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Awareness of Tuberculosis in General Population of Maharashtra, India: A Comparison between Urban versus Rural

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Abstract

Tuberculosis (TB) is a communicable disease and one of the foremost reasons of poor health, due to microorganism - Mycobacterium tuberculosis that most usually have an effect on the lungs or even different frame elements as properly. Throughout the year 2020, statistics had been reported from 198 nations and territories that accounted for greater than 99% of the world's population and predicted number of TB cases. Globally, an estimated 10.0 million (range, 8.9–11.0 million) humans were diagnosed with TB in 2019, and this number has been declining very slowly in recent years.

The study was conducted by doing a survey amongst the people of Maharashtra, India covering various regions from Urban to Rural, to understand the awareness amongst people and to understand the comparing the level of awareness between people from urban region versus the onces from rural. Approximately 10 questions were taken into consideration for the analysis for this paper where the data was compared head-to-head.

It was obsewrved that more than 93% of people in both the regions were aware of TB, amongst whom the awareness of DOTS was more in case of rural with 81% vis-à-vis 75% from urban. The other parameters which were covered inclused the choice of facility which they would recommend, cost of DOTS therapy, treatmemnt duration, death rate and recovery date, results of which are detailed in the complete article.

More spread of awareness will help in controlling and managing the disease better across the region and across the country.

Keywords: *TB Awareness, Tuberculosis, DOTS, TB in Maharashtra*

Abbreviations

DMC	Designated Microscopy Center
DOTS	Directly Observed Treatment Short-course
GOI	Government of India
RNTCP	The Revised National Tuberculosis Control Program
TB	Tuberculosis
WHO	World Health Organization

Introduction

Tuberculosis (TB) is a communicable disease and one of the foremost reasons of poor health, due to microorganism - Mycobacterium tuberculosis that most usually have an effect on the lungs or even different frame elements as properly. Tuberculosis can be cured and prevented. Mycobacterium tuberculosis is transmitted in airborne particles referred to as droplet nuclei. When patients with lung (pulmonary) TB, cough, sneeze or spit, they release the TB germs into the surrounding air [WHO News room 2020]

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In 1993, the World Health Organization (WHO) Global Tuberculosis Program declared tuberculosis a global emergency and began promoting a management strategy called directly observed brief therapy (DOTS). The Revised National Tuberculosis Control Program (RNTCP) was launched in 1997 and implemented a gradual expansion, reaching national program coverage in March 2006. The program is based on the internationally recommended Directly Observed Treatment Short-course (DOTS) strategy. By 2005, 187 countries had started implementing DOTS with 4.9 million TB cases treated with DOTS in that year alone. Under the DOTS strategy, anti-TB drugs are ingested by patients under the supervision of a medical professional (DOT), thereby ensuring that the appropriate medications are administered at the appropriate time intervals and in the correct doses. In addition, DOTS increases the accuracy of TB diagnosis by supporting sputum smear microscopy, thereby reducing the spread of TB. Indigent patients are cared for under the DOTS program as free drugs are provided and the duration of illness is shortened. The social stigma associated with DOTS is reduced, which encourages symptomatic individuals to seek medical care. This program now covers more than one billion (1164 million) populations in 632 districts in 35 out of 12 states and union territories. [Tiberi 2022]

8 million TB patients on treatment, saving an additional 2.3 million lives [Jain 2010]. In May 2012, the Government of India (GOI) launched the Tuberculosis Notification Web Portal (Nikshay) for digitizing and tracking TB patients. One of the main features of "Nikshay" is the generation of a unique Nikshay ID for each TB patient on the site. of diagnosis, which can help follow the patient from diagnosis to treatment outcome. Likewise, the program has begun to use Nikshay to refer patients to other parts of the country from the place of diagnosis. Once referred by a designated microscopy center (DMC) after diagnosis, the DTC the patient is referred to will receive a message with the patient's

details (name, age, gender and telephone number, including village and tehsil) in Nikshay's mailbox. is started after verification (patient visit or health worker visit) and DTC will send feedback with start date of treatment via Nikshay. The Nikshay system has been implemented in the National Capital Territory of Delhi (hereafter referred to as Delhi) to treat tuberculosis patients since April 2018. [Verma 2013] This system is expected to facilitate regular monitoring and provide information on the start of treatment of TB patients reported by diagnostic site. For India, little information is available indicating that Nikshay has simplified the follow-up of TB patients and strengthened the feedback mechanism. [Arora 2013]

Materials and Methods

The study was a survey-based model, where the questionnaire was prepared after a strong literature search and understand the need for an hour based on the available information.

