

**ASSESSING PUBLIC COMPREHENSION OF THE TUBERCULOSIS
SPECTRUM AND GOVERNMENT INITIATIVES IN EAST DELHI: AN IN-
DEPTH ANALYSIS**

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in

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By

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Under the Supervision and Guidance of

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CERTIFICATE

This is to certify that **Dr. Lavleen Kaur** in partial fulfillment of the requirements for the Award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed her internship at **HEAL Health Connect Solutions Pvt Ltd** during **1st April - 30th June, 2024**.

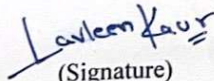
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DECLARATION BY STUDENT

I hereby declare that this dissertation titled "ASSESSING PUBLIC COMPREHENSION OF THE TUBERCULOSIS SPECTRUM AND GOVERNMENT INITIATIVES IN EAST DELHI :AN IN- DEPTH ANALYSIS" is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.


(Signature)
Dr. Lavleen Kaur

CERTIFICATE

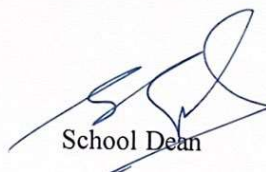
This is to certify that dissertation titled **Assessing Public Comprehension of the Tuberculosis Spectrum and Government Initiatives in East Delhi: An In-Depth Analysis** is record of the research work undertaken by **Dr. Lavleen Kaur** in partial fulfilment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

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ABSTRACT

Tuberculosis is a significant public health concern globally . and one of the main cause of mortality in India. This study aims to conduct an in-depth analysis of public comprehension of Tuberculosis spectrum and Government initiatives , by doing a survey in the East Delhi region.

OBJECTIVES:

The objective is to access the overall awareness of Tuberculosis spectrum and Government initiatives.

- To measure the public's awareness of various aspects of tuberculosis, including knowledge of symptoms, transmission, and prevention.
- To assess the clarity and effectiveness of different government communication methods, such as traditional media, social media, community engagement programs, and digital platforms, in disseminating essential information about tuberculosis to the public.
- To evaluate public awareness of the different government initiatives aimed at combating tuberculosis.

METHODOLOGY

A cross- sectional study based on a quantitative survey done to gather comprehensive data on public awareness of tuberculosis spectrum and government initiatives. 200 respondents ensuring a diverse representation based on age , gender and education are taken. Online structures questionnaire with closed ended questions are made. Following data was collected through the questionnaire:

- Demographic data
- Awareness of tuberculosis- symptoms , transmission and prevention
- Awareness of government initiatives
- Effectiveness of various communication method

RESULT

The survey, completed by 200 respondents, had a gender distribution of 52% females and 48% males. Age categories were represented as 29% aged 15-25 years, 37% aged

26-35 years, and 34% aged 36-50 years. Educationally, 68% were graduates or postgraduates, 15% had completed higher secondary education, and 16% were distributed among secondary, primary, and illiterate categories. Regarding occupation, 47% were employed, 16% were students, 10% were self-employed, and 27% were homemakers.

Awareness about tuberculosis (TB) was high, with 97.5% having heard of the disease. Awareness of TB symptoms varied, with 93.5% identifying persistent cough, 56.5% chest pain, 54.5% fatigue, 67.6% fever, 32% night sweats, and 41% weight loss; only 2.5% were unaware of any symptoms. Knowledge about TB transmission showed that 88.5% correctly identified airborne transmission, though misconceptions included sharing food (28.5%), touching a person with TB (24%), and blood transfusion (23%). Preventive measures were well recognized, with 85% aware of vaccination, 55.5% mentioning wearing masks, 50% avoiding close contact, and 40.5% highlighting good ventilation. Healthcare providers were the clearest source of TB information for 46% of respondents, whereas 52% found social media and digital platforms unclear due to myths and misconceptions. Government initiatives on TB were known to 55%, indicating a need for improved outreach.

CONCLUSION

In conclusion, effective public health campaigns and educational programmes have greatly increased the general people's awareness of tuberculosis (TB). But misconceptions about how HIV spreads, including the unfounded notion that it spreads through handshakes or blood transfusions, continue to exist, highlighting the necessity of focused outreach and education. Furthermore, there is a dearth of knowledge on available treatment choices, especially DOTS centres, which raises questions regarding the efficacy of government outreach initiatives. Reliable sources of information include healthcare providers and community involvement initiatives that enable in-person contacts and question-asking. On the other hand, social media is seen with suspicion because of the abundance of frequently inaccurate information it offers.

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ABBREVIATIONS

WHO	World Health Organisation
TB	Tuberculosis
DOTS	Directly observed therapy short course
NTEP	National Tuberculosis Elimination Program
KAP	Knowledge, Attitude and Practice
RNTCP	Revised National Tuberculosis Control Programme
HCWs	Health care workers
HIV	Human Immunodeficiency Virus
MTB	Mycobacterium Tuberculosis
RIF	Resistance to Rifampicin
TST	Tuberculin Skin test
IGRA	Interferon Gamma Release Assay
BCG	Bacillus Calmette-Guerin

INTRODUCTION

1.1 Overview

Tuberculosis (TB) is indeed a significant global health concern and remains the world's most deadly infectious disease. With over a million lives lost each year and millions more affected, TB poses a severe threat to public health worldwide. One country heavily burdened by this disease is India, which holds the unenviable position of having the highest number of TB cases globally.

India, as the most populous country in the world, faces immense challenges in combating TB due to its large population and diverse socio-economic factors. The country contributes to more than 28 percent of the global TB burden, highlighting the magnitude of the problem within its borders. In 2022 alone, it was estimated that India had around 24.20 lakh new TB cases. [2]

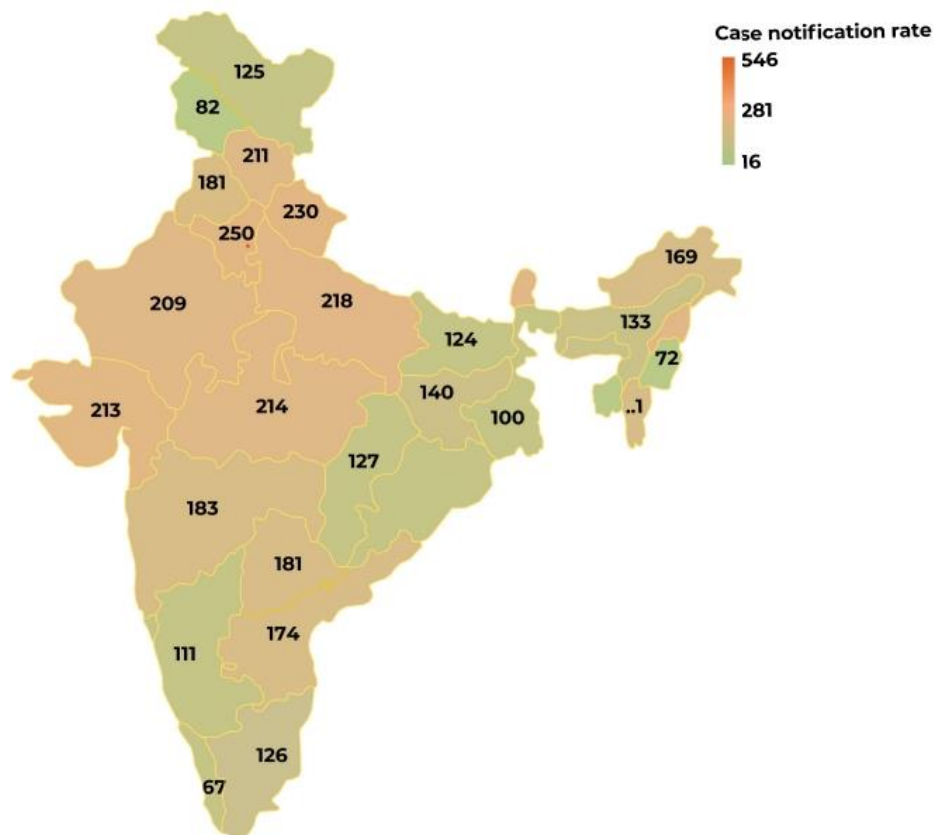


Fig. 1.1 State wise TB case notification rate for 2022 [3]

A considerable number of deaths in India are attributed to tuberculosis (TB) due to the disease's high incidence. India accounts for over 36% of all tuberculosis fatalities worldwide [\[1\]](#), highlighting how serious the issue is. This highlights how important it is to create effective strategies for tuberculosis prevention, diagnosis, and treatment in order to combat the illness and reduce rates of morbidity and mortality.

India's tuberculosis (TB) epidemic calls for a multifaceted response. It entails fortifying healthcare systems, enhancing accessibility to high-quality diagnostic instruments, guaranteeing prompt and precise diagnosis, and putting in place suitable treatment plans. Furthermore, in order to properly manage the disease, initiatives to increase awareness, lessen stigma, and encourage early discovery are essential.

To combat tuberculosis, the Indian government has made great strides in cooperation with foreign organisations and non-governmental groups. The goal of the National TB Elimination Programme (NTEP) is to improve TB diagnosis and treatment while concentrating on bolstering the healthcare system and increasing patient access.

India has made strides in recent years in combating the TB epidemic by putting into practice tactics like direct observed therapy, short-course (DOTS), and giving patients free diagnostic exams and treatment. Reaching marginalised people, enhancing the identification of drug-resistant TB, and providing complete treatment and support for TB patients all require more work, though.

Even though the TB situation in India and around the world is still difficult, communities, non-governmental organisations, governments, and healthcare providers may work together to improve things. Reduce the burden of this terrible infectious disease and save many lives in India and around the world by prioritising TB control, funding research, fortifying healthcare systems, and raising awareness.

