographical area

Zone wise - Operational Area



Zone	TUs
Secunderabad	Cantonment Lalapet Secunderabad DTC Hyderabad
Old City	Dabeerpura Barkas Jangammet Charminar Doodh Bowli

Zone	TUs
Central	Musheerabad Fever Hospital King Koti Malakpet Osmania
New City	Mahaveer Nampally Golconda Banjara Hills Sriram Nagar

For operational effectiveness of the THALI project, the geographical area of urban Hyderabad is divided into four zones, each zone comprised of slums of different Tuberculosis Units (TUs) as detailed above.

02

BASELINE STUDY

Study Design

The Baseline Study on "Knowledge and Health Seeking Behaviour" was envisaged to understand the knowledge aspects of TB and health seeking behaviour among Chest Symptomatic (CS) adults in the urban slums of Hyderabad. The data derived from the study provides statistical evidence on key indicators, which will serve as a benchmark for periodical assessment of the program and for developing community engagement strategies.

A two-stage sampling technique was adopted to collect the baseline data. The urban slums in the project area (as per slum mapping data) were chronologically listed with the number of households and their population size. Probability Proportion to Size (PPS) method was used to arrive at the number of sampled urban slums. The urban slums selected for data collection were the primary sampling unit (PSU). The urban slums with 300 or more households were segmented equivalent to 100-125 households in each segment, according to natural boundaries. Two segments were selected using PPS sampling from such large slum areas.

A house listing operation was carried out in order to identify and select the required number of CS adult persons. In the segmented slum areas, the house listing was carried out only in the selected segments.

Sample

The sample frame for Hyderabad city consisted of 942 slums. A total of 60 slums were selected for the "Health Seeking Behaviour Study" using the PPS method. Based on the statistical relevance, the total sample size for the health seeking survey was fixed at 480 CS adult persons. It was proposed that eight CS adults persons be selected and interviewed per PSU on average.

One identified adult CS person (individual with persistent cough for more than 2 weeks in the last six months) per household was selected and administered a specific set of questions.

The following matrix shows the sample drawn and coverage of CS persons:

Table 1: Sample coverage of Chest Symptomatic persons

Result of interview	Males		Females		Total	
	%	N	%	N	%	N
Completed	87.2	190	90.5	237	89.0	427
Not at home	3.7	8	2.3	6	2.9	14
Refused	7.3	16	5.0	13	6.0	29
Partially Completed	1.4	3	0.8	2	1.0	5
Other	0.5	1	1.5	4	1.0	5
Total	100.0	218	100	262	100.0	480

Survey tools

The survey tool contains two sections; one, to assess knowledge aspects of TB and second, health seeking behaviour of CS population in urban Hyderabad. The tool broadly focuses on the following features to analyse the responses from the interviewed adult CS persons.

1. Household characterstics
2. Socio-economic and demographic profile
3. Health-related information
4. Knowledge aspects of TB
5. Health seeking behaviour

Pre-testing of tools and staff orientation

Pre-testing and in-house detailing on tools were done during the orientation of the staff, to assess and ensure that the questions given in the tools would fetch the required information, and that probing would help the extraction of correct information from the adult CS person. The staff orientation was six days long, which included field practice. During these six days of training, trainers focused on procedural aspects and the correct method of filling the tools. The survey staff were given instructions for obtaining written consent and maintaining confidentiality. The final tools were derived subsequent to pre-testing and orientation.

Additionally, the survey staff were oriented on listing of households and selecting the adult CS persons. Emphasis was given on screening households at each PSU, based on the study requirement i.e., identifying households with CS persons (persistent cough for more than two weeks).

The training was organized from 29 November, 2016, to 4 December, 2016, and 30 persons attended the training.

Data collection and analysis

The data collection task started on 8 December, 2016, and continued till 11 April, 2017. A team consisting of a research coordinator, 2 field supervisors and 13 field investigators carried-out the task; thereafter, they conducted necessary re-checks and submitted the completely filled forms.

The in-house research team facilitated the data entry, data validation and analysis to fetch the information as per the pre-sketched tables.

Ethical approval for the study was obtained from the Institutional Ethics Committee, St. John's Medical College and Hospital, Bengaluru

03

PROFILE OF HOUSEHOLDS AND RESPONDENTS

Demographic, social and economic profile

Socio-economic and demographic profiles of households were collected for micro planning and for initiation of project activities among the neediest groups. (Table-2)

The age of household members indicates that nearly 57% of the household members were in the age-group of 18-49 years, 26% were below 18 years of age and 17% were above 50 years of age, and the mean age of household members was 29 years. Further, sex of household members among the sampled population shows 52% males and 48% females.

Religion-wise segregation of households indicates 63% were Hindu, 32% were Muslim and 5% were from other religions. A segregation of households by caste indicated that 25% of respondents were from a Scheduled Caste, 4% were from a Scheduled Tribe and others accounted for 71%.

Data on the monthly household income of 427 adult CS persons indicated that nearly 59% of the households' income ranged between Rupees 5000 and Rupees 14999 per month, whereas nearly 29% of the households' income ranged above Rupees 15000. Nearly 8% of the households' monthly income fell in the category of less than Rupees 5000 per month. Nearly 4% preferred not to mention their monthly household income.

An analysis of demographic, social and economic indicators indicate that the project needs to strategize its activities considering the age group, religion and caste among the urban population. Another important aspect is that nearly 43% of the slum population is constituted by children and the elderly. Nutrition support and Direct Benefit Transfer are some of the key benefits required for the patients under this category in context of care and support.

Table 2: Profile of households

Characteristics	Total
Age of household members	
<18	26.2
18-49	56.9
50+	16.9
Mean age	29.3
Number of cases	2007
Sex of household members	
Male	52.0
Female	48.0
Number of cases	2007
Religion	
Hindu	62.8
Muslim	32.6
Others	4.6
Number of cases	
Caste/Tribe	
Schedule Caste	25.3
Schedule Tribe	4.2
Others	70.5
Number of cases	427
Monthly household income	
< 5000	8.0
5000-14999	58.6
15000+	29.2
Not mentioned	4.2
Mean household income	12362.3
Number of cases	427
Total percent	100

Household composition

Of the 427 households involved in the study, nearly 70% of households were headed by a male member and the remaining 30% were headed by a female member. (Table-3)

With regard to age, the mean age of the head of the household was 48 years. About 7% of the household heads were below the age of 30 years, 47% were in the age group of 30-49 years and the remaining 47% of the heads of households were 50 years and older.

Data on the household structure revealed that nearly 65% of the households were nuclear families and the remaining 35% were non-nuclear/joint families.

The mean household size was 4.6 members per family. Nearly 69% of the households were comprised of 4 or more members and the remaining 31% were comprised of less than 4 members.

Nearly 45% of the household heads were identified to be CS persons.

Household composition can be a consideration for community level activities. The data of household heads among 427 households reflects a ratio of 70:30 (Male:Female) approximately, therefore, ensuring equal representation of men and women in support group activities is important.

Household composition further reveals that nearly 69% of the households were comprised of 4 or more members in the family; cross analysis with household facilities (Table-4) reveals that nearly 58% of the households used one room for sleeping and nearly 80% of the households say that there was no ventilation. Under such circumstance, the chances of spreading/cross infection of TB is higher. Programmatically, this can clearly be a focus for outreach. Drug adherence-related priority monitoring and testing of family members within this segment must be carried out.

Table 3: Household composition

Characteristics	Total
Sex of the household head	
Male	70
Female	30
Age of the household head	
<20	0.8
20-29	5.7
30-49	46.8
50+	46.8
Mean age	48.3
Household structure	
Nuclear	64.6
Non-nuclear	
Number of household member	
1	3.9
2	10.6
3	16.1
4	22.8
5	19.9
6+	26.6
Mean number of household members	4.6
CS person is the household head	
No	55.0
Yes	45.0
Total percent	100.0
Number	427

Household facilities

Facilities available among 427 sampled households were collected. Data shows that nearly 77% of the households stayed in pucca houses, 22% of the households stayed in semi-pucca houses and the remaining 1% stayed in kaccha houses made of mud, hay, a sheet etc. (Table-4)

Nearly 69% of the households said that they stayed in houses with 1-2 rooms and the remaining 31% of the households said that they stayed in houses with 3-4 rooms. Similarly, 58% of the households said that they used one room for sleeping, whereas, nearly 36% of the households said that they used two rooms for sleeping. The remaining 6% of the households said that they used three or more rooms for sleeping.

The team enquired about or observed the presence of windows and ventilation in the house. Nearly 61% of the houses were observed to have a window and 20% had proper ventilation. The remaining 39% of houses did not have windows and 80% did not have proper ventilation facilities.

Nearly 51% of the respondents said that they owned their house, the remaining 49% said that they stayed in rented accommodation. Data on entertainment and information sources were collected. Nearly 3% of the households reported that they owned a radio and 88% owned a television. Regarding the availability of telephone and mobile phones, less than 1% of the households informed that they owned a telephone and 97% reported owning a mobile.

Table 4: Household facilities

Characteristics	Total
Type of house	
Kaccha	1.1
Semi-pucca	22.2
Pucca	76.7
Number of rooms	
1	26.7
2	41.9
3	20.5
4+	10.9
Number of rooms used for sleeping	
1	57.5
2	36.3
3	5.2
4+	1.0
Has BPL card	
Yes	83.6
No	16.4
House has window that can be opened	
Yes	60.6
No	39.4
Has ventilation facility	
Yes	19.7
No	80.3
Ownership of present house	
Own house	51.3
Not own house	48.7
Own a radio	
Yes	3.0
No	97.0
Own a telephone	
Yes	1.0
No	1.0
Own a mobile	
Yes	96.5
No	No
Own a television	
Yes	87.9
No	12.9
Total	100.0
Number of cases	427

Profile of survey respondents

Data on the profile of survey respondents indicate that nearly 46% of the respondents were male and 54% were female. (Table-5)

A categorisation of the respondents by age revealed that the mean age of male respondents and female respondents was 44 and 42 years, respectively. Nearly 46% of the respondents were less than 40 years old, 33% of them were in the age group of 40-59 years, and the remaining 21% were 60 years and above.