A questionnaire having approx. 23 questions was prepared to understand awareness amongst general population covering people from Urban as well as from Rural regions. This designed questionnaire was validated considering the feasibility and comfort as well as the completeness status, which was done by rolling-out the questionnaire amongst 25 random individuals.

The questionnaires were rolled out using online portal as well as some surveys were received physically using hard copies as per the convenience of the participant. Participants were considered from the state of Maharashtra. Double data entry was preferred for the entries which were received using the physical survey forms, to avoid errors, followed by which the data was cleaned and validated. Data cleaning and validation was done for the surveys received via online portal as well. Post which the complete data was merged. Considering the complete data entry we managed to receive 428 replies from general public, which meets the calculated sample size, which was calculated using statistical methods and was validated with the help of statistician, i.e. 434 participants.

Complete pooled data of 428 participants of which 286 were from urban region and 142 were from rural areas, which were then taken for analysis, data being dichotomous in nature, basic percentile method was considered for analysis.

Results and Discussion

As we did not find any literature where we could do a head-to-head comparison, we will be discussing the data based on the obtained results. As primary objective of the study was to understand the awareness amongst the general public, we simultaneously planned a sub-group analysis to understand the difference in awareness of the disease and DOTS between people from Urban region vis-à-vis people from rural locality.

Amongst the various questions asked while taking the survey, we have selected 10 major question to discuss here.

Starting with the most basic question, have you heard about the disease Tuberculosis, for which the expectation was to be 100% yes, but there were 5% (15 of 286) participants from urban region and 7% (10 of 142) from the rural area who did not know about tuberculosis. These participants were not included in the further awareness survey.

After this the final sample size considered was 271 from urban region and 132 from rural.

DOTS was the centre point of the primary objective of the study, so the next leading question to the previous one was are you aware of DOTS in case of Tuberculosis, for which the results observed said rural population was more aware of DOTS as compared to Urban population i.e. 81% (107 of 32) and 75% (207 of 271) respectively.

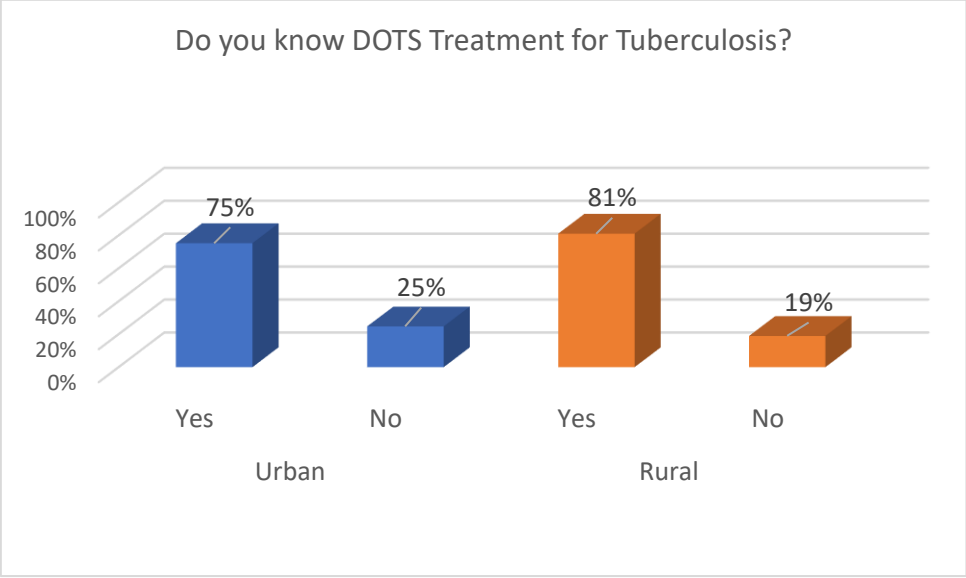

Figure 1: Do you know DOTS Treatment for Tuberculosis?

Majorly all the diseases are primarily identified with the help of signs and symptoms, so if you know about the disease it is expected that you know well about the signs and symptoms of the same. In case of tuberculosis the major signs and symptoms observed are Cough, Coughing with Blood, Chest Pain, Headache, etc.