1.2 About tuberculosis

Mycobacterium tuberculosis is the bacteria that causes tuberculosis (TB). Although it can damage other bodily organs, it mainly affects the lungs since it travels through the air. When an infected person coughs, sneezes, talks, laughs, or sings, the bacterium is released into the air and can spread to others. These droplets can cause illness if inhaled.

Individuals who have active tuberculosis in their throat or lungs are more prone to transmit the illness.

Common symptoms [\[4\]](#) of TB include

- Prolonged cough (sometimes with blood)
- Chest pain
- Weakness
- Fatigue
- Weight loss,
- Fever
- Night sweats

Though it can also damage the kidneys, brain, spine, and skin, tuberculosis mainly affects the lungs. Although latent TB infection is not communicable and does not show symptoms, TB illness does. The risk of having tuberculosis disease is increased by a few variables, including malnutrition, diabetes, compromised immune systems, and tobacco use. Early detection and treatment are crucial for halting the spread of tuberculosis.

Due to the fact that TB affects more than just the lungs, it can be divided into two [\[5\]](#) main categories:

1. Pulmonary tuberculosis: this type primarily affects the lungs and is the most common variety, accounting for around 87% of tuberculosis cases.

2. Extrapulmonary tuberculosis: This variation affects organs other than the lungs.

Examples include TB that affects the genitourinary system (including bladder tuberculosis), lymph nodes, skeletal structures, bloodstream, liver, gastrointestinal tract, meninges (TB meningitis), and skin (cutaneous TB), among other organs.

The World Health Organisation [\[4\]](#) recommends quick molecular diagnostic testing as the initial diagnostic method for anyone displaying tuberculosis signs and symptoms.

The WHO lists the Truenat and Xpert MTB/RIF Ultra assays as examples of quick diagnostic tests. Because of their high diagnostic accuracy, these tests will greatly boost the early diagnosis of drug-resistant tuberculosis and tuberculosis. An interferon gamma release assay (IGRA) or tuberculin skin test (TST) may be used to determine who is infected. It can be challenging and expensive to diagnose HIV-associated tuberculosis (TB) and other resistant types of TB..

According to estimates, undernutrition, hazardous alcohol consumption, smoking, diabetes, and HIV are the five risk factors that account for the majority of tuberculosis cases in India. Together, these risk factors are responsible for 44% of India's projected total estimated TB incidents.

Risk Factors	Estimates of Number of cases attributable to risk factors(95% Confidence Interval)(Lakh)
Undernourishment	7.38 (6.24-8.61)
Alcohol Use Disorders	2.57 (0.74-5.53)
Smoking	1.09 (0.21- 2.71)
Diabetes	1.05 (0.31-2.23)
HIV Infection	0.93 (0.29-1.93)

Fig. 1.2 India estimate of TB cases attributable to selected comorbidities, 2021 (WHO Global Repost,2022) [\[3\]](#)

1.3 Prevalence of TB in Delhi

About 1.68 crore people live in Delhi, the capital of India, which makes up 1.39% of the nation's total population. [\[6\]](#). The constant influx of migrants seeking a better life in Delhi, while crucial for the city's growth, can also increase the risk of tuberculosis (TB) transmission. Congested living conditions and limited healthcare access among migrants create a breeding ground for the airborne disease. Furthermore, the growing population puts a strain on healthcare resources, making it difficult to effectively diagnose and manage TB .

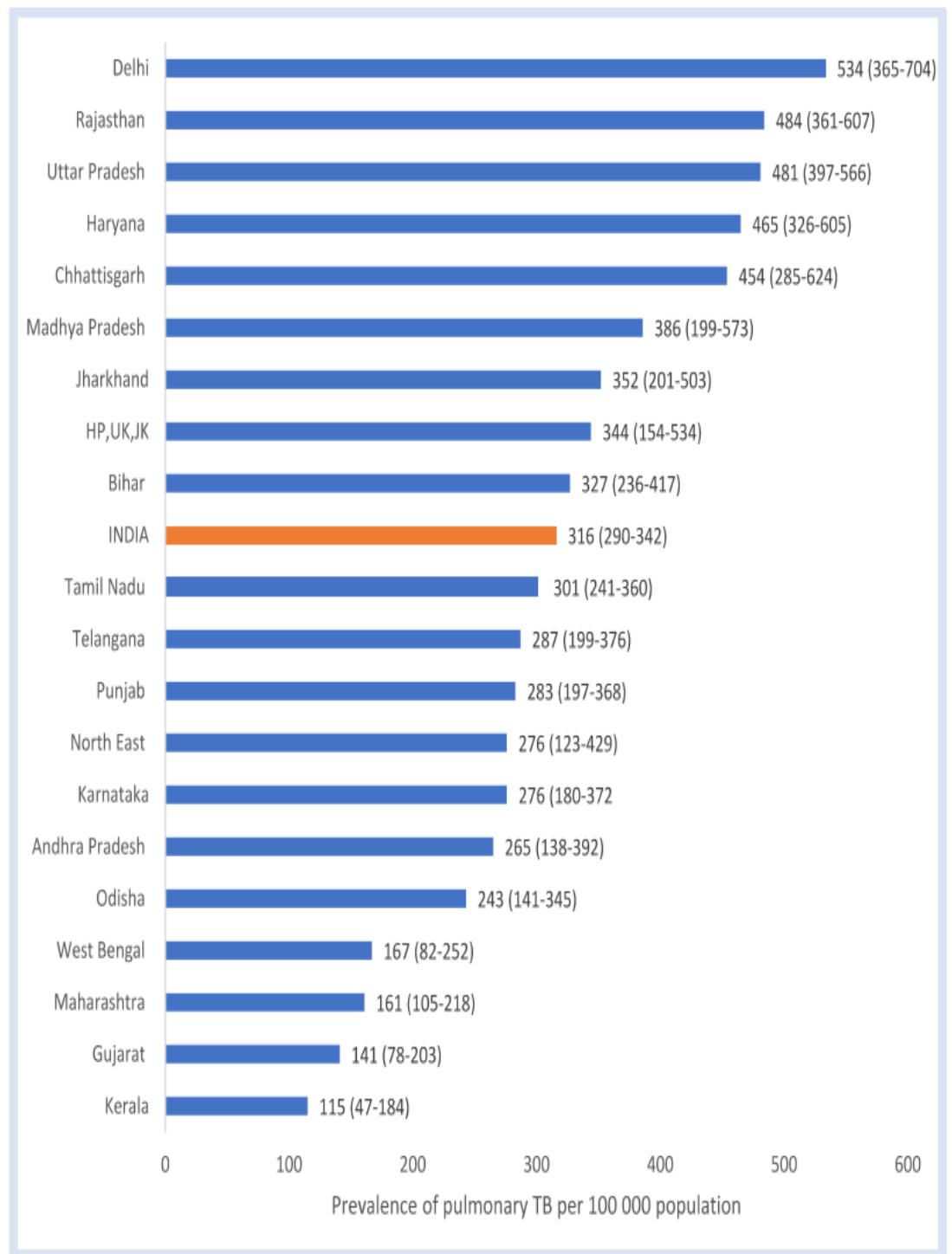


Fig. 1.3 Prevalence of microbiologically confirmed pulmonary TB among population aged ≥ 15 years in India (per 100000 population) by states [7]

The National Prevalence Survey of India [7] (2019-2021) highlight the critical challenge of TB in Delhi. It revealed a grim situation regarding tuberculosis in Delhi. The survey found a prevalence of **747 cases per 100,000 population** for all forms of TB. This is significantly higher than the national average, indicating a much heavier burden of TB in Delhi compared to other parts of

1.4 Problem statement

Globally, tuberculosis (TB) continues to be a major public health concern ,and effective management of the disease relies heavily on public awareness and the effectiveness of governmental initiatives. Despite ongoing efforts by health authorities to disseminate information and implement control measures, the level of public comprehension about TB symptoms, transmission, prevention, and governmental efforts varies widely. This disparity in awareness can hinder the success of TB control programs. Therefore, it is crucial to evaluate the current state of public knowledge and the effectiveness of government communication strategies to identify gaps and improve future initiatives.

1.5 Research questions

- What is the current level of public awareness regarding the symptoms, transmission, and prevention of tuberculosis?
- How effective are various government communication methods (traditional media, social media, community engagement programs, and digital platforms) in disseminating essential information about tuberculosis to the public?
- To what extent is the public aware of the different government initiatives aimed at combating tuberculosis?

1.6 Hypothesis

- Public Awareness Hypothesis: The level of public awareness regarding the symptoms, transmission, and prevention of tuberculosis is generally low, with significant variations based on demographic factors such as age, education, and geographic location.
- Communication Effectiveness Hypothesis: Government communication methods, particularly digital platforms and social media, are perceived as less effective in disseminating essential information about tuberculosis compared to traditional media and community engagement programs.
- Initiatives Awareness Hypothesis: Public awareness of government initiatives aimed at combating tuberculosis is limited, and this awareness is influenced by the type of communication methods used by the government.

1.7 Objectives

- To measure the public's awareness of various aspects of tuberculosis, including knowledge of symptoms, transmission, and prevention.

- To assess the clarity and effectiveness of different government communication methods, such as traditional media, social media, community engagement programs, and digital platforms, in disseminating essential information about tuberculosis to the public.
- To evaluate public awareness of the different government initiatives aimed at combating tuberculosis.