Nearly 66% of the respondents were currently married, 19% of them said that their marriage had dissolved, and the remaining 15% of them reported that they had never married.

Literacy and education levels among the respondents revealed that illiteracy was high. Nearly 41% of the respondents were illiterate, another 30% were 'literate, middle incomplete', and the remaining 29% reported having completed middle school.

Occupations of the male and female respondents was analysed. Nearly 9% of the respondents were in business, 11% had salaried jobs, 38% were in other jobs, 29% were housewives, and the remaining 13% of the respondents were not working.

The monthly income of the respondents was analysed. Nearly 38% of the respondents did not earn, 16% of them were reportedly earning a monthly income of less than Rupees 5000, 45% reported a monthly income of above Rupees 5000, and the remaining 1% of them did not disclose their income.

Table 5: Profile of survey respondents

Characteristics	Male	Female	Percentage
Sex			
Male			46.3
Female			53.7
Age			
< 40	41.6	49.8	46.0
40-59	33.6	31.7	32.6
60+	24.8	18.5	21.4
Mean age	44.0	41.5	42.7
Marital status			
Currently married	69.6	63.6	66.4
Marriage dissolved	8.9	27.2	18.7
Never married	21.6	9.2	14.9
Literacy and education			
Illiterate	34.3	46.3	40.8
Literate, middle incomplete	33.1	27.3	30.0
Middle completed	32.5	26.3	29.2
Occupation			
Business	14.6	4.4	9.1
Salaried job	16.0	7.4	11.4
Other job	54.1	23.7	37.8
Housewife	0.0	53.6	28.8
Not working	15.3	10.9	12.9
Personal monthly income			
No income	14.1	59.4	38.4
<5000	12.2	19.4	16.1
5000-14999	63.4	20.2	40.2
15000+	9.1	0.8	4.6
Not mentioned	1.2	0.3	0.7
Mean income	7248.4	1992.7	4413.6
Number of cases	198	229	427

04

HEALTH-RELATED INFORMATION

Source of information

This section describes the sources of obtaining health-related information among the households. Nearly 69% of the respondents said that they obtained health-related information through radio or television. The other most important sources of health-related information were friends/relatives, health workers and newspapers i.e., nearly 67%, 23% and 25%, respectively. Various other sources of availing health related information like; community meetings, web-based information and brochures/posters accounted for 6%, 4% and 1% respectively. (Table-6)

There is scope to ensure that information is easily accessible and available to the communities in a form that is largely acceptable and impactful. Program outreach can explore ways to package and present information across the most widely used sources of information to aid the outreach process.

Table 6: Source of health-related information

Source of information	Sex of the respondent		
	Male	Female	Total
Newspapers and magazines	29.1	21.7	25.1
Radio/TV	71.1	67.6	69.2
Billboards	0.5	0.4	0.4
Brochures, posters, other printed material	2.1	0.6	1.3
Health workers	25.4	21.2	23.2
NGO outreach workers	0.0	0.6	0.3
Community meetings	7.5	5.3	6.3
Video show in the community	0.0	0.3	0.2
Telephone helpline	0.0	0.7	0.4
Web-based information	5.7	2.9	4.2
Friends/relatives	66.8	67.3	67.0
Hospital	0.4	0.8	0.6
Other	8.9	5.6	7.1
Number of cases	198	229	427

Type of health facility

Nearly 30% of the respondents said that their household members usually go to a government health facility for treatment. The remaining 69% of the respondents informed that they access health care from private hospitals, clinics and health facilities for treatment. (Table-7)

Looking into the pattern of health access in the community, it is essential to strengthen both the public and private sector to provide testing and treatment services according to the RNTCP's Standards for TB Care in India (STCI), so that access to quality TB treatment is possible at the facility of patients' preference.

Respondents gave reasons for not accessing treatment from a government health facility. Nearly 45% of the respondents said that the government health facility is far away, 41% reported having to wait for long,

37% mentioned inconvenient timings, 27% mentioned poor quality of care and another 6% said that health personnel were often absent. A small section of respondents, nearly 5%, preferred not to give any reason. (Table-8)

Table 7: Type of health facility from where household members mainly get treatment

Type of health facility	Sex of the respondent		
	Male	Female	Total
Government/Municipal Hospital	26.8	22.8	24.6
Government Dispensary	1.1	4.6	3.0
UHC/UHP/UFWC	0.0	0.8	0.5
Other Public Sector Health Facility	1.6	1.7	1.6
NGO/Trust Hospital/Clinic	1.6	0.8	1.2
Private Hospital	17.9	24.9	21.8
Private Doctor/Clinic	44.2	38.4	41.0
Unqualified doctor	5.8	4.2	4.9
Pharmacy/Drugstore	0.5	1.7	1.2
Other	0.5	0.0	0.2
Total percent	100.0	100.0	100.0
Number of cases	198	229	427

Table 8: Reasons for not getting treatment from government health facilities

Reasons for not getting treatment	Sex of the respondent		
	Male	Female	Total
Facility is far away	48.5	42.8	45.3
Facility timing not convenient	43.3	32.5	37.3
Health personnel often absent	3.0	9.0	6.3
Waiting time too long	38.1	43.4	41.0
Poor quality of care	28.4	26.5	27.3
No reason	4.5	6.0	5.3
Other	9.7	8.4	9.0
Number of cases	134	166	300

Health scheme/Health Insurance

With regard to the health schemes/health insurance availed by the members of the household, nearly 70% of the respondents said that the household members were covered by the state health insurance scheme. About 4% were covered under the Employees' State Insurance Scheme. Most of the other health schemes/health insurance run by Central and State Governments were being accessed by about 5% of the household members. The remaining 23% of the households were not covered under any health scheme/insurance. (Table-9)

It is evident from the field data that nearly 70% of the households were covered under the State Health Insurance Scheme; efforts to extend this to the remaining 23% of the households would largely address the need for funds to purchase medicines during treatment. Further, the program can explore the possibility of connecting with an insurance company, as medical insurance for urban populations would be a sustainable step towards addressing the gap in affordability.

Table 9: Type of health scheme/ insurance covered by household member

Name of health scheme/insurance	Sex of the respondent		
	Male	Female	Total
Employees' State Insurance Scheme (ESI)	3.5	3.8	3.7
Central Government Health Scheme (CGHS)	0.4	0.6	0.5
State Health Insurance Scheme	75.1	65.9	70.2
Rashtriya Swasthya Bima Yojana(RSBY)	2.0	0.8	1.4
Other Health Insurance through Employer	0.6	3.6	2.2
Medical Reimbursement from Employer	0.6	1.5	1.1
Other Privately Purchased Commercial Health Insurance	0.5	0.4	0.5
No health scheme/ insurance coverage	20.3	25.2	23.0
Have more than one insurance	2.5	1.9	2.2
Total percent	100.0	100.0	100.0
Number of cases	198	229	427

Personal habits

Personal habits of the respondents were analysed based on the collected data. Smoking cigarettes/beedis and drinking alcohol among the female respondents were found to be 1% and 7%, respectively. Among male respondents, nearly 45% were current/past smokers, the remaining 55% of the male respondents said they were non-smokers. Nearly 54% of the male respondents said that they drink alcohol, of which 15% consumed alcohol daily. The remaining 46% of the male respondents said that they never consumed alcohol. (Table-10)

Consumption of alcohol adversely affects TB drug adherence, for those who are suspected TB cases. As part of patient care and support activities, counselling on this aspect is key to ensuring treatment adherence.

Table 10: Personal habits such as smoking cigarettes and drinking alcohol

Personal habits	Sex of the respondent		
	Male	Female	Total
Smoke cigarettes/bidis			
Current smoker	30.6	0.3	14.3
Past smoker	14.1	0.7	6.9
Never smoked	55.3	99.0	78.7
Drink alcohol			
Almost every day	14.9	1.1	7.5
About once a week	24.6	3.6	13.3
Less than once a week	14.8	2.3	8.0
Never	45.8	93.0	71.1
Total percent	100.0	100.0	100.0
Number of cases	198	229	427

Chest Symptomatic persons with disease patterns

CS cases with selected disease patterns were analysed. Nearly 23% of the respondents reported that they had blood pressure/hypertension, about 11% reported having asthma/chronic respiratory disease, and almost 10% informed that they had diabetes. At least one disease condition was reported by 34% of the respondents and more than one disease condition was reported by 9% of the respondents. (Table-11)

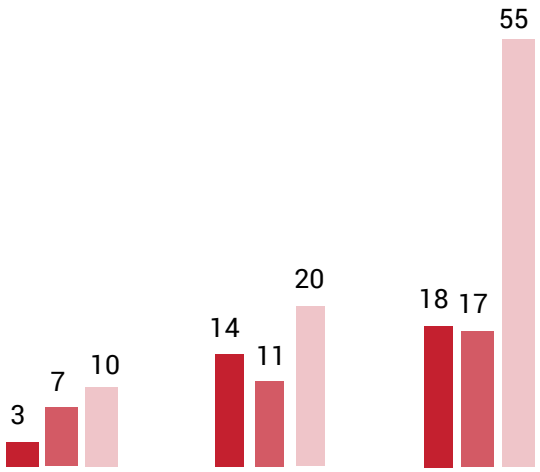
Similarly, CS cases with a few selected disease patterns were analysed by age. Among the age group of 40-59 years, nearly 14% of the respondents had diabetes, about 11% had asthma and 20% had hypertension. Among the age group of 60 and above, nearly 18% of the respondents had diabetes, 17% had asthma and 55% had hypertension. (Figure-1)

An analysis of the disease pattern of CS persons reflects that those falling in the older age bracket seem to have more disease conditions. At least one or more disease conditions were seen among those of the age 40 years and above.