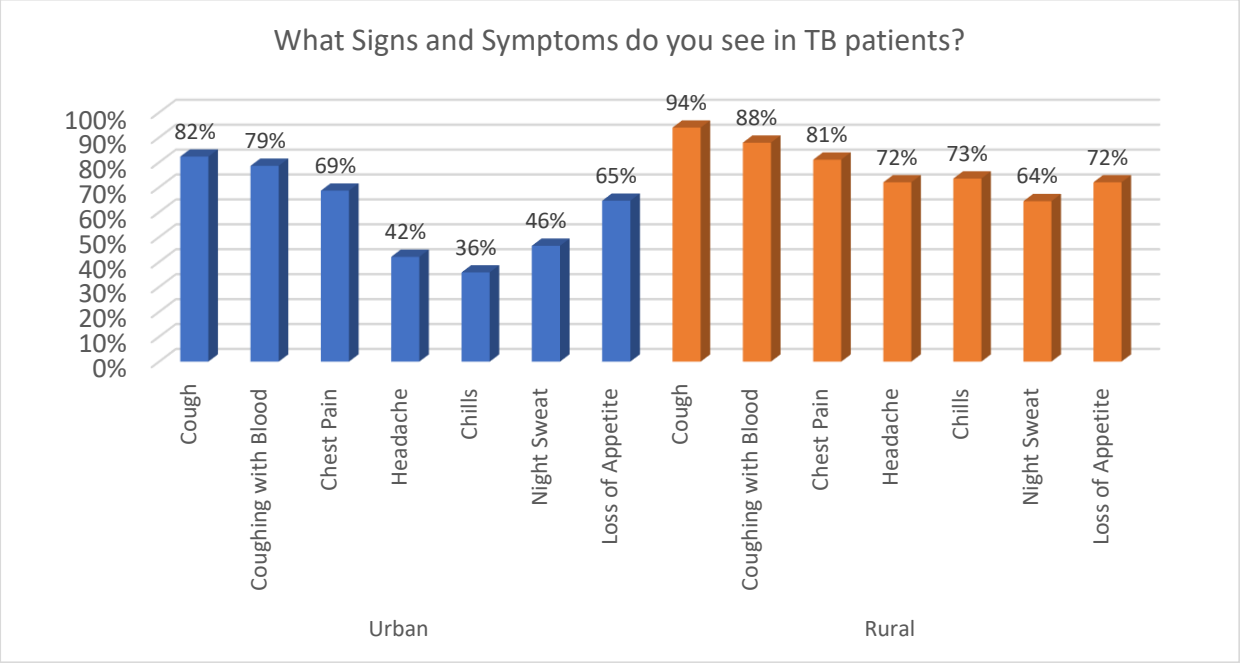

Figure 2: What Signs and Symptoms do you see in TB patients?

There was no major difference seen between urban and rural population when it came to signs and symptoms, cough being the most common sign in case of tuberculosis, it was 82% voting for it from urban group and 94% from rural. Overall response received in case of rural was much better with all the enlisted signs getting more than 65% votes, whereas in case of urban population Headache night sweat and Chills were voted the least with 42%, 46% and 36% respectively, with other enlisted signs getting votes between 65% to 82%.

Perception about the facility where you would be treated and under which doctor, has continued to be the choice since decades, hence the next question was as to what would you suggest to the one having such signs and symptoms or to someone who is already diagnosed with tuberculosis.