REVIEW OF LITERATURE

Author	Title	Methodology	Findings
Tim Bäckdahl , Megha Sharma	Knowledge and transmission risk awareness of tuberculosis among the pilgrims attending a religious mass gathering in India: a cross-sectional study [8]	This cross-sectional study evaluated pilgrims' knowledge about tuberculosis (TB) at the 2016 Kumbh Mela in Ujjain, India, using a pre-tested questionnaire. Data was gathered at four key locations by trained personnel using convenience sampling. The questionnaire was filled out by the participants on their own, or with help if necessary. Statistical tests comparing knowledge across demographic	94% of the 1665 pilgrims who participated in the poll recognised "Cough for more than 15 days with sputum" and 81% recognised "Blood in sputum" as indicators of tuberculosis. Just 4% of respondents were aware that TB is contagious, despite the fact that 93% understood this. Knowledge was highly influenced by education, with people who had completed at least 10 years of schooling rating

		groups were made possible by descriptive statistics and a composite knowledge-score.	higher on TB awareness
Palanivel Chinnakali, Jayalakshmy Ramakrishnan, Kavita Vasudevan, Jayanthi Gurumurthy,Ravi P. Upadhyay, Krishna C. Panigrahi1	Level of awareness about tuberculosis in urban slums: Implications for advocacy and communication strategy planning in the National program [9]	A cross-sectional study involving the community was carried out in the Puducherry district's urban slum, Vaithikuppam. Researchers evaluated participants' knowledge, attitudes, and behaviours (KAP) regarding tuberculosis (TB) using a pretested, structured interview schedule. Home to home visits were used to collect the data, and 415 households were contacted for interviews. To obtain the necessary data, an	395 households in all were interviewed. Of them, 370 (94%) had heard of tuberculosis. About TB symptoms, 82% of respondents knew that coughing is one of them. Sputum examination was only known to be a method of diagnosis by 40% of the 79% of research participants who reported having undergone any testing to diagnose tuberculosis. That being said, 84% of the participants knew of the free TB treatment offered by the

		adult member who was present and willing to participate was interviewed.	national programme.
Suresh K. Sharma, Prasuna Jelly, Ajeet S. Bhadoria, Kalpana Thakur, and Kanchan Gawande	Awareness and perception regarding tuberculosis among patients and their relatives attending a tertiary care hospital in Uttarakhand: A hospital-based exploratory survey [10]	An exploratory study measuring knowledge and views about tuberculosis was carried out among 1,000 patients and their families at AIIMS, Rishikesh. Convenience sampling was used to choose the participants; individuals who were seriously ill, mentally unstable, working as healthcare providers, or who did not speak Hindi or English were not included. A systematic 41-question interview evaluated views, knowledge, and demographics related to tuberculosis.	A total of one thousand individuals were participated in the study, with a mean age of 40.2 ± 9.6 years and 51% females. The study participants hailed from Uttarakhand, accounting for over two thirds. Research participants exhibited the highest level of knowledge (61.85%) with respect to signs and symptoms, with the element of tuberculosis prevention and treatment receiving the second-highest scores (52.7%). Just 51.5% of respondents were

			aware of its causal relationship, though. 54.8% was the result for overall knowledge. Fifty-seven percent of the participants disagreed that tuberculosis is a serious health issue .
N Sharma , R Malhotra, D K Taneja, R Saha, G K Ingle	Awareness and perception about tuberculosis in the general population of Delhi [11]	Using multistage stratified systematic sampling, a study was carried out to evaluate the awareness and perception of tuberculosis among 1008 people residing in Delhi. Information on TB knowledge and perceptions was gathered through interviews with participants using a pre-tested proforma.	99.1% of people had heard of tuberculosis (TB), and 89.2% were aware that it was contagious. The majority were aware of the proper mode of transmission (71.8%) and recognised cough as a symptom (90.1%). 98.2% of respondents said that TB could be avoided, mostly with treatment. Nonetheless, certain answers revealed enduring stigma, including

			the conviction that hospitalising patients or separating utensils is a good idea. Knowledge gaps draw attention to the need for improved public education.
Mahika Virendra Naik, Anika Anil Prabhu Parrikar, Jagadish Anil Cacodcar	Awareness of Tuberculosis and RNTCP among Interns at a Tertiary Care Hospital in Goa [12]	Ninety medical interns participated in a cross-sectional study that used a self-administered, semi-structured questionnaire with thirty questions. The 30-minute survey was performed between July and September of 2019.	Of the 23–25 year old interns, 56.6% were female. Knowledge of HIV-TB and drug-resistant TB was lacking, despite the fact that 98.8% of respondents correctly recognised the primary symptom of TB and 90% recognised the need of DOTS centres in TB control. Nobody possessed any prior RNTCP training.

Chandrashekhart T Sreeramareddy, H N Harsha Kumar , John T Arokiasamy	Prevalence of self-reported tuberculosis, knowledge about tuberculosis transmission and its determinants among adults in India: results from a nation-wide cross-sectional household survey [13]	In 2005–2006, the India Demographic and Health Survey underwent a secondary study that looked at self-reported tuberculosis, its transmission, and its curability. The dependent variable was correct knowledge of tuberculosis transmission, while the explanatory variables included affluence, education, media exposure, and the curability of tuberculosis. Determinants of accurate knowledge without misconceptions were found using univariate and multivariate analyses that were corrected for complex sampling design using national weighting factors.	According to data from a survey of 198,718 individuals (91.6%) and 109,070 households (93.5% response rate), the prevalence of self-reported tuberculosis was 4.60 per 1,000 participants and 445 per 100,000 residents. 55.5% of the 177,423 respondents who were aware of tuberculosis knew the proper mechanism of transmission, while 29.7% had no doubts. Those who knew that tuberculosis is curable, men, Muslims, Hindus, and radio listeners were more likely to have accurate knowledge. Commonly held myths included touching a patient
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		.	with tuberculosis (18.2%), sharing utensils (32.4%), and transmission through food.
Kishore Yadav Jothula, and Navya K. Naidu, Sreeharshika Dumpeti,	Awareness about tuberculosis and RNTCP services among rural people in Nalgonda district, Telangana [14]	A cross-sectional study linked to a medical college was carried out in six randomly chosen communities. A younger individual was chosen as the study subject, and homes were chosen using a systematic random sampling technique. A predesigned, pretested, semi-structured questionnaire was used to gather data from a sample of 300 people, to gauge the rural population's level of TB knowledge and to determine how much people know about RNTCP services	Of those surveyed, 79.6% were aware that bacteria are the cause of tuberculosis. 90% of participants were aware that tuberculosis mainly affects the lungs. The subjects knew that the government set up provided free treatment services (89%) and free diagnostic services (85.3%). While there is a fair amount of awareness of the symptoms, causal agent, and route of dissemination, the rural community still lacks information about the availability of DOTS centres and the services

			provided by the RNTCP.
Saxena, Shivangi; Kunwar, Rajesh; Mourya, Amit K.	A Study of the Level of Awareness about Tuberculosis among Employees of a Tertiary Care Hospital [15]	From July 2021 to December 2021, a sizable city in Uttar Pradesh, India, hosted the study. The study population comprised all hospital personnel with the exception of medical officers. The internal comparison group was supplied by the employees who weren't HCWs. Structured questionnaires given by interviewers were used to gather data; they included inquiries about the aetiology, organ involvement, route of transmission, preventive measures, and therapeutic features of tuberculosis.	128 (52.5%) of the 244 study participants were health care workers, and 116 (47.5%) were not. More than 80% of healthcare workers were accurately aware that tuberculosis (TB) was an airborne infectious disease that mostly affected the lungs, could be prevented, treated, and that all TB patients received free medication from the Indian government. HCWs and Others had overall awareness levels of 74.5% and 66.0%, respectively.

Salman Khalil, Ehtisham Ahmad, Zulfia Khan, Naheed Perwin	A study of knowledge and awareness regarding pulmonary tuberculosis in patients under treatment for tuberculosis in rural area of Aligarh-UP [16]	At the J N Medical College-affiliated Rural Health Training Centre in Jawan, 88 patients with pulmonary tuberculosis were the subjects of a cross-sectional study. Patients' awareness and knowledge of several elements of tuberculosis were assessed through structured interviews through a pre-designed questionnaire.	80.7% of the patients knew what symptoms TB caused, according to the study. Ninety-six percent of respondents were aware that tuberculosis might spread from person to person. Only 47.7% of patients, however, correctly identified an infectious organism as the disease's aetiology. Only 9.1% of the patients were aware of the BCG vaccination as a preventive intervention, compared to 37% of patients who were aware of the diagnostic procedures for tuberculosis. Of the patients, 95.5% thought that tuberculosis could be cured, however only 32.9%
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			realised that therapy takes six to nine months.
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METHODOLOGY

3.1 Study Design

The study is a Descriptive Cross – sectional study designed to assess the knowledge and awareness of tuberculosis spectrum and government initiatives among the general population of East Delhi. This also provides a snapshot of the current behaviour and attitude of the individual and community towards Tuberculosis.

The study provides a baseline information about the population of East Delhi that can be used for further subsequent studies or to assess changes overtime. This research will serve as a foundation for more advanced research designs. The detailed information obtained from this descriptive study is valuable in generating hypothesis, informing planning and policy decisions, identifying risk factors supporting public health initiatives and laying the groundwork for the future research related to Tuberculosis.

3.2 Study setting-

The study was conducted in a mall located in East Delhi. East Delhi has a high number of migrants, accounting for approximately 36.3% of its population [\[17\]](#). This high migration rate is primarily due to its proximity to Uttar Pradesh and Haryana, with many people moving to Delhi in search of better livelihood opportunities. Individuals from various states migrate to Delhi for work, contributing to the region's diverse demographic composition.

Tuberculosis (TB), being an infectious disease, poses a significant health risk in this context as the increased migration can facilitate the spread of the disease.

East Delhi is home to 10.18% of Delhi's population, which translates to approximately 1,709,345 people. The majority of the residents in East Delhi practice Hinduism, followed by Islam, reflecting the area's religious demographics.

3.3 Study population

The study population for this research included the population of East Delhi using non-probability convenience sampling, targeting both male and female participants aged 15 to 50 years old.