Table 11: Chest Symptomatics who had ever suffered selected diseases

Source of information	Sex of the respondent		
	Male	Female	Total
Diabetes	10.9	8.9	9.8
Asthma/Chronic respiratory disease	7.5	13.2	10.6
Cancer	0.0	0.3	0.2
Blood pressure/Hypertension	23.4	22.6	23.0
HIV/AIDS	0.0	0.4	0.2
At least one disease	30.6	36.5	33.8
More than one disease	10.5	8.0	9.2
Number of cases	198	229	427

Figure 1: CS persons who had ever suffered selected diseases according to age



	<40	40-59	60+
Diabetes	3	14	18
Asthma	7	11	17
Hypertension	10	20	55

05

KNOWLEDGE ABOUT KEY ASPECTS OF TB

This section presents the respondents' views on the different knowledge aspects of TB. Respondents were asked about 1) the mode of transmission of TB, (2) the confirmatory test for TB, (3) the place for testing, (4) the place for treatment, and (5) the duration of treatment, among other questions.

The respondents were asked about what disease condition a person would be likely to have if he/she had a persistent cough for two weeks or more. Nearly 36% of the respondents said TB, 5% said asthma, 63% and 27% said seasonal cold and throat infection, respectively. About 2% of the respondents didn't know or couldn't say. (Table-12)

Table 12: Disease condition if a person has persistent cough for two weeks or more

Disease condition	Sex of the respondent		
	Male	Female	Total
Throat Infection	22.7	29.7	26.5
Seasonal Cold	57.9	67.3	63.0
Viral Fever	16.6	20.0	18.4
Tuberculosis	33.5	38.3	36.1
Chest Congestion	3.9	3.8	3.8
Asthma/COPD	4.4	6.2	5.4
Others	3.6	2.6	3.1
Don't know/Can't say	3.0	0.3	1.5
Number of cases	198	229	427

Knew or heard about TB and source of information

Nearly three-fourths of the respondents reported that they knew or had heard about TB disease and there was no noticeable variance by gender on awareness levels of TB among male and female respondents. (Table-13)

Knowledge on TB was found to be significantly higher among respondents who had completed middle school education and were non-Hindu.

Data shows that those who were more likely to know of or had heard about TB included those who were never married, were engaged in salaried jobs and were not from Scheduled Castes or Scheduled Tribes. However, this is not very significant.

The classification of the slum areas as per the programme operation indicates that the number of respondents who had heard of or knew about TB were higher in Old City zone (80%) and lowest in the Central zone (73%).

The above findings indicate that educated respondents have a better understanding about TB disease, and those respondents who are unmarried and working are also more likely to know about TB.

Table 13: Respondents who knew or had heard about TB, according to selected characteristics

Characteristics	Percent	No. of cases	p-value
Sex			
Male	77.8	198	
Female	74.3	229	0.471
Age			
< 40	79.2	196	
40-59	72.9	139	
60+	73.5	92	0.375
Marital status			
Currently married	75.2	283	
Marriage dissolved	76.8	80	
Never married	78.0	64	0.867
Literacy and education			
Illiterate	65.7	174	
Literate, middle incomplete	80.2	128	
Middle completed	85.8	125	0.002
Occupation			
Business	79.5	39	
Salaried job	80.7	49	
Other job	71.7	161	
Housewife	78.2	123	
Not working	76.5	55	0.639
Religion			
Hindu	68.3	268	
Non-Hindu	88.8	159	0.001
Caste/Tribe			
Scheduled Caste/Tribe	70.1	126	
Others	78.4	301	0.125
Personal monthly income			
< 5000	75.6	235	
5000+	76.3	191	0.874
Monthly household income			
< 15000	75.7	303	
15000+	76.5	124	0.881
Slum areas according to program zones			
Secunderabad zone	77.4	113	
Central zone	72.9	98	
Old City zone	80.1	64	
New City zone	75.0	152	0.825
Total	75.9	427	

The respondents who knew about TB were asked about the sources of information on TB. Nearly 52% of the respondents said that they came to know about TB through word of mouth, 41% reported that they learnt about TB from friends/relatives. About 32%, 9% and 6% of the respondents said that they came to know through electronic media, print media and Information, Education and Communication (IEC) activities, respectively. (Table-14)

Nearly 13% reported having heard about TB through frontline workers (DOTS provider, health workers and Anganwadi workers), 9% reported having heard in their work places, through community meetings and another 5% from school teachers. Nearly 7% of the respondents said that they knew about TB because they had/have TB.

Table 14: Source of information on TB (among those who knew or had heard about TB)

Source of information on TB	Sex of the respondent		
	Male	Female	Total
Television/ Radio	29.7	33.4	31.6
Newspaper/ Magazine	10.7	7.3	8.9
Posters/ Banners/ Hoardings/Campaigns	8.1	3.5	5.7
Word of Mouth from Friends/ Relatives	45.0	58.5	52.1
TB Diseases among Friends/ Relatives	34.3	46.9	40.9
DOTS Provider/ Health Worker	13.6	11.5	12.5
Anganwadi Worker	0.4	0.5	0.5
Community Meetings	4.2	4.9	4.6
Workplace	11.3	5.8	8.5
Schools/ Teachers	4.0	5.8	4.9
Religious leaders	0.4	0.5	0.5
Political leaders	0.0	0.4	0.2
Telephone Helpline	0.0	0.9	0.5
Respondent Had TB	10.4	3.6	6.8
Others	9.2	3.4	6.2
Number of cases	137	141	278

Mode of transmission of TB

The respondents were asked about the modes of transmission of TB. Nearly 61% of them informed that it spreads through air, when a person with TB coughs/sneezes. Another 29% of the respondents said that they were not aware of the modes of transmission of TB. Around 29% and 24% of the respondents reported that TB spreads through sharing utensils and sharing food, respectively. A few other modes of transmission stated by the respondents were found to be insignificant. (Table-15)

Information dissemination at the grass-root level through frontline workers and through electronic/print media/IEC can be further intensified to ensure that modes of transmission of TB from one person to another is known in the community.

Table 15: Mode of transmission of TB from one person to another

Mode of TB transmission	Sex of the respondent		
	Male	Female	Total
Through air when a person with TB coughs/sneezes	62.8	59.4	61.0
Sharing Utensils	27.9	30.5	29.3
Touching a person with TB	12.4	12.6	12.5
Food	22.0	25.8	24.1
Sexual Contact	5.4	3.2	4.2
Mosquito Bites	2.5	2.7	2.6
Stepping on Sputum	6.1	6.1	6.1
Other	5.4	3.2	4.2
Don't know/Can't say	26.1	32.2	29.4
Number of cases	198	229	427

Respondents were asked about the part of the body most affected due to TB. Nearly 41% of the respondents informed that the lung was the most affected part of the body. Another 45% of the respondents informed that they did not know or couldn't say. There were other responses which were not significant. (Table-16)

Awareness among the community about the effect of TB on parts of human body is limited. A large number of respondents do not know about it.

Table 16: Awareness of the part of the body most affected by TB

Part of the body	Sex of the respondent		
	Male	Female	Total
Lung	40.9	41.7	41.3
Bones	5.5	3.1	4.3
Lymph nodes	0.5	0.4	0.4
Skin	0.3	0.0	0.2
Abdomen	2.6	2.1	2.3
Brain	1.0	0.0	0.5
Any part of the body	2.9	4.5	3.7
Other	3.3	1.5	2.3
Don't know/Can't say	42.9	46.7	45.0
Number of cases	198	229	427

Nearly 55% of the respondents reported that cough was the most common symptom of lung TB. Another 8%, 7% and 2% of the respondents said that weakness, weight loss and fever, respectively, were the most common symptoms of TB. About 24% of the respondents did not know the symptoms of lung TB. (Table-17)

Almost half of the respondents knew about the symptoms of lung TB. The remaining half did not know or had incorrect and incomplete information about the symptoms. There is a lot of scope to create awareness about TB symptoms through community-level IEC initiatives.

Table 17: Most common symptom of lung TB

Most common symptom of TB	Sex of the respondent		
	Male	Female	Total
Cough	57.5	53.6	55.4
Fever	1.9	2.8	2.4
Weight loss	8.1	6.2	7.1
Weakness	7.4	7.8	7.6
Chest pain	1.2	0.3	0.7
Others	1.7	3.7	2.7
Don't know/Can't say	22.2	25.7	24.1
Number of cases	198	229	427

Confirmatory test for TB

Findings about the respondents' knowledge on confirmatory tests for TB show that nearly 62% of the respondents knew that the sputum test was a confirmatory test and another 57% said that the chest X-ray was the confirmatory test. Other tests such as blood test, Mantoux test and tissue biopsy were reported by 69%, 19% and 12% of the respondents, respectively. (Table-18)

Around three-fifths of the respondents knew about confirmatory tests for TB. The remaining respondents were not sure about the specific tests done for confirming TB.

Table 18: Specific confirmatory tests for TB

Test reported	Sex of the respondent		
	Male	Female	Total
X-Ray of the chest	59.5	55.3	57.3
Sputum test	61.1	62.1	61.6
Blood test	68.9	68.8	68.9
Mantoux tuberculin/ skin test	22.5	16.7	19.4
Tissue biopsy	14.1	10.2	12.0
Other test	11.2	17.5	14.6
Number of cases	198	229	427

TB testing centre

Respondents were asked about the availability of TB testing centres. The classification of testing centres into government and private sector provided the following inferences.

Nearly 47%, 48%, 15% and less than 1% of the respondents said that testing could be done at the Municipal Corporation Hospital, Government TB hospital, other Government Hospitals and at the Designated Microscopy Centre (DMC), respectively. Similarly, 40%, 9% and 2% of the respondents said that testing could be done at a private hospital, private lab and private clinics, respectively. About 26% of the respondents did not know about available testing centres. (Table-19)

Less than 1% of the respondents knew that the DMC is the facility for testing TB. There is a need to provide information on appropriate testing facilities, including the DMC, for communities.