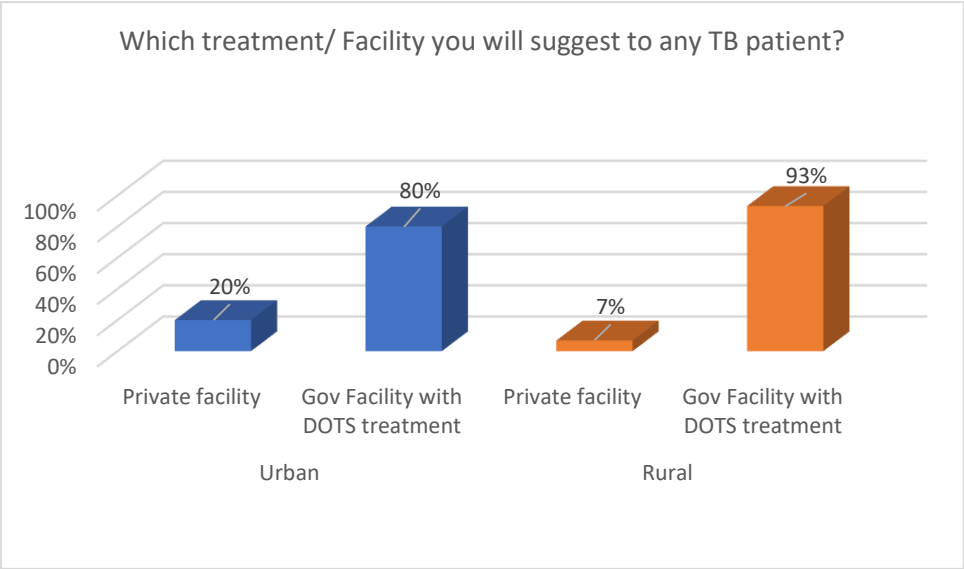

Figure 3: Which treatment/ Facility you will suggest to any TB patient?

Preference was high in both the cases i.e. people from urban region as well as from rural where the majority was preferring DOTS treatment over private i.e. 80% and 93% respectively where only 20% and 7% from urban and rural preferred to visit private facility.

After knowing the preference towards DOTS, it was utmost important to know what is the perception about DOTS, which we tried to analyse using 4 pointer Likert scale having an options as bad, good, better and best between rural and urban population, results for which are explained below

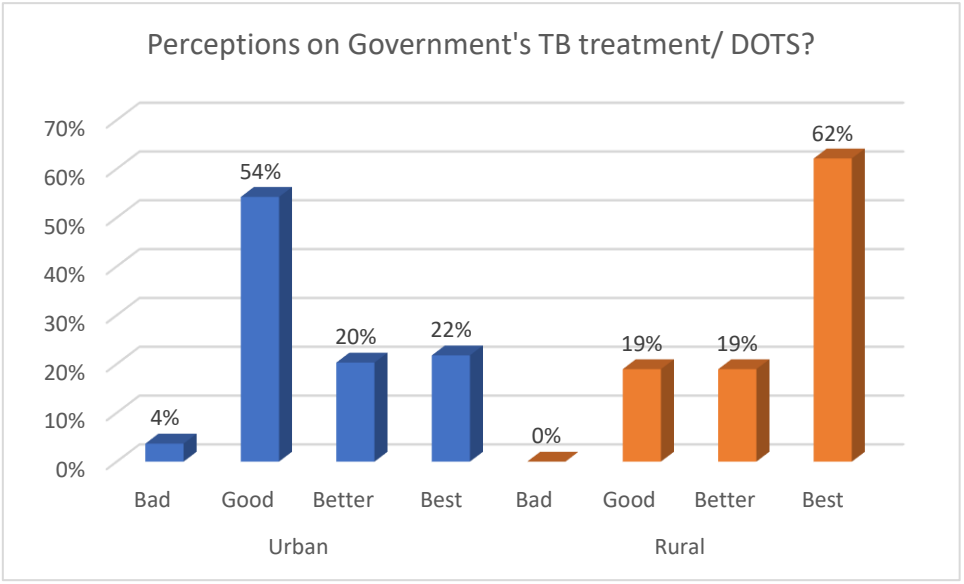

Figure 4: Perceptions on Government's TB treatment/ DOTS?

In case of urban population it was observed that majority considered it to be good, followed by best and better and the lowest was for bad i.e. 54% (147 of 271), 22% (59 of 271), 20% (55 of 271) and 4% (10 of 271) respectively. Where we see a major difference in the readings of people from rural areas, where we have 0% for bad, maximum for best i.e. 62% (82 of 132) followed by better and good with 19% each (25 of 132).

Cost becomes a major issue in case of medical treatment, there are many people who at times are not able to afford medical treatment, well to manage this and to eradicate tuberculosis from the country, Govt. of India when started with DOTS, it was given for free and still it continues. Now the question arises is, how many individuals know about this. Only 25% (69 of 271) from urban region knew about this but when we come to rural the awareness was 61% (81 of 132) knew it well.