3.4 Study tools

- The study collected detailed information on public knowledge of tuberculosis (TB) and related government programmes to fight the illness using a Structured Questionnaire Tool, which have the following sections
- Section 1: Demographic Information
The demographic information collected in this part includes age, gender, occupation, and degree of education. The purpose of this data collection is to study population trends and guarantee that the information is representative of various demographic groups.
- Section 2: Awareness of Tuberculosis (TB)
This part evaluated the public's attitudes, beliefs, knowledge, and awareness about tuberculosis. It addressed general awareness, symptoms, modes of transmission, and defences against infection. Common misconceptions and areas of awareness were discovered by the analysis.
- Section 3: Government Communication Methods
This section examined the many channels—traditional media, social media, community programmes, digital platforms, healthcare providers, and educational institutions—through which the general public is informed about tuberculosis. The investigation established how clear and effective these communication strategies were at raising awareness of tuberculosis.
- Section 4: Awareness of Government Initiatives
This section assessed the level of public knowledge on particular government programmes, such as Nikshay Mitra, the National TB Elimination Programme, and the Nikshay Poshan Yojana. Regarding these programmes, it determined awareness levels, information sources, and any knowledge gaps.
- Overall Utility of the Questionnaire

The questionnaire directed the development of focused interventions and educational programmes, highlighted effective communication channels, and pinpointed areas deficient in awareness and information regarding tuberculosis and related government

actions. With the use of this data, stakeholders can improve public health initiatives, TB awareness campaigns, and the efficient management and eradication of tuberculosis.

3.5 Duration of study

The study was carried out from April to June 2024, over a period of three months. The length of time provided enough time to interact with the selected sample size, collect participant data, conduct interviews, and locate pertinent data sources. The three month timeframe provided conduct the research in an effective manner while aligning with all the research objectives as well as the ethical considerations. This also helped in more comprehensive understanding of the research area.

3.6 Sample size and sample technique

A total of 200 participants were included in the study. The sample size has been determined to ensure an adequate representation of the target population including from the age group of 15 years of age to 50 years of age from the population of East Delhi. Non-Probability Convenience Sampling technique was used to select the sample from East Delhi. This method allowed for the selection of participants who are available and are willing to participate in the research which in turn helped for the quick data collection.

3.7 Data collection procedure

Participants were approached in a mall in East Delhi, and informed consent was obtained from each individual before data collection began. The questionnaire with closed-ended questions was designed to be short, concise, and straightforward, avoiding technical terms and jargon to ensure clarity. Cultural sensitivity and respect were prioritized during all interactions with participants. Throughout the data collection process, the collected data was continuously monitored to ensure high quality and adherence to the study protocols. This included monitoring the number of completed surveys, looking for errors or missing information, and responding to any issues or problems that participants had.

Following completion of the questionnaire, the data was arranged and safely kept for analysis. By verifying the data twice and using descriptive statistics to analyse the outcomes, data accuracy was guaranteed.

3.8. Ethical consideration

- The sample population will be asked for their voluntary consent to participate after providing informed consent. The participants will receive an explanation of the study's goal, methodology, and advantages.
- Every precaution will be made to safeguard the participant's confidentiality and privacy.
- Any injury to the participant—physical, psychological, social, or financial—will be completely avoided or reduced.
- It shall be made sure that the participants' cultural and religious norms and values are unaffected.
- No personally identifiable information will be gathered, and participant anonymity will be preserved.
- The responsible and ethical collection, storage, and analysis of data will be guaranteed, with adherence to pertinent data protection laws and regulations
- It will be ensured that the study is free of plagiarism or research misconduct and the results are accurately represented.

RESULTS AND DISCUSSIONS

This chapter presents the findings of the study and explores the significance in context of the research objectives and existing literature. The findings are based on the data collected by the respondents of East Delhi and their knowledge and awareness regarding Tuberculosis.

Total No of respondents who participated in the study– 200.

4.1 DEMOGRAPHIC DATA

4.1.1. Gender

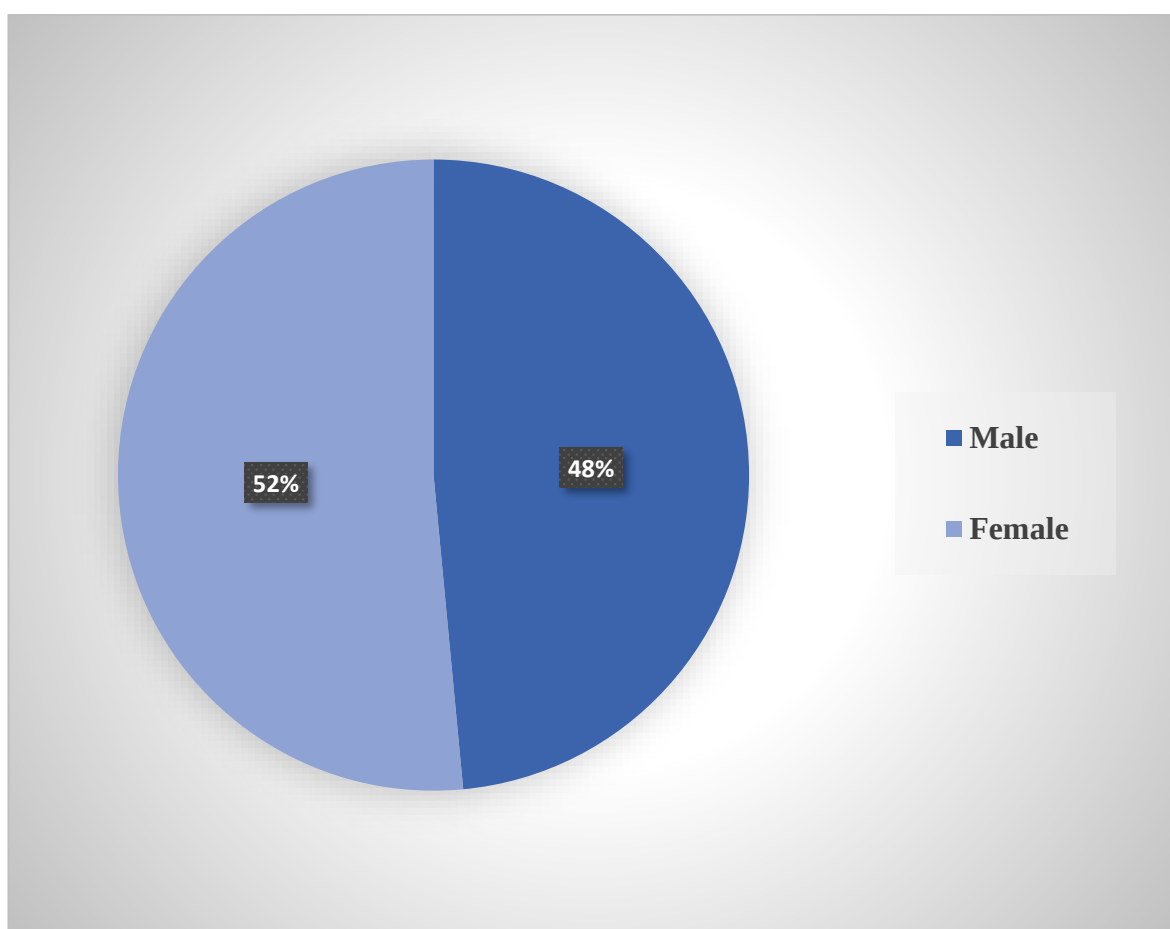


Fig 4.1.1: Gender distribution of participants

The Findings show that out of 200 respondents 103 were female whereas 97 were male. The above fig 4.1 represents 52% of respondents were female and 48% were male.

4.1.2 Age (in yrs)

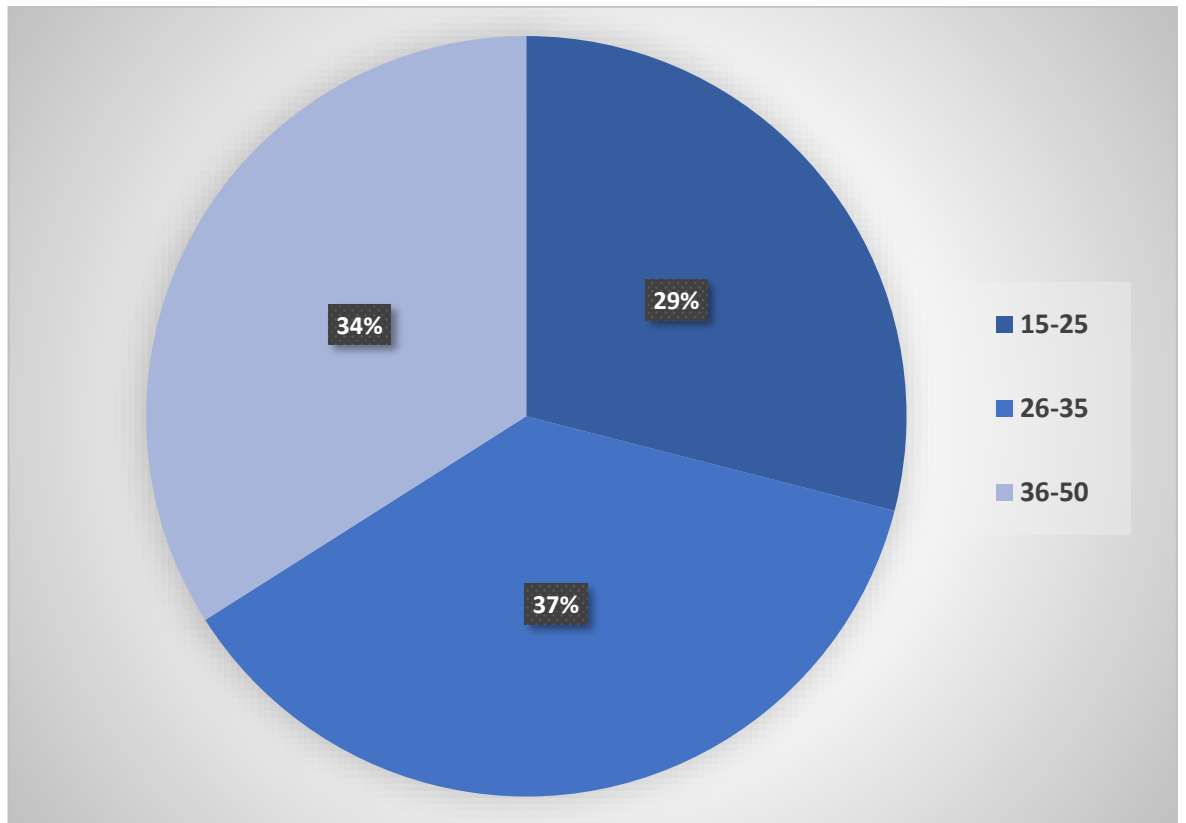


Fig.4.2 Age distribution of participants

- The above fig 4.2 represents that out of 200 respondents 29% of the respondents belong to the age category of 15-25 years of age, 37% of the respondents belong to the age category of 26-35 years of age and 34% respondents belong to the age category of 36-50 years of age.
- The study equally distributes the respondents in each of the age category hence ensuring that the population represents the entire population accurately.
- The equally distributed respondents across the age categories helped to conduct in-depth analysis of age related factors and their impact on the research variables.