Table 19: Place where adults can be tested for TB

Place for TB testing	Sex of the respondent		
	Male	Female	Total
Municipal Corporation Hospital	50.4	43.7	46.8
Government TB Hospital	50.1	45.2	47.5
Other Government Hospital	15.1	15.3	15.2
Designated Microscopy Centre	0.3	0.0	0.1
Private Hospital	39.8	40.4	40.1
Private Clinic	1.3	0.6	1.0
Ayush Hospital/ Clinic	1.0	0.8	0.9
Any private lab	9.8	8.1	8.9
Others	0.0	0.3	0.2
Don't know/Can't say	23.8	28.3	26.2
Number of cases	198	229	427

TB treatment – place, cost, duration and facts

The team enquired about the place where treatment for TB is available. Nearly 62%, 19%, 12% and 8% of the respondents said that the Municipal Hospital, Government TB Hospital, ESI Hospital and Government Dispensary, respectively, was the place for treatment of TB. (Table-20)

33% and 1% of the respondents mentioned private hospitals and private clinics, respectively, as the place for treatment for TB.

About 26% of the respondents mentioned that they did not know or couldn't say about the place of treatment for TB. The respondents did mention other government and private facilities but these were insignificant in number.

Table 20: Place where treatment for TB is available

Place of treatment for TB	Sex of the respondent		
	Male	Female	Total
Municipal Hospital	65.2	59.6	62.2
Government Dispensary	8.7	7.7	8.2
UHC/UHP/UFWC	0.8	0.8	0.8
Government TB hospital	17.3	20.5	19.0
Anganwadi/ASHA/ANM	0.0	0.9	0.5
DOTS Centre	8.0	3.7	5.7
Government Mobile Clinic	0.4	0.0	0.2
ESI Hospital	15.5	9.2	12.1
Other Public Sector Health Facility	9.1	10.4	9.8
Private Hospital	34.0	31.9	32.8
Private Doctor/Clinic	2.0	0.7	1.3
Vaidya/Hakim/Homeopathy	1.0	0.0	0.4
Unqualified doctor	0.4	0.3	0.4
Don't know/Can't say	25.1	27.2	26.2
Number of cases	198	229	427

Treatment cost and treatment duration are the influencing factors that have a direct impact on drug adherence and loss to follow-up. Regarding cost of treatment, nearly 45% of the respondents were not able to state a figure, 45% said that no cost would be incurred for treatment and about 7% of them said that the cost of treatment would be Rupees 10000 or more. (Table-21)

Duration of treatment for TB is crucial and critical for cure. Nearly 43% of the respondents stated that they did not know or couldn't say about treatment duration. The remaining 27%, 12% and 18 % reported that TB treatment was of six months, more than six months and less than six months long, respectively.

Around three-fifths of the respondents did not have knowledge with respect to duration of treatment. Nearly half of the respondents were not aware that free treatment for TB is available. Awareness on the treatment cost and duration are critical for improving drug adherence and reducing loss to follow-up.

Table 21: Cost and duration of treatment for TB

Cost/duration	Sex of the respondent		
	Male	Female	Total
Cost of treatment			
No cost	49.4	41.2	45.0
1 - 9999	3.4	3.1	3.2
10000+	6.8	6.2	6.5
Don't know/Can't say	40.4	49.5	45.3
Duration of treatment			
<6 months	19.9	16.9	18.3
6 months	28.0	25.5	26.6
6+ months	11.4	13.0	12.2
Don't know/Can't say	40.6	44.7	42.8
Number of cases	198	229	427

Awareness among the respondents was assessed on two more aspects- firstly, whether or not TB is curable and secondly, whether all TB patients need admission in hospital for treatment

Nearly 62% of the respondents either agreed or strongly agreed with the statement that TB is fully curable. Another 26% of the respondents stated that they did not know or couldn't say. About 5% of the respondents either disagreed or strongly disagreed with the statement that TB is fully curable. (Table-22)

Similarly, about 46% of the respondents either agreed or strongly agreed with the statement that "All TB patients need admission in hospital for treatment". 27% of the respondents reported that they did not know or couldn't say. About 15% of the respondents either disagreed or strongly disagreed with the statement.

Table 22: TB is fully curable and all TB patients need admission in hospital for treatment

Statement	Sex of the respondent		
	Male	Female	Total
TB is fully curable			
Strongly agree	34.3	33.5	33.9
Agree	31.7	25.2	28.2
Neither agree nor disagree	5.8	8.6	7.3
Disagree	3.2	2.7	2.9
Strongly disagree	1.3	2.6	2.0
Don't know/Can't say	23.7	27.3	25.6
All TB patients need admission in hospital for treatment			
Strongly agree	27.1	21.8	24.2
Agree	22.6	21.7	22.1
Neither agree nor disagree	13.5	10.2	11.7
Disagree	10.3	14.5	12.6
Strongly disagree	3.0	2.2	2.5
Don't know/Can't say	23.6	29.6	26.8
Number of cases	198	229	427

Respondents were also asked a question on what could happen to a TB patient, if he or she did not complete the full course of treatment? Nearly 67% of the respondents said that an incomplete course of treatment would lead to more illness, 60% said that the disease would not be cured, and about 57% said that it would lead to death. A relatively small number of respondents i.e., nearly 16%, 9% and 6% said that an incomplete course of treatment would lead to the spread of TB, make medicines ineffective and result in hospitalization, respectively. (Table-23)

Most of the respondents knew about the consequences of non-adherence to TB treatment and the importance of completing the full course of treatment.

The respondents who knew or had heard about TB were also asked about the disclosure of TB status.

Nearly 80% of the respondents reported that a TB patient should disclose his or her status to the spouse, 77% felt that a TB patient should disclose his or her status to parents, and 70% stated that TB status should be disclosed to doctors.

Table 23: Problems associated with incomplete treatment (among those who reported at least one disease with long term treatment)

Statement	Sex of the respondent		
	Male	Female	Total
Nothing will happen	0.5	0.9	0.7
Spread of TB to others	21.0	11.1	15.8
Disease will not be cured	62.6	57.5	59.9
Medicines will stop working	10.6	7.1	8.7
MDR TB can develop	1.6	0.0	0.7
More illness	58.3	74.5	66.8
Death	53.9	59.5	56.8
Hospitalisation	7.1	5.0	6.0
Cost of treatment will increase	2.5	7.2	5.0
Duration of treatment increase	5.5	4.5	5.0
Others	2.2	1.0	1.6
Don't know/Can't say	1.9	0.5	1.1
Number of cases	145	166	311

Disclosure of TB status to children and siblings was suggested by 43% and 25% respondents, respectively. Few of the respondents mentioned relatives, friends and neighbours; which were relatively insignificant. (Table-24)

Table 24: Persons to whom a TB patient should disclose that he/she has TB (among those who knew about or had heard about TB)

Disclosed to	Sex of the respondent		
	Male	Female	Total
Doctor	77.9	63.4	70.3
Spouse - wife/ husband	73.4	85.9	80.0
Children - son/ daughter	41.2	44.4	42.9
Parents - mother/ father	73.0	80.2	76.7
Siblings - brother/ sister	24.7	25.8	25.3
Aunt/ uncle	2.3	2.1	2.2
Other relatives	9.9	8.2	9.0
Friends	23.4	12.6	17.8
Co-workers	4.7	0	2.2
Boss	0.5	0.7	0.6
Neighbours	3.6	3.5	3.5
Nobody	0	0.4	0.2
Other	2.2	0.5	1.3
Number of cases	154	170	324

Respondents who reported that a TB patient should disclose his or her status were asked why. Nearly 74% of the respondents reported that TB patients should disclose their status for quick treatment and 70% and 56% said that they should disclose their status to ensure family support and treatment support, respectively. About 36% and 20% of the respondents said that TB patients should disclose their status for emotional support and financial support, respectively. Only 15% of the respondents said that TB patients should disclose their status to prevent the spread of TB. (Table-25)

There is a need to further sensitize the respondents about one of the most important reasons for disclosure of status to prevent the spread of TB.

Table 25: Reason for disclosure of positive TB status (among those who reported that a person should disclose his or her TB status)

Reason for disclosure	Sex of the respondent		
	Male	Female	Total
Quick treatment	76.7	70.9	73.6
Prevent spread	13.8	16.4	15.2
Emotional support	33.2	38.7	36.1
Family support	63.2	75.6	69.7
Treatment support	57.5	55.0	56.2
Financial support	19.0	20.2	19.6
Other	3.9	1.2	2.5
Number of cases	154	170	324

Similarly, the respondents who knew or had heard about TB were asked about non-disclosure of TB status. Nearly 71% of the respondents said that a TB patient should not disclose his or her status to neighbours, 51% said that a TB patient should not disclose his or her status to relatives, and about 29% said that a TB patient should not disclose his or her status to friends. (Table-26)

Out of 19 TB patients identified, 82% and 77% of them said that TB status should not be disclosed to relatives and neighbours, respectively.

Table 26: Persons to whom patients should not disclose TB status (among those who knew about TB)

Should not be disclosed to	Sex of the respondent		
	Male	Female	Total
Should not tell doctor	1.3	0	0.6
Should not tell spouse - wife/ husband	0	1.3	0.7
Should not tell children - son/ daughter	6.3	4.4	5.3
Should not tell parents - mother/ father	0	0.5	0.2
Should not tell siblings - brother/ sister	2.2	3.2	2.7
Should not tell aunt/ uncle	0.6	2.1	1.4
Should not tell other relatives	45.1	57.1	51.4
Should not tell friends	30.8	27.7	29.2

Table 26 continued...

Should not be disclosed to	Sex of the respondent		
	Male	Female	Total
Should not tell school mates	1.7	0	0.8
Should not tell co-workers	12.5	7.5	9.9
Should not tell boss	4	2.7	3.3
Should not tell neighbours	64.3	76.1	70.5
Should not tell school authorities	0	0.6	0.3
Should not tell anybody	2.5	3.4	3
Other	2.5	6.7	4.7
Don't know/Can't say	13.7	7.2	10.3
Number of cases	154	170	324

With regard to reasons for non-disclosure of TB status, nearly 79% of the respondents said that TB patients should not disclose their status because people in the community would avoid them. Another 47% said that their family name would be 'spoiled', and about 37% said that the people in the community would try to drive him or her out. Loss of employment was another reason reported by nearly 5% of the respondents. (Table-27)

The overall analysis of the data reveals that stigma around TB is deep-rooted in the community, which negatively affects a TB patient's ability to lead a functional life and access services in an enabling environment.