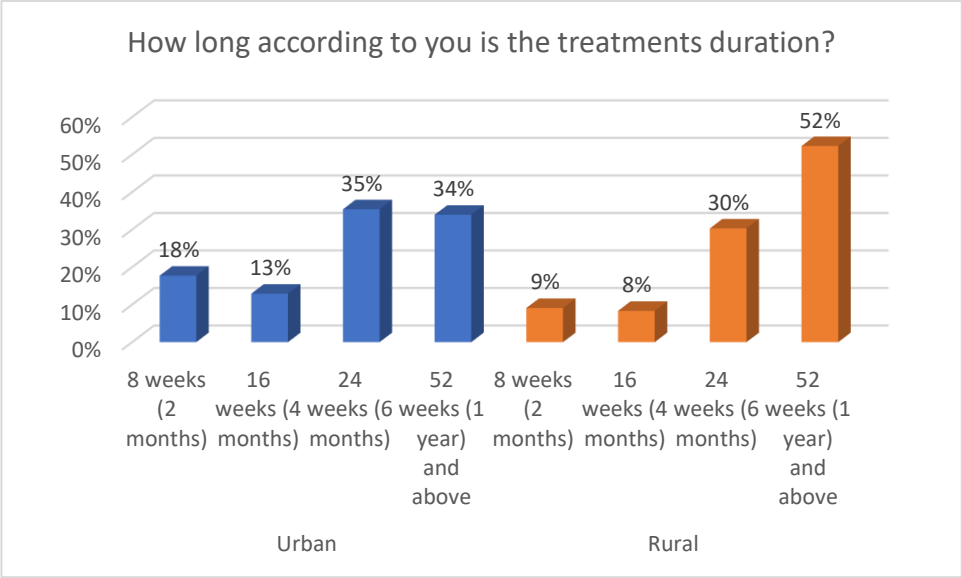

Figure 5: How long according to you is the treatments duration?

When we asked about the duration, neither of the groups were clear on the treatment duration, as for the given options i.e. 8 weeks/2months, 16 weeks/4months, 24 weeks/6 months and 52 weeks/ 1 year, all the received replies were below 50% as shown in Figure 5 (above).

Amazing reply was received for the next question i.e. “Do you think these patients can Spread Tuberculosis to another individual?” where the awareness was just perfect with 92% (248 of 271) from urn=ban population and 94% (124 of 132) from rural population agreed to it, this indicated that the spread of awareness is appropriate and in right direction.

Death rate and recovery rate was the next topic of interest by the researcher, where we figured out that 1-2% was voted the maximum in case of both the groups with 30 % from urban and 48% from rural, other values are explained in the graph below