4.1.3 Education

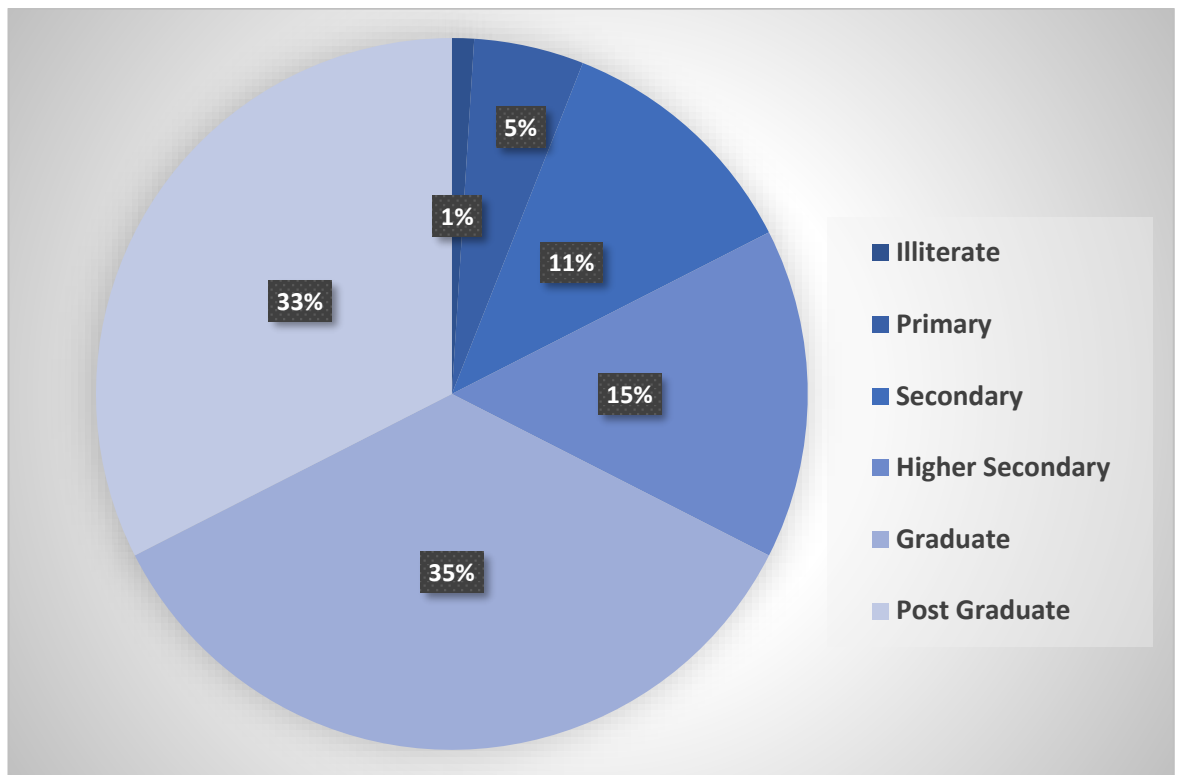


Fig. 4.3 Education of respondents

- The above Fig 4.3 reveals that the majority of respondents, accounting for 68%, fall into the graduate and postgraduate category. Out of 200 respondents, 30 belong to the higher secondary category. The remaining 16% are distributed among the secondary, primary, and illiterate categories.
- This result provides a basic understanding of the educational distribution within the population which can further help in designing targeted interventions

4.1.4 Occupation

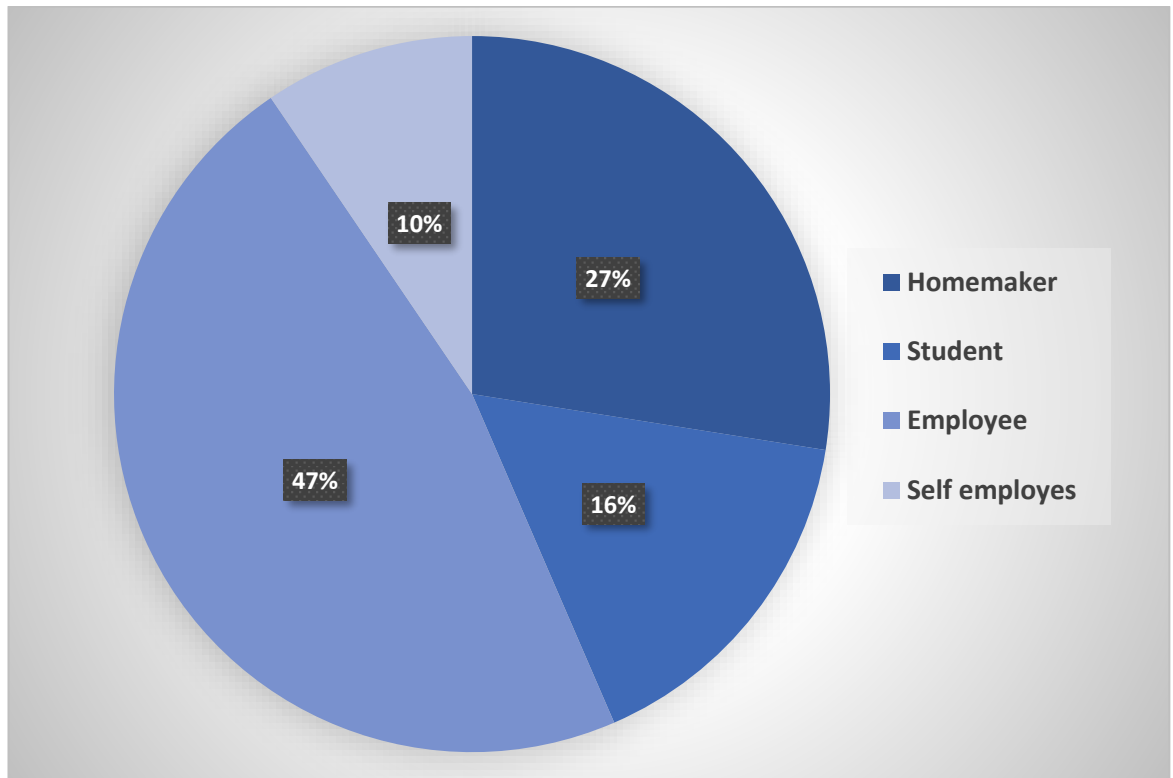


Fig. 4.4 Occupation of respondents

The above Fig 4.4 shows that almost half of the respondents (47%) are employed by someone. Among the 200 respondents, 32 are students, 10% are self-employed, and 27% are homemakers. This result provides a snapshot of the occupational distribution within the study population which can help to understand the composition of occupation

4.2 AWARENESS ON TUBERCULOSIS SPECTRUM

4.2.1 Percentage of people who have heard about tuberculosis.

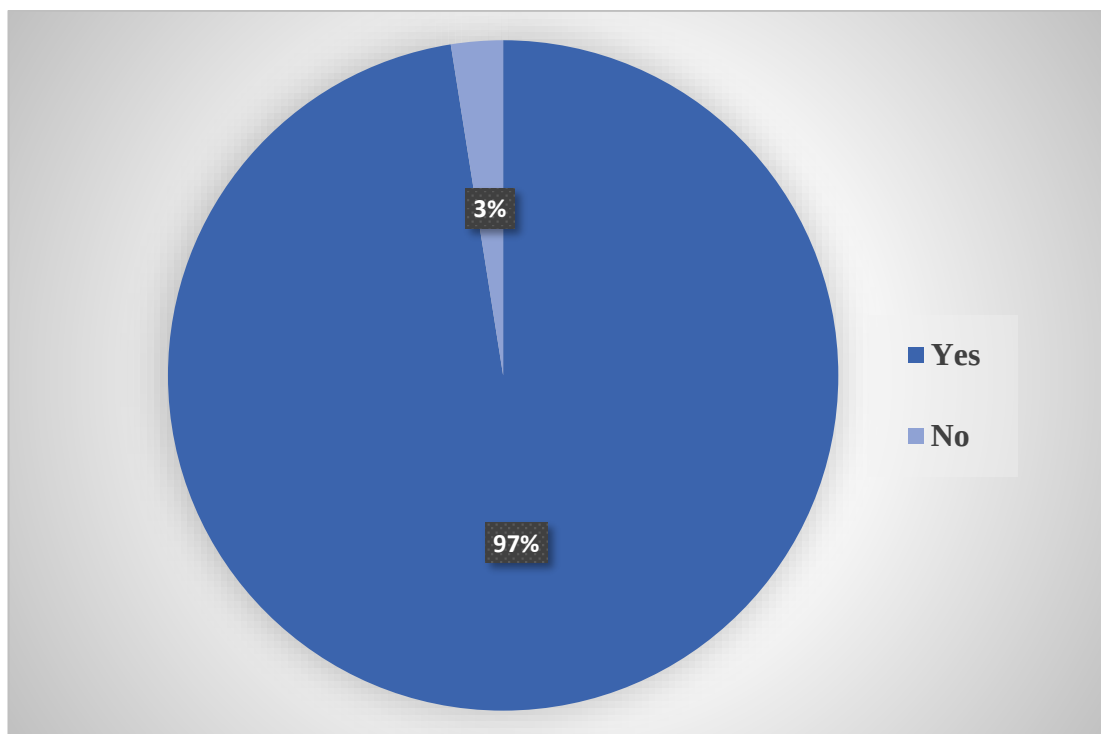


Fig 4.2.1- Percentage of people who have heard about TB

The pie chart illustrates an overwhelming majority that is- 195 out of 200 individuals, or 97%, are aware of tuberculosis. This high level of awareness is particularly significant in the context of the increasing prevalence of tuberculosis. India, which unfortunately leads the world in tuberculosis-related deaths, has been intensifying its efforts to combat this disease through numerous government initiatives.