Table 27: Reasons for not disclosing TB status (among those who reported that one should not disclose it)

Reason for non-disclosure	Sex of the respondent		
	Male	Female	Total
Our family name will be spoiled	42.5	50.8	47.0
People in the community will avoid him/her	76.3	82.0	79.4
People in the community will try to drive him/her out	37.8	36.5	37.1
Loss of job	5.7	4.4	5.0
Other	6.8	5.2	5.9
Don't know/Can't say	1.2	0.5	0.8
Number of cases	133	158	291

Respondents were asked about the ways to prevent TB within the family or community. Nearly 60% of the respondents said that covering the mouth and nose while coughing could prevent the spread of TB. Another 45% and 15% said that wearing mask and prompt diagnosis and treatment, respectively, could prevent the spread of TB. About 28% of the respondents reported that they did not know or couldn't say about the ways to prevent TB. (Table-28)

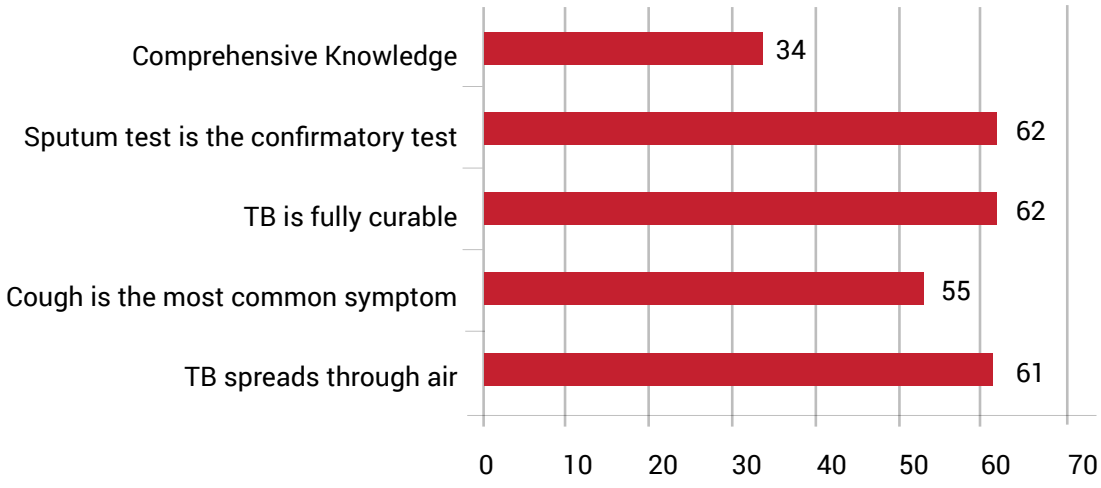
Table 28: Ways to prevent TB within family or community

Ways to prevent spread of TB	Sex of the respondent		
	Male	Female	Total
Cover mouth and nose while coughing	57.4	62.5	60.1
Wearing mask	48.6	42.5	45.3
Good ventilation	4.7	3.5	4.1
Prompt diagnosis and treatment	17.3	12.2	14.6
Vulnerable persons like children to take medicines to prevent TB	2.0	3.9	3.0
Good nutrition	15.5	11.6	13.4
Other	16.1	16.6	16.3
Don't know/can't say	26.4	28.6	27.6
Number of cases	198	229	427

Personal habits

We estimated a composite index on knowledge about TB based on four indicators to represent comprehensive knowledge on TB. The components of comprehensive knowledge included the following facts: 1) TB spreads through air when a person with TB coughs or sneezes, 2) cough is the common symptom of lung TB; 3) sputum test is the confirmatory test for TB and 4) awareness that TB is fully curable. Although around 76% of the respondents had heard or knew about TB, only 34% of the respondents had comprehensive knowledge of TB. Among the components of comprehensive knowledge, the highest proportion of respondents reported that TB is fully curable (62%) and sputum test is a confirmatory test (62%), and 55% reported cough as the most common symptom of Lung TB.

Figure 2: Percentage of CS persons with comprehensive knowledge



Information on the distribution of respondents who had comprehensive knowledge according to selected socio-demographic characteristics is given in Table-29.

Comprehensive knowledge was found to be higher among respondents aged below 40 years (39%), who had never married (39%), who had completed middle school or above (44%), who were engaged in a salaried job (either in private or government) (45%), who were non-Hindu (37%), who had a personal monthly income of Rupees 5000 or above (36%) and had a monthly household income of Rupees 15000 or above (38%). Analysis shows a significant difference in the comprehensive knowledge according to education only. Additionally, the results indicate that respondents in the Old City zone (42%) had higher comprehensive knowledge than the respondents of Central zone (26%).

Table 29: Percentage distribution of respondents who had comprehensive knowledge of TB

Characteristics	Percent	Number of cases	p-value
Sex of the respondent			
Male	34.0	198	
Female	33.1	229	0.845
Age			
< 40	38.8	196	
40-59	29.8	139	
60+	27.9	92	0.148
Marital status			
Currently married	32.0	283	
Marriage dissolved	34.4	80	
Never married	39.3	64	0.630
Literacy & education			
Illiterate	25.8	174	
Literate, middle incomplete	33.3	128	
Middle completed	44.4	125	0.016
Occupation			
Business	35.9	39	
Salaried job	44.9	49	
Other job	28.6	161	
Housewife	33.1	123	
Not working	37.1	55	0.322
Religion			
Hindu	31.4	268	
Non-Hindu	37.1	159	0.257
Caste/Tribe			
Scheduled Caste/Tribe	33.7	126	
Others	33.4	301	0.965
Personal monthly income			
< 5000	31.5	236	
5000+	36.0	191	0.414

Characteristics	Percent	Number of cases	p-value
Household monthly income			
< 15000	31.7	303	
15000+	38.0	124	0.287
Slum areas according to program zones			
Secunderabad zone	34.4	113	
Central zone	26.2	98	
Old City zone	41.6	64	
New City zone	34.2	152	0.423
Total	33.5	427	

Note: Comprehensive knowledge includes the facts that cough is the most common symptom of lung TB, TB spreads through air, sputum test is the confirmatory test for TB, and TB is curable.

We also conducted separate multivariate logistic regression models to identify the socio-demographic factors that influence knowledge on TB as well as comprehensive knowledge of TB. The multivariate logistic model included only those variables that had shown a significance level of less than 20% in the bivariate analysis. The results of the multivariate logistic regression for the knowledge of TB among respondents are provided in Table 30.

Table 30: Results of multivariate logistic regression for those who knew or had heard of TB

Characteristics	Odds ratio	CI [95%]	p-value
Literacy and education			
Illiterate (Reference)	1.00		
Literate, middle incomplete	1.74	[0.88-3.45]	0.110
Middle completed	2.84	[1.44-5.60]	0.003
Religion			
Hindu (Reference)	1.00		
Non-Hindu	3.38	[1.49-7.69]	0.004
Caste/tribe			
Scheduled caste/ tribe (Reference)	1.00		
Other	0.99	[0.56-1.75]	0.968

Only three variables i.e., literacy and education, religion and caste/tribe, were found to be associated with knowledge on TB at the level less than 20%. Although we noticed a positive relationship between knowledge of TB and literacy and education, the effect was statistically significant only for persons who had completed eight or more years of schooling when other variables were accounted for. Similarly, non-Hindus were significantly more likely to have knowledge of TB than Hindus.

The results of the multivariate logistic regression for comprehensive knowledge of TB among respondents is given in Table 31.

Age of the respondents, literacy and education were found to be significantly associated with comprehensive knowledge at the level below 20% level in the bivariate analysis and were also included in the multivariate logistic regression model. Although respondents aged 40 years and above were less likely to have comprehensive knowledge, its effect was not statistically significant. However, as per the multivariate logistic regression, only the factor of completion of eight or more years of schooling was found to be a significant influence on comprehensive knowledge.

Table 31: Results of multivariate logistic regression for comprehensive knowledge of TB

Characteristics	Odds ratio	CI [95%]	p-value
Age			
< 40 (Reference)	1.00		
40-59	0.81	[0.46-1.45]	0.478
60+	0.76	[0.42-1.39]	0.366
Literacy and education			
Illiterate (Reference)	1.00		
Literate, middle incomplete	1.38	[0.77-2.46]	0.276
Middle completed	2.09	[1.23-3.54]	0.007

06

HEALTH SEEKING BEHAVIOUR

Consultation visit to health care providers and number of visits

The respondents were asked about what they did during the first two weeks and after two weeks of cough.

Nearly 71% of the respondents said that they consulted health care providers for treatment within the first two weeks of cough; this decreased to 57% after two weeks of cough. Another 4% of the respondents said that they did nothing during the first two weeks of cough, and 19% were reported to have done nothing after two weeks of cough. Overall, there is a decrease in percentage of respondents who consulted health care providers after two weeks of cough. (Table-32)

Table 32: CS persons - what they did during the first two weeks and after two weeks of cough

Actions taken	Sex of the respondent		
	Male	Female	Total
Within first two weeks of cough			
Consulted a health care provider	67.4	74.6	71.3
Home remedies	18.9	26.2	22.9
Self-medication	37.3	29.6	33.2
Did nothing	4.9	2.5	3.6
After two weeks of cough			
Consulted a health care provider	55.7	58.4	57.2
Home remedies	9.7	14.5	12.3
Self-medication	28.9	26.9	27.8
Did nothing	18.6	19.4	19.0
Other	2.0	1.5	1.7
Number of cases	198	229	427

Respondents who were not familiar with seeking health care reported having continued with home remedies/ self-medication and sometimes done nothing; this category of respondents were nearly 43%. It is crucial to ensure that a qualified health care provider is consulted in case of a persistent cough.