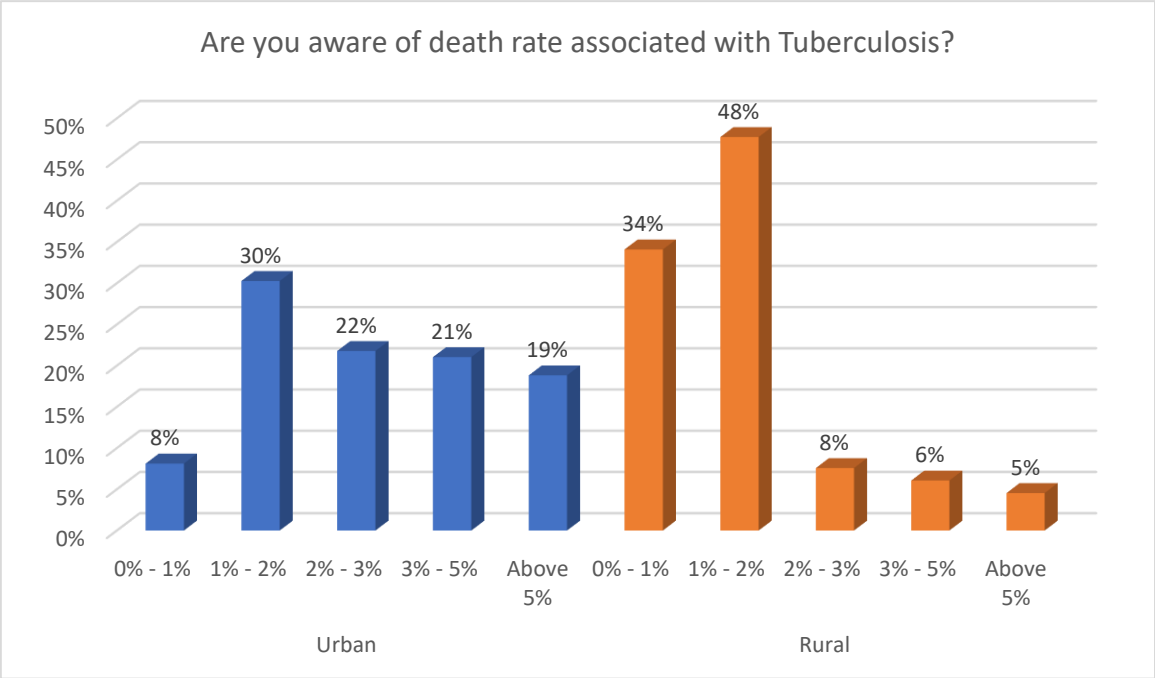

Figure 6: Are you aware of death rate associated with Tuberculosis?

While in case of recover rate the reading did not match at all between both groups.

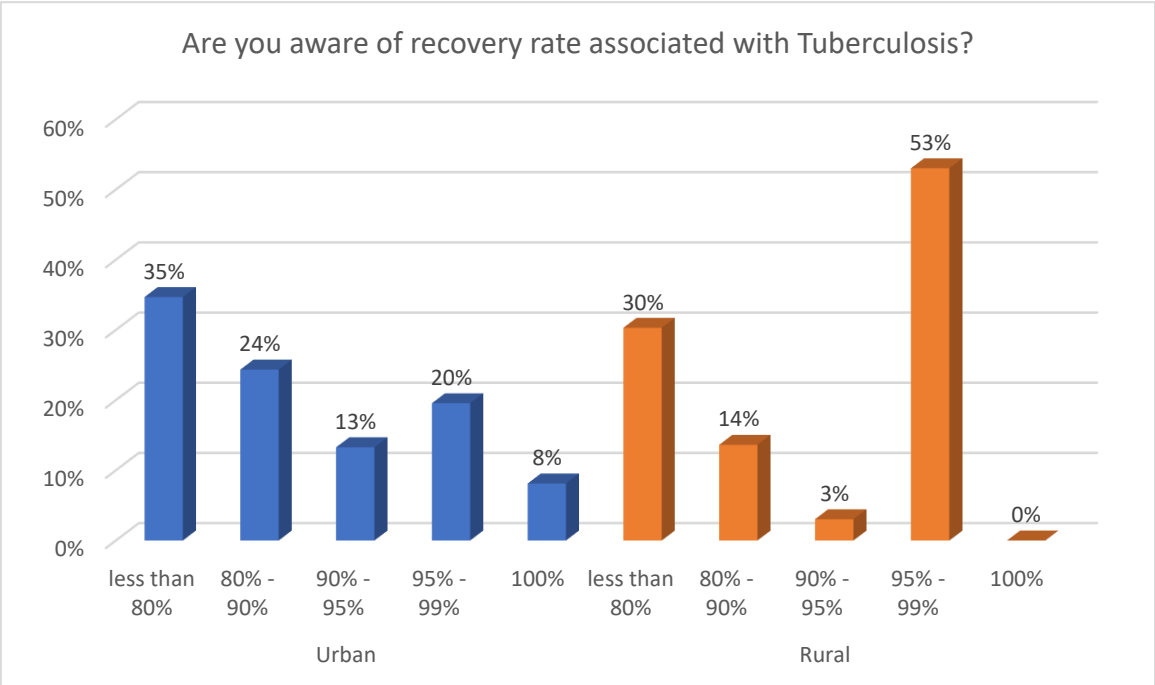

Figure 7: Are you aware of recovery rate associated with Tuberculosis?

Here we see in case of urban less than 80% recovery rate is voted by 35% being the highest, while in case of rural population 95-99% is voted the maximum by 53%. The lowest going to 8% of people from urban voting for 100% recover recovery rate and the same option of 100% recovery rate being the lowest in case of rural population with 0% people voting for it.

Conclusion

The overall data when was further analyses to the sub-group level where we compared the data from people coming from urban locality versus people coming from rural areas, it was observed that that irrespective of the class or region, awareness amongst the groups is good with very minor difference in certain perceptions. Such kind of awareness and efforts by the GoI will definitely help in the ongoing mission “Eradicate Tuberculosis by 2025”.

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