The fact that such a large proportion of the population is informed about tuberculosis suggests that these measures are having a positive impact. Awareness is a crucial first step in the fight against tuberculosis, as it encourages people to seek timely medical help, reduces the stigma associated with the disease, and promotes healthier behaviours. This widespread knowledge among the public indicates that the government's efforts to disseminate information and educate citizens about tuberculosis are effective.

4.2.2 Awareness level on TB symptoms

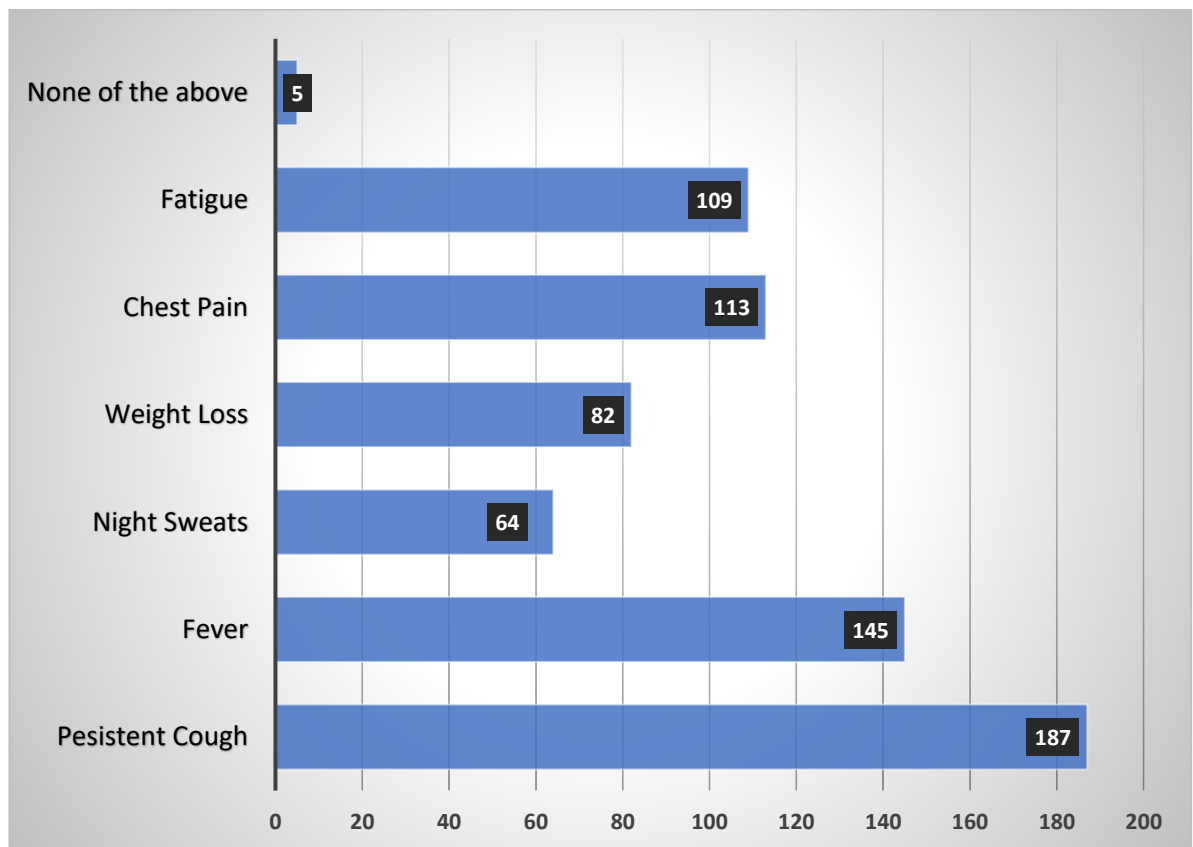


Fig 4.2.2 Awareness about different TB symptoms among respondents

The results indicate varying levels of awareness regarding the symptoms of tuberculosis (TB) within the population surveyed. Persistent cough emerges as the most recognized symptom, with a significant majority (93.5%) of respondents identifying it correctly. This high awareness might be attributed to the fact that persistent cough is widely recognized as a hallmark symptom of TB and is frequently emphasized in public health campaigns and educational materials. Fever, though commonly associated with infections, is identified by 67.6% of respondents, indicating a moderate level of awareness. Following persistent cough and fever, chest pain and fatigue almost have the same level of awareness among respondents that is 56.5% and 54.5% respectively, indicating that roughly half of the respondents are aware of these symptoms.

However, there is a notable discrepancy in awareness regarding other symptoms. Night sweats and weight loss are recognized by only 32% and 41% of respondents, respectively. This discrepancy could be due to several factors, including the variability in how these symptoms manifest in individuals, their overlap with symptoms of other

illnesses, and the lack of emphasis on these symptoms in public health messaging. Only 5 out of 200 respondents were unaware of any tuberculosis symptoms

4.2.3 Awareness about TB Transmission

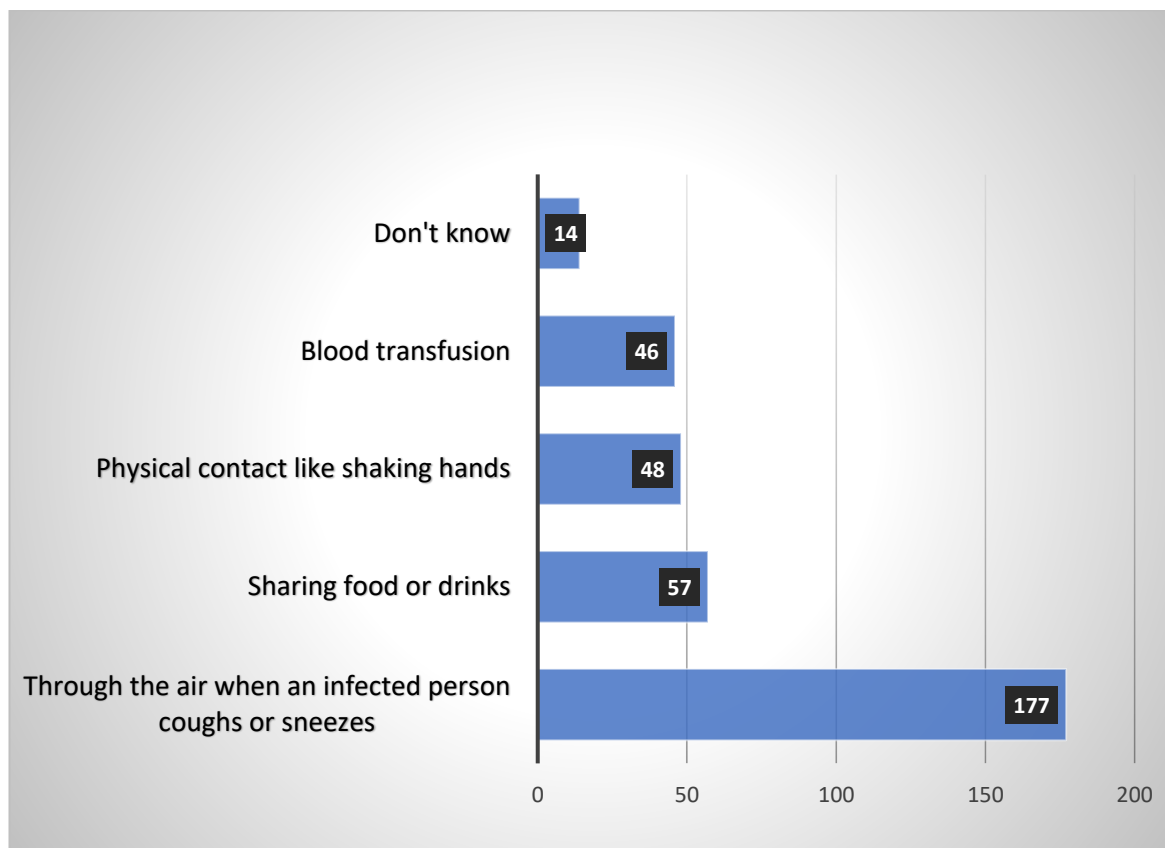


Fig.4.2.3 Awareness about TB transmission

The results indicate varying levels of awareness regarding the transmission modes of tuberculosis (TB) within the population surveyed. The majority of respondents, 88.5%, correctly identified that TB is primarily transmitted through the air when an infected person coughs or sneezes. This high awareness aligns with the well-established understanding that TB is an airborne disease. The common misconception about the transmission were “Sharing food”(28.5%) and “Touching a person having TB”(24%). Although sharing food or drinks could potentially lead to transmission if an infected individual were to cough or sneeze near the food or drink, leading to ingestion of respiratory droplets containing the TB bacteria , but to a lesser extent compared to airborne exposure. . Similarly, although TB is primarily spread through the air, close and prolonged physical contact with an infected individual could increase the risk of transmission.