The number of visits by the respondents to a health care provider during the first two weeks of cough and after two weeks of cough was analysed.

Nearly 24% and 15% of respondents visited a health care provider twice and three or more than three times, respectively, within two weeks of cough. Nearly 21% and 13% of the respondents visited the health care provider, twice and over two times, respectively, after two weeks of cough. This shows that number of visits to health care provider reduced after two weeks of cough. (Table-33)

Table 33: Number of visits to the health care provider during the first two weeks and after two weeks of cough

Number of visits	Sex of the respondent		
	Male	Female	Total
Within the first two weeks of cough			
No visit to health care provider	32.6	25.4	28.7
1	34.7	30.6	32.5
2	17.6	29.8	24.2
3+	15.2	14.3	14.7
After two weeks of cough			
No visit to health care provider	44.3	41.6	42.8
1	23.0	23.2	23.1
2	22.0	20.3	21.1
3+	10.7	14.9	13.0
Number of cases	198	229	427

Visits to the health care providers by the respondents were analysed based on the answers given by them. Nearly 20% of the respondents did not visit any health care provider, and 23% of the respondents visited a health care provider only in the first two weeks of cough. About 9% of the respondents visited a health care provider only after two weeks of cough, and 48% visited a health care provider both in the first two weeks and after two weeks of cough.

Overall, findings from the data showed that nearly 23% of the respondents who had visited the health care provider within the first two weeks of cough did not visit the health care provider later, and another 20% had not visited the health care provider at all, pointing to possibilities of late diagnosis and treatment initiation. (Table-34)

Table 34: CS persons who specifically visited a health care provider in the first two weeks or after two weeks of cough

Visit to health care provider	Sex of the respondent		
	Male	Female	Total
Not visited any health care provider at all	22.5	17.5	19.8
Visited only in the first two weeks	21.8	24.1	23.0
Visited only after two weeks	10.1	7.8	8.9
Visited in the first two weeks and after two weeks	45.6	50.6	48.3
Number of cases	198	229	427

Type of health facilities visited (Government and private)

We analysed the type of health care facility visited by the respondents (CS persons) within and after two weeks of cough. Nearly 32% of the respondents said that they visited the government health care facility (MH, Dispensary, UHC), and about 73% of the respondents said that they visited private health care facilities (hospitals and clinics) within the first two weeks of cough. On the other hand, a higher proportion of nearly 49% of the respondents reported that they visited government health facilities (MH, Dispensary, UHC) and about 64% of the respondents informed that they visited private health care facilities (hospital and clinics) after two weeks of cough. (Table-35)

The overall analysis of the data relevant to the type of health care facility utilized by the respondents indicated that there is a proportional increase in the utilization of government health care facilities in the case of subsequent visits i.e., after two weeks of cough.

Table 35: Type of health care facility visited during the first two weeks and after two weeks of cough

Type of health care facility visited	Sex of the respondent		
	Male	Female	Total
Within first two weeks of cough			
Government /Municipal Hospital	27.1	24.5	25.6
Government Dispensary	4.3	5.3	4.9
UHC/UHP/UFWC	0.0	1.6	0.9
Other public sector health facility	1.1	0.8	1.0
NGO or trust hospital/clinic	2.3	1.3	1.7
Private Hospital	25.2	30.1	28.0
Private Doctor/clinic	45.4	44.3	44.8
Vaidya/hakim/homeopath	0.9	1.6	1.3
Unqualified doctor	10.9	12.1	11.6
Pharmacy/drugstore	8.5	7.5	7.9
Other	1.5	0.0	0.7
Number of cases	133	171	304
After two weeks of cough			
Government /Municipal Hospital	53.5	36.2	44.0
Government Dispensary	4.7	3.5	4.1
UHC/UHP/UFWC	0.0	1.0	0.6
Other public sector health facility	6.1	2.3	4.0
NGO or trust hospital/clinic	2.7	1.6	2.1
Private Hospital	26.8	39.0	33.5
Private Doctor/clinic	27.5	33.1	30.6
Vaidya/hakim/homeopath	0.0	0.3	0.2
Unqualified doctor	9.3	12.1	10.8
Pharmacy/drugstore	4.2	1.3	2.6
Other	3.1	2.2	2.6
Number of cases	110	134	244

Treatment (Diagnostic tests and medicines)

Nearly 96% of the respondents who consulted a health care provider within the first two weeks of cough reported that the provider prescribed drugs/medicines. 18% of the respondents said that the health care provider consulted within the first two weeks of cough referred them for a diagnostic test.

Nearly 86% of the respondents who consulted a health care provider after two weeks of cough said that the provider prescribed drugs/medicines. Another 48% of the respondents said that the health care provider consulted after two weeks of cough referred them for a diagnostic test. (Table-36)

Table 36: Action taken by the health care provider within the first two weeks and after two weeks of cough

Action taken by the health care provider	Sex of the respondent		
	Male	Female	Total
Within the first two weeks of cough			
Referred for a diagnostic test	25.4	11.9	17.8
Drug/medicine prescribed	94.3	96.6	95.6
Referred to another service provider	2.4	2.3	2.3
Hospitalization	1.2	0.5	0.8
Gave nebulization	0.8	0.8	0.8
Gave injection	38.0	38.8	38.5
Other	2.1	0.0	0.9
Number of cases	133	171	304
After two weeks of cough			
Referred for a diagnostic test	49.6	47.3	48.3
Drug/medicine prescribed	87.0	84.4	85.6
Referred to another service provider	2.6	1.1	1.8
Hospitalization	0.8	0.0	0.4
Gave nebulization	3.4	0.6	1.9
Gave injection	1.6	2.1	1.9
Number of cases	110	134	244

Analysis of the above data shows that the percentage referred for diagnostic tests was nearly 63% more among those who consulted a health care provider after two weeks of cough when compared to those within the first two weeks of cough. Results also show that more than half of the respondents were not referred for any diagnostic test even after two weeks of cough.

Data on the type of tests prescribed to CS persons were analyzed. It was observed that nearly 11% and 9% of the respondents were recommended a chest X-ray and sputum test, respectively, within the first two weeks of cough. About 15% of the respondents said that they were recommended a blood test within the first two weeks of cough.

Similarly, about 28% and 27% of the respondents were recommended a chest X-ray and sputum test, respectively, after two weeks of cough. Additionally, 41% of the respondents reported that they were recommended a blood test even after two weeks of cough. (Table-37)

Table 37: Type of test prescribed during the visit within the first two weeks and after two weeks of cough

Type of test prescribed	Sex of the respondent		
	Male	Female	Total
Within first two weeks of cough			
Chest X-ray	16.7	7.2	11.4
Sputum test	12.4	6.1	8.8
Blood test	20.3	10.3	14.7
Other	8.6	1.9	4.8
Number of cases	133	171	304
After two weeks of cough			
Chest X-ray	27.5	28.7	28.2
Sputum test	32.4	22.6	27.0
Blood test	45.6	37.7	41.2
Other	13.9	12.4	13.1
Number of cases	110	134	244

Further to this, data on the tests recommended after two weeks of cough according to the type of health facility indicated that the sputum test was more commonly recommended in public health facilities (Table 38). Public health facilities recommended the sputum test for 17% of the respondents after two weeks of cough, in comparison to just 5% by private health facilities.

Also, both the chest X-ray and sputum test were recommended more (20%) in the public health facility after two weeks of cough, compared to 10% in the private health facilities.

The number of referrals for chest X-rays and sputum tests after two weeks of cough is nearly three times more than the number of referrals done within the first two weeks of cough.

Table 38: Type of test prescribed by the health facility after two weeks of cough by type of health facility

Type of test prescribed							
Type of health facility visited	Chest X-ray	Sputum test	Blood test	Only chest X-ray	Only sputum test	Both chest X-ray and sputum test	No. of cases
Public facility only	27.1	36.3	48.3	7.6	16.8	19.5	82
Private facility only	21.6	15.2	31.3	11.5	5.1	10.1	106
Both private and public	58.1	50.7	66.5	15.8	8.4	42.3	40

Prioritization of first health care provider

The respondents who visited the health care provider after two weeks of cough were asked about reasons for choosing and visiting the first health care provider.

Nearly 21% of the respondents said that the first health care provider was chosen due to proximity to homes or easy access. 21% reported reasonable or low charges as a reason, 17% said that the health care provider had a good reputation, and 13% were reported to have known the provider personally. (Table-39)

Largely, visits to health care providers were prioritized based on their reputation, cost of treatment and proximity/ accessibility.

Table 39: Main reason for choosing the first provider after two weeks of cough

Reason for choosing the first provider	Sex of the respondent		
	Male	Female	Total
Good reputation	15.0	17.8	16.6
Price is reasonable /low cost	24.8	17.7	20.9
Close to home/easy to access	21.1	21.4	21.2
Convenient hours	2.8	4.2	3.6
Treats me nicely	10.7	12.4	11.6
Friends/relatives recommended	4.5	4.0	4.3
Only provider in my area	1.5	1.9	1.7
Know the provider personally	10.7	15.6	13.3
Other	8.9	5.1	6.8
Number of cases	110	134	244

Support mechanisms, habits, cost of treatment

With regard to the available support systems, nearly half of the respondents reported that someone always accompanied them during their visit to health care providers. About 22% of the respondents said that they were sometimes accompanied during their visits. The remaining 28% of the respondents said that no one accompanied them during their visit to health care providers.

Nearly 36% of the respondents informed that they 'always' went back to the health care provider as per the instructions. About 10%, 35% and 8% of the respondents informed that they went back 'most of the times', 'sometimes' and 'rarely', respectively. Remaining 11% of the respondents said that they never went back to the health care provider. (Table-40)

Nearly 10% of the respondents said that other members in their house should also be checked for cough and other symptoms.