Interestingly, a significant portion of respondents, 23%, incorrectly identified blood transfusion as a mode of TB transmission. This misconception likely arises from a lack of understanding of TB's transmission dynamics, as TB bacteria primarily affect the lungs and respiratory system and are not typically transmitted through blood transfusion. This finding underscores the need for targeted education to dispel myths and misconceptions surrounding TB transmission.

4.2.4 Awareness about TB prevention

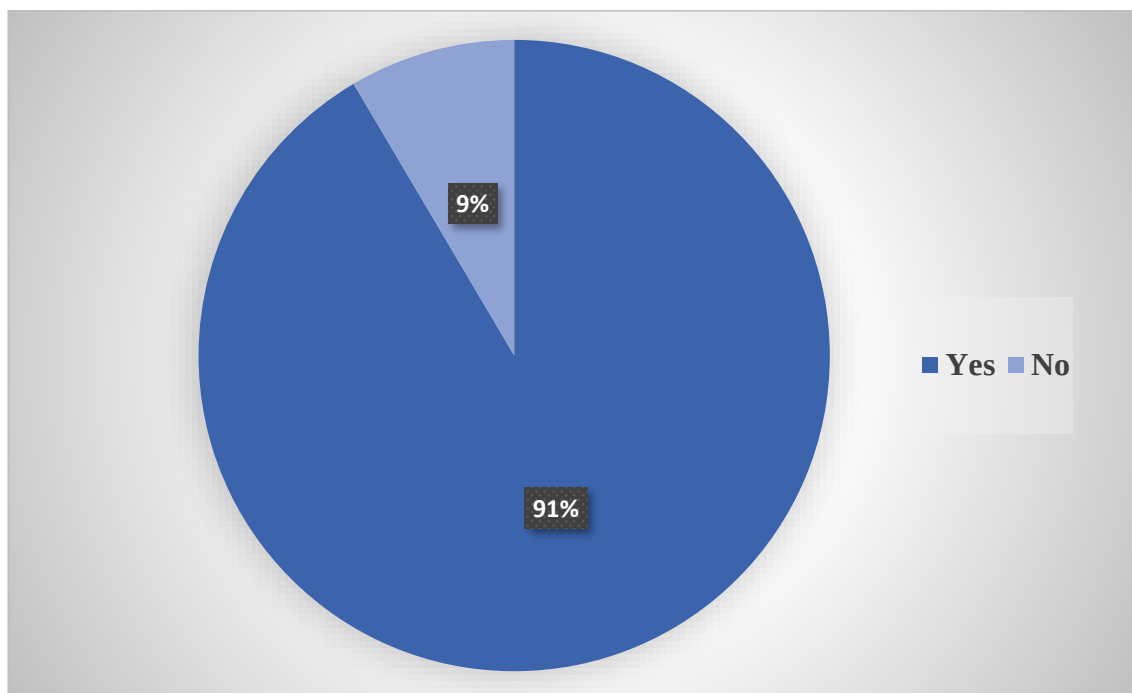


Fig4.2.4 Awareness about TB prevention

The majority of respondents (91%) correctly identified that tuberculosis (TB) can be prevented. However, a small percentage (9%) responded "No" to this question, indicating a misunderstanding or lack of awareness about TB prevention measures, suggesting a need for improved education and awareness regarding TB prevention strategies within the population surveyed. Overall, the results indicate generally good awareness of TB prevention, but there is room for improvement in addressing misconceptions and increasing knowledge about preventive measures.

4.2.5 Awareness on different modes of TB prevention

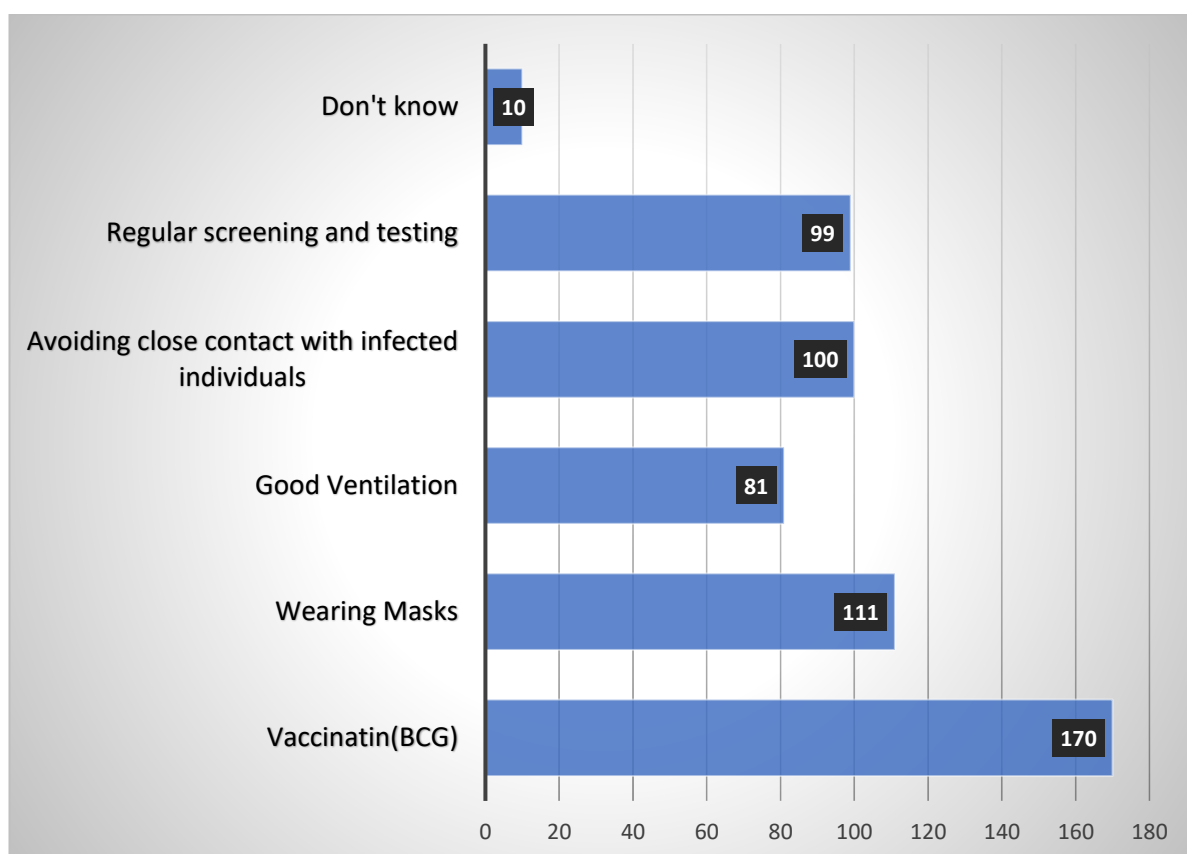


Fig4.2.5 Awareness on different modes of TB prevention

The majority of respondents, 85%, correctly identified vaccinations as a preventive measure against TB. Additionally, a significant proportion of respondents recognized other preventive measures. Fifty six percent (56%) of respondents selected wearing masks as a preventive measure. Around 50% identified avoiding close contact with infected persons and regular screening and testing as a preventive strategy, reflecting an understanding of the contagious nature of TB and the importance of regular screening, 41% recognized the importance of good ventilation in preventing TB transmission, which helps to reduce the concentration of infectious droplets in enclosed spaces.