Table 40: Specific characteristics of respondents who visited a health care provider after two weeks of cough

Characteristic	Sex of the respondent		
	Male	Female	Total
Frequency of any one accompanying the respondent			
Always	44.4	55.4	50.4
Sometimes	25.7	18.9	22.0
No one accompanied	29.8	25.8	27.6
Whether respondent asked for sputum test himself/ herself			
Yes	9.5	6.6	7.9
No	90.5	93.4	92.1
Frequency of going back to the health care provider as per his/ her instructions			
Always	38.3	34.2	36.1
Most of the times	10.5	10.1	10.2
Sometimes	23.2	44.3	34.8
Rarely	10.6	5.3	7.7
Never	17.4	6.2	11.2
Other people in the house should be checked for cough and its symptoms			
Yes	10.4	9.4	9.8
No	89.6	90.6	90.2
Number of cases	110	134	244

The respondents who visited the health care provider after two weeks of cough were asked whether they modified any of their current personal habits. Nearly 52% of the respondents informed that they made no changes in their personal habits because of cough (Table-41).

Among the male respondents, 15% and 12% said that they stopped smoking and alcohol consumption, respectively. Similarly, 4% and 11% of the male respondents reportedly reduced smoking and alcohol consumption, respectively.

Table 41: Change in habits because of cough among those who visited a health care provider after two weeks of cough

Change in personal habits	Sex of the respondent		
	Male	Female	Total
Stopped consumption of alcohol	11.5	0.8	5.6
Reduced consumption of alcohol	11.3	1.9	6.1
Stopped smoking cigarettes/ bidis	14.5	0.0	6.5
Reduced smoking cigarettes/ bidis	4.0	0.0	1.8
No change	55.2	50.7	52.7
Other	10.5	40.6	27.0
Don't know/Can't say	2.5	6.8	4.9
Number of cases	110	134	244

The respondents were asked about the cost incurred for treatment upon visiting a health care provider after two weeks of cough. Nearly 13% of the respondents reported that they did not spend any amount for treatment. 74% said that they spent up to Rupees 5000, 5% said that they spent up to Rupees 10000, and 7% said that they spent more than Rupees 10000. The average cost incurred for treatment by the respondent was approximately Rupees 3500. (Table-42)

The findings from the data reveal that treatment costs have gone up to Rupees 10000 and more among a few respondents. It is therefore essential to promote "zero-cost treatment" available at government facilities.

Table 42: Total cost incurred for treatment among those who visited a health care provider after two weeks of cough

Cost incurred (in rupees)	Sex of the respondent		
	Male	Female	Total
No cost	10.8	14.6	12.9
< 1000	41.2	44.7	43.1
1000-4999	31.4	31.2	31.3
5000-9999	7.0	4.1	5.4
10000+	9.6	5.5	7.3
Mean cost incurred	4941.8	2311.8	3498.3
Number of cases	110	134	244

Seeking treatment from qualified health care providers

The distribution of respondents who sought treatment from a qualified health care provider after two weeks of cough either from a government or private health facility according to selected socio-demographic characteristic is provided. (Table-43)

Overall, we noticed that 53% of the respondents sought treatment from a qualified health care provider after two weeks of cough. Although females were more likely to seek treatment from a qualified health care provider, its effect was not significant. Nearly 58% of the respondents whose marriage was dissolved were found to seek treatment from a qualified health care provider after two weeks of cough. Surprisingly, a comparatively smaller proportion of respondents who had completed eight more years of schooling sought treatment from a qualified health care provider.

Findings show that respondents who belonged to the Hindu religion were significantly more likely to seek treatment from a qualified health care provider.

We found a statistically significant association between respondents living in slum areas grouped into programme zones and seeking treatment from a qualified health care provider. The number of respondents seeking care from a qualified health care provider was identified to be high in Secunderabad zone (66%) as compared to those in the New City zone (42%).

Table 43: Percentage distribution of CS persons who sought treatment from a qualified health professional after two weeks of cough, by selected characteristics

Characteristics	Percent	No. of cases	p-value
Sex of the respondent			
Male	51.5	198	
Female	54.9	229	0.546
Age			
< 40	53.2	196	
40-59	52.6	139	
60+	54.7	92	0.954
Marital status			
Currently married	53.6	283	
Marriage dissolved	57.6	80	
Never married	46.7	64	0.517
Literacy and education			
Illiterate	59.1	174	
Literate, middle incomplete	48.1	128	
Middle completed	50.6	125	0.250
Occupation			
Business	61.6	39	
Salaried job	53.5	49	
Other job	49.6	161	
Housewife	54.5	123	
Not working	55.4	55	0.751
Religion			
Hindu	58.0	268	
Non-Hindu	45.3	159	0.052
Caste/Tribe			
Scheduled Caste/Tribe	53.4	126	
Others	53.3	301	0.982
Personal monthly income			
< 5000	54.0	235	
5000+	52.4	191	0.805
Monthly household income			
< 15000	53.4	303	
15000+	53.0	124	0.941
Slum areas according to program zones			
Secunderabad zone	65.8	113	
Central zone	62.9	98	
Old City zone	43.2	64	
New City zone	42.1	152	0.034
Total	53.3	427	

The association between comprehensive knowledge of TB and health seeking behaviour was found to be statistically significant. A significantly higher proportion of respondents having comprehensive knowledge sought treatment from a qualified health care provider. (Table-44)

Similarly, three of the component indicators of comprehensive knowledge also showed a statistically significant association with health seeking behaviour. More respondents who knew that TB spreads through air, that TB is fully curable and that cough is the most common symptom of lung TB, sought treatment from a qualified health care provider.

Table 44: Percentage distribution of CS persons who sought treatment from a qualified health professional after two weeks of cough, by comprehensive knowledge of TB and its components

Characteristics	Percent	No. of cases	p-value
Comprehensive knowledge			
No	46.6	284	
Yes	66.6	143	0.001
Cough is the most common symptom of lung TB< 40			
No	48.1	190	
Yes	57.5	237	0.097
TB spreads through air			
No	40.0	166	
Yes	61.8	261	<0.001
Sputum test is the confirmatory test for TB			
No	47.5	164	
Yes	56.9	263	0.123
TB is fully curable			
No	45.1	162	
Yes	58.3	265	0.023

We also examined the extent to which the respondents themselves asked for a sputum test by selected socio-demographic characteristics.

Overall, only 5% of the respondents asked for a sputum test (Table-45). The respondents aged 60 years and above and whose marriages had dissolved were more likely to ask for a sputum test. We noticed a highly significant association between occupation of the respondents and asking for a sputum test. The respondents who belonged to the Hindu religion and who belonged to Scheduled Castes or Scheduled Tribes were more likely to ask for a sputum test. More respondents from households having a monthly income of less than Rupees 15000 asked for a sputum test. The proportion of respondents asking for sputum test was higher in the Central zone and was lowest in the New City zone.

Table 45: Percentage distribution of CS persons who asked for a sputum test, by selected characteristics

Characteristics	Percent	No. of cases	p-value
Sex of the respondent			
Male	5.3	198	
Female	3.8	229	0.496
Age			
< 40	2.5	196	
40-59	4.9	139	
60+	8.1	92	0.140
Marital status			
Currently married	2.9	283	
Marriage dissolved	12.9	80	
Never married	1.3	64	<0.001
Literacy and education			
Illiterate	5.5	174	
Literate, middle incomplete	3.2	128	
Middle complete	4.5	125	0.765
Occupation			
Business	11.0	39	
Salaried job	6.8	49	
Other job	2.9	161	
Housewife	2.5	123	
Not working	7.0	55	0.009
Religion			
Hindu	5.7	268	
Non-Hindu	2.5	159	0.131
Caste/Tribe			
Scheduled Caste/Tribe	6.4	126	
Others	3.7	301	0.302
Personal monthly income			
< 5000	4.5	235	
5000+	4.5	191	0.965
Monthly household income			
< 15000	5.6	303	
15000+	1.9	124	0.039
Slum areas according to program zones			
Secunderabad zone	4.9	113	
Central zone	6.7	98	
Old City zone	5.9	64	
New City zone	2.2	152	0.493
Total	4.5	427	

The results suggest that comprehensive knowledge on TB among the respondents was likely to increase the number of respondents asking for a sputum test. (Table-46)

Similarly, respondents who knew that TB spreads through air, that the sputum test is the confirmatory test and that TB is fully curable, were more likely to ask for a sputum test.

Table 46: Percentage distribution of CS persons who asked for a sputum test, by comprehensive knowledge of TB and its components

Characteristics	Percent	No. of cases	p-value
Comprehensive knowledge			
No	2.7	284	
Yes	8.1	143	0.009
Cough is the most common symptom of lung TB			
No	3.3	190	
Yes	5.5	237	0.246
TB spreads through air			
No	1.9	166	
Yes	6.2	261	0.031
Sputum test is the confirmatory test for TB			
No	1.5	164	
Yes	6.4	263	0.003
TB is fully curable			
No	1.7	162	
Yes	6.2	265	0.028

To identify the factors influencing the respondents seeking treatment from a qualified health care provider, we conducted two multivariate logistic regression models. The models included only those variables that had shown a significance below a p-value of 20% level in the bivariate analysis. Religion and slum areas grouped into program zones were the two variables with a significance below a p- value of 20% level in the bivariate analysis. In addition to these two variables, the first model included comprehensive knowledge of TB and the second model included the component indicators of the comprehensive knowledge. (Table-47)

The result of logistic regression indicated that respondents who have comprehensive knowledge of TB were significantly 2.6 times more likely to seek treatment from a qualified health care provider. Similarly, respondents from the New City zone were less likely to seek treatment from a qualified health care provider. Although non-Hindus were also less likely to seek treatment from a qualified health care provider, its effect was not statistically significant. According to the second model, out of the four component indicators of comprehensive knowledge, only one indicator, namely those who knew that TB spreads through air was found to have a statistically significant effect. The respondents who knew that TB spreads through air were 2.3 times more likely to seek treatment from a qualified health care provider.