4.2.6 Awareness about DOTS Centres

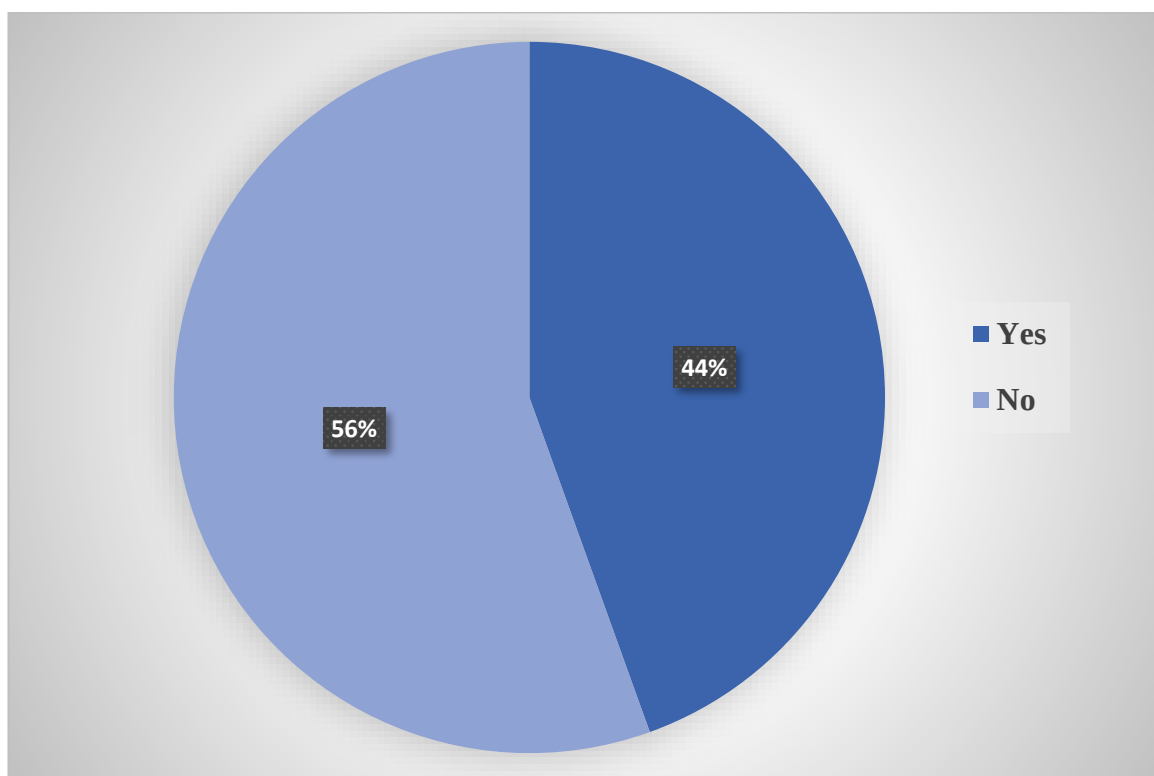


Fig.4.2.6 Awareness about DO TS Centres

The survey results paint a concerning picture. While nearly half (44%) of respondents are aware of DOTS centres, a much larger portion (56%) remains unaware. This lack of awareness likely translates to a significant gap in knowledge about TB treatment itself. DOTS centres are the cornerstone of effective TB treatment in many regions, providing supervised medication and ensuring completion of the full course. This demonstrates the critical need for focused outreach initiatives and public education efforts to close this knowledge gap. By educating the public about DOTS facilities, we may enable TB patients to access the finest care available and battle this treatable and avoidable illness.

4.3 COMMUNICATION STRATEGY

4.3.1 Sources from which people are receiving information about TB

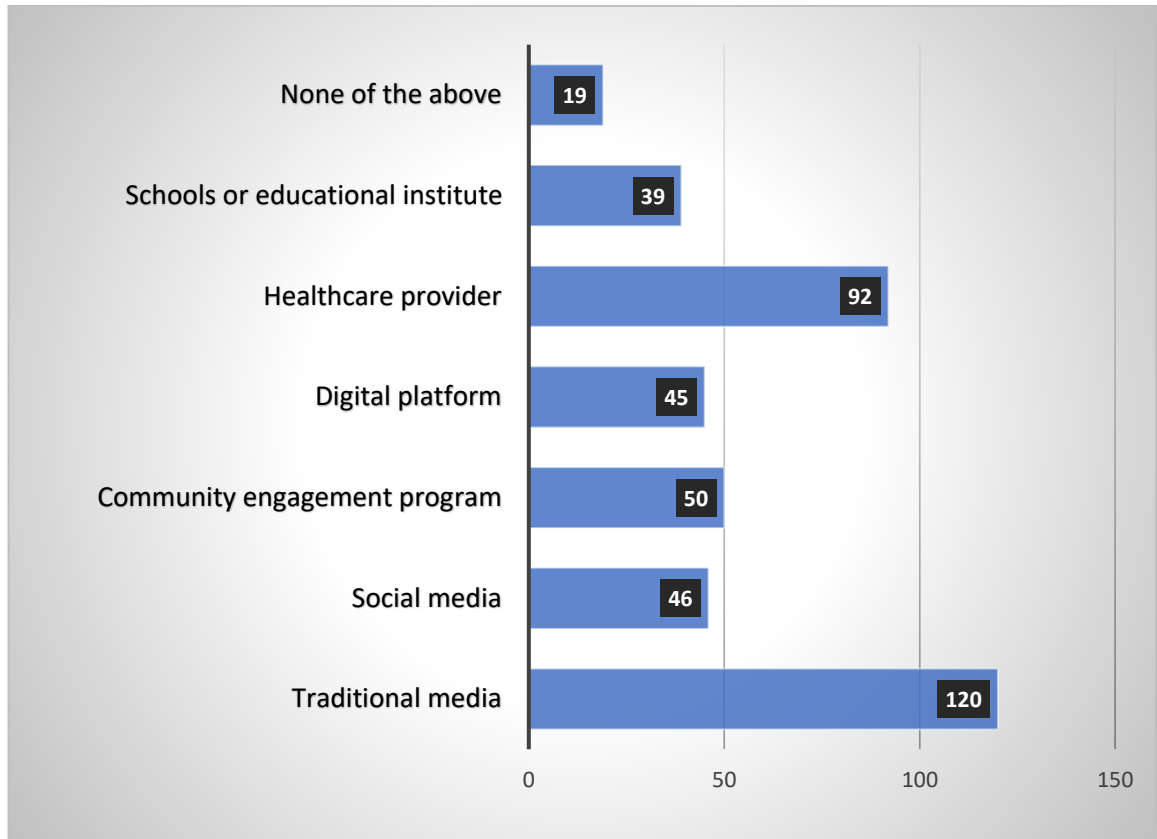


Fig.4.3.1 Sources from which people receive information about TB

- Traditional media- TV, Radio, newspaper
- Social media- Facebook , Twitter, Instagram
- Community engagement program-Workshops, Seminars
- Digital platform-Websites, mobile apps

The graph's data offers insightful information on how individuals find information about tuberculosis and highlights the efficacy of various channels in raising awareness. As the principal information medium, traditional media is cited by 60% of respondents, making it a prominent source. This demonstrates the continued impact of print, radio, and television media in disseminating health-related messages to a broad audience. Since 92 respondents depend on healthcare experts for information, it is evident that these professionals are trustworthy and easily accessible when it comes to teaching the public about tuberculosis.

Community engagement programs, which reach 25% respondents, demonstrate the importance of localized efforts in fostering awareness through events and interactive sessions. Social media and digital platforms, utilized by 45 respondents, indicate a growing reliance on online sources, particularly among younger demographics. Finally, educational institutes, reaching 39 respondents, emphasize the potential of integrating health education into school curricula to enhance awareness from a young age. This comprehensive approach, spanning traditional media, healthcare settings, community initiatives, digital platforms, and educational institutions, underscores the importance of diverse strategies in effectively disseminating tuberculosis information to the public.

4.3.2 Source with most clarity

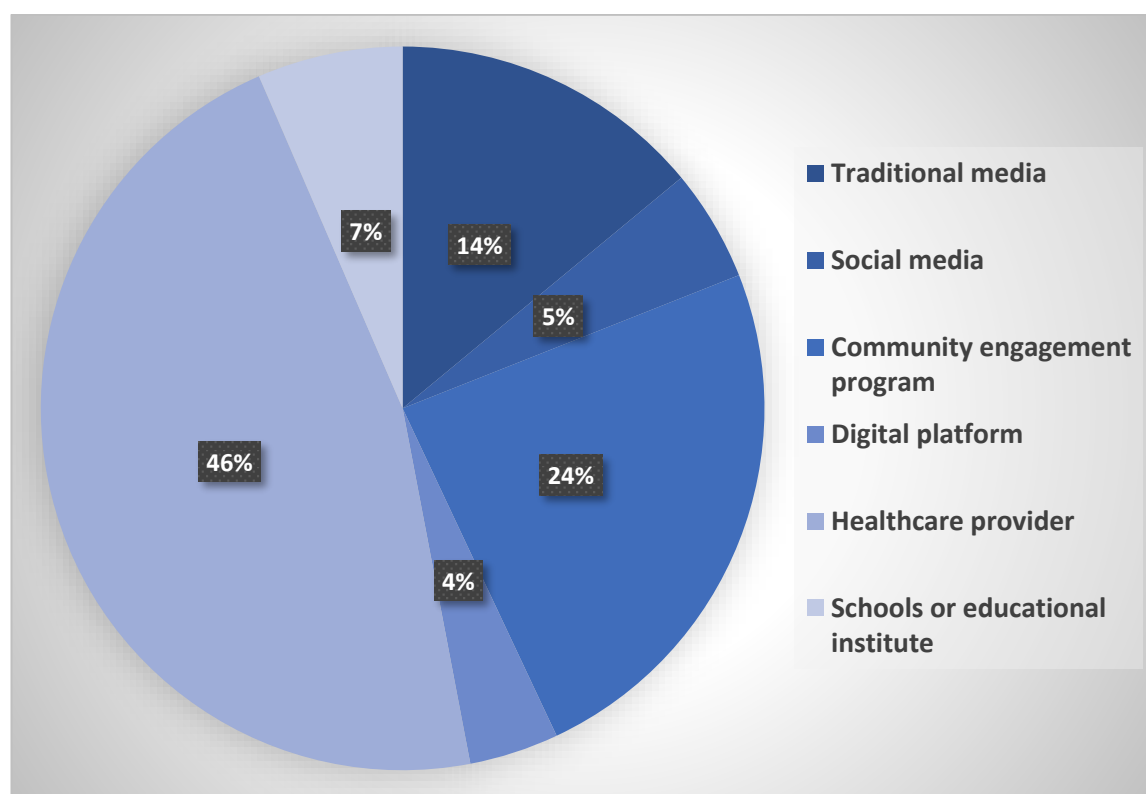


Fig.4.3.2 Communication strategy with most clarity

The data reveals that healthcare providers are the most significant source of TB information, with 93 individuals, that is almost 50% relying on them. This underscores the critical role that healthcare providers play in disseminating health information. People tend to trust healthcare providers due to the face-to-face nature of interactions, which allows for a two-way conversation where individuals can ask questions and

receive personalized responses. This interpersonal communication is crucial for effective health education and combating misinformation.

Community engagement programs are the second most comprehensive source, with 48(24%) individuals relying on this source . These programs facilitate direct communication with community members, making the information more relatable and impactful. Engaging communities in this manner helps in addressing specific local concerns and encourages community involvement in TB control efforts.

Face-to-face communication through healthcare providers and community engagement programs ensures accurate and trustworthy information dissemination. Traditional media can support these efforts by reaching a broader audience and reinforcing key messages.

4.3.3 Source with least clarity