Table 47: Results of multivariate logistic regression for seeking treatment from a qualified health care provider

Characteristics	Model I			Model II		
	Odds ratio	CI (95%)	p-value	Odds ratio	CI (95%)	p-value
Religion						
Hindu (Reference)	1.00			1.00		
Non-Hindu	0.69	[0.38-1.24]	0.212	0.62	[0.34-1.22]	0.112
Slum areas according to program zones						
Secunderabad zone (Reference)	1.00			1.00		
Central zone	0.98	[0.45-2.16]	0.964	1.02	[0.46-2.23]	0.959
Old City zone	0.39	[0.11-1.32]	0.126	0.43	[0.13-1.35]	0.144
New City zone	0.40	[0.18-0.89]	0.025	0.46	[0.21-0.96]	0.038
Comprehensive knowledge of TB						
No (Reference)	1.00					
Yes	2.64	[1.55-4.46]	<0.001			
Cough is the most common symptom of lung TB						
No (Reference)				1.00		
Yes				1.12	[0.58-2.15]	0.726
TB spreads through air						
No (Reference)				1.00		
Yes				2.25	[1.15-4.37]	0.018
Sputum test is the confirmatory test for TB						
No (Reference)				1.00		
Yes				0.81	[0.43-1.49]	0.482
TB is fully curable						
No (Reference)				1.00		
Yes				1.43	[0.77-2.62]	0.248

Two separate multivariate logistic regression models were adapted to identify the factors that influence the respondents asking for sputum test. (Table-48)

We included all the variables that were found to have an association with asking for a sputum test below a p-value of 20% level in the bivariate analysis. The first logistic regression model included socio-economic characteristics as well as comprehensive knowledge of TB. The socio-economic characteristics included in the logistic regression for respondents who asked for a sputum test included age, marital status, occupation, religion and monthly household income. The second logistic regression model included socio-economic characteristics as well as the component indicators of comprehensive knowledge of TB.

According to Model I, the CS persons who had comprehensive knowledge of TB were four times more likely to ask for a sputum test as compared to CS persons who didn't have comprehensive knowledge of TB. However, according to the second model, only one component of the comprehensive knowledge on TB, such as knowing that TB is fully curable was found to highly influence the odds of asking for a sputum test. The result also indicated that respondents whose marriages had dissolved were more likely to ask for a sputum test. Similarly, unemployed persons and persons who were engaged in jobs other than salaried jobs were significantly less likely to ask for a sputum test. All other individual variables included in the model were not significant, when other variables were controlled for.

Table 48: Results of multivariate logistic regression for asked for a sputum test

Characteristics	Model I			Model II		
	Odds ratio	CI (95%)	p-value	Odds ratio	CI (95%)	p-value
Age						
< 40 (Reference)	1.00			1.00		
40-59	1.13	[0.26-4.87]	0.866	1.13	[0.27-5.26]	0.808
60+	1.51	[0.28-7.92]	0.623	1.51	[0.31-6.96]	0.614
Marital status						
Currently married	1.00			1.00		
Marriage dissolved	4.82	[1.71-13.53]	0.003	4.94	[1.63-14.98]	0.005
Never married	0.47	[0.04-5.30]	0.533	0.49	[0.04-5.82]	0.569
Occupation						
Business (Reference)	1.00			1.00		
Salaried job	0.49	[0.12-1.99]	0.310	0.45	[0.10-2.12]	0.309
Other job	4.82	[0.06-0.82]	0.024	0.21	[0.06-0.78]	0.020
Not working	0.47	[0.04-0.93]	0.041	0.19	[0.04-0.93]	0.042
Religion						
Hindu (Reference)	1.00			1.00		
Non-Hindu	0.52	[0.15-1.74]	0.283	0.46	[0.13-1.59]	0.218
Monthly household income						
< 15000 (Reference)	1.00			1.00		
15000+	0.46	[0.15-1.36]	0.155	0.39	[0.12-1.31]	0.128
Comprehensive knowledge on TB						
No (Reference)	1.00					
Yes	3.97	[1.52-10.34]	0.006			
TB spreads through air						
No (Reference)				1.00		
Yes				1.43	[0.34-6.07]	0.622
Sputum test is the confirmatory test for TB						
No (Reference)				1.00		
Yes				2.51	[0.63-9.91]	0.184
TB is fully curable						
No (Reference)				1.00		
Yes				3.11	[1.04-9.30]	0.042

Key findings and scope

Sl. No.	Findings	Scope
1	The main source of information on TB is from friends and relatives, especially if there has been an experience of TB in the family. However, health related information is accessed through radio or television.	Use of community platforms like patient support groups as a means of disseminating knowledge to caregivers and influencing treatment retention for the TB patient. The preferred method is TV/Radio, but most respondents reported having mobile phones. It is possible to support the government in designing easy-to-access information apps for mobiles with key messaging on TB. The main source of information on TB is from friends and relatives, especially if there has been an experience of TB in the family.However, health-related information is accessed through radio or television.
2	Government and private health facilities are equally accessed by the households.	Engaging with both public and private health facilities and ensuring adoption of the STCI is important. Since these facilities are equally accessed by the households of urban slums, this will also help TB patients access treatment at the facility of their choice.
3	Government health facilities are not used by nearly half of the respondents (CS persons) due to lack of accessibility and issues around the quality of care provided.	Offer technical and capacity-building assistance to government facilities to strengthen systems and improve service quality, thereby improving case reporting of CS persons at government health facilities.
4	Around one-fourth of the households are not covered under government health schemes or health insurance.	It is important to create linkages with government health schemes or health insurance, ensuring 100% coverage of all households, and thereby facilitating access to free medicines and treatment for all.
5	Alcohol consumption at least once a week prevails among nearly two-fifths of the male respondents.	Alcohol consumption adversely affects TB drug adherence. A communication and behavior change strategy to intensively engage with communities and patients to prevent and stop alcohol consumption is needed. Ensuring family level care and support towards modification of lifestyles is essential.
6	Knowledge of TB is higher among respondents who are within 40 years of age and educated.	At the community level, engaging and building community level champions as advocates for awareness building would be a sustainable approach towards bridging information gaps.
7	The involvement of government FLWs as sources of information is very low.	The involvement of government FLWs in capacity-building, outreach and sensitization sessions is important to ensure convergence and collective ownership among all health workers at the community level. This will help strengthen awareness-generation efforts and referral mechanisms at the grassroot level.

Sl. No.	Findings	Scope
8	A little over one-third of the respondents are not familiar with the mode of transmission of TB from one person to another.	Targeted awareness-building activities through frontline workers at the urban slums on topics like TB symptoms and modes of transmission, confirmatory tests, available testing centers, treatment, myths and misconceptions, treatment adherence and disclosure of TB are essential to increase knowledge on TB among communities.
9	More than half of the respondents are not familiar with the effect of TB on parts of the human body.	
10	Around one-fourth of the respondents do not know or mentioned incorrect symptoms of lung TB.	
11	Nearly two-fifths of the respondents are not sure about specific tests done for confirmation of TB.	Use of ICT is recommended to disseminate the key messages on TB. Sharing success stories of TB survivors will motivate behavior change among target populations.
12	Around one-fourth of the respondents do not know about TB testing centers. (DMC is lesser-known among the respondents).	
13	Around one-fourth of the respondents do not know about the place of treatment for TB.	
14	Nearly three-fourths of the respondents do not know about the duration of TB treatment.	
15	Around two-fifths of the respondents do not know that TB is fully curable.	
16	Around one-fourth of the respondents do not know ways to prevent TB.	
17	Around two-thirds of the respondents do not have comprehensive knowledge of TB.	
18	A little over two-fifths of the respondents continued with self-medication or home remedies and sometimes did nothing, during the first two weeks and after two weeks of cough.	Ensuring that every CS person with persistent cough is linked to appropriate health care facilities for consultation and treatment services is important. Accompanied referrals to the health care provider must be encouraged.
19	Around four-fifths of the respondents spent up to Rupees 10000 for treatment.	It is essential to popularize and propagate “zero-cost treatment” among urban populations so that more CS persons are linked with government health facilities for free TB treatment.

Baseline status – key indicators

Sl. No.	Indicator	%
Awareness about TB		
1	% of CS who knew or heard about TB	76
2	% of CS who knew about the modes of transmission of TB	61
3	% of CS who knew that cough is the most common symptom of lung TB	55
4	% of CS who knew the sputum test is a confirmatory test for TB	62
5	%of CS who knew about TB testing centers (MCH, TB-H,GH and DMC)	71
6	% of CS who knew about TB treatment hospitals (Government Hospital)	73
7	% of CS who knew that TB treatment is available free of cost	45
8	% of CS who knew that TB treatment lasts for a minimum of 6 months	27
9	% of CS who knew that TB is fully curable	62
10	% of CS who knew the need for disclosure of TB status to spouse (among those who knew or had heard of TB)	80
11	% of CS who knew that TB patients should disclose their status to prevent the spread of infection (among those who knew or had heard of TB)	15
12	% of CS who knew how to prevent the spread of TB (maintaining cough hygiene)	60
13	% of CS having comprehensive knowledge on TB	34
Health seeking behavior		
14	%of CS who consulted health care providers for treatment, within the first two weeks of cough	71
15	% of CS who consulted a qualified health care provider for treatment after two weeks of cough	53
16	% of CS who never visited any health care provider	20
17	% of CS who visited a health care provider only within the first two weeks of cough	23
18	% of CS who visited a health care provider only after two weeks of cough	9
19	% of CS who visited a health care provider in the first two weeks and after two weeks of cough	48
20	% of CS who visited a government health care facility (MH, dispensary, PHC) after two weeks of cough, among those who visited the health care provider	50
21	% of CS who visited a private health care facility (hospital, clinic) after two weeks of cough among those who visited the health care provider	60
22	% of CS who consulted the health care provider after two weeks of cough and were referred for diagnostic tests	48
23	% of CS who were asked a for sputum test	5
24	% of CS who reported that someone accompanied them during their visit to the health care provider	50
25	% of CS who reported no change in personal habits because of cough	53
26	Treatment expenditure by CS up to Rupees 5000	74
27	Treatment expenditure by CS between Rupees 5000 and Rs 9999	5
28	Treatment expenditure by CS over Rupees 10000	7

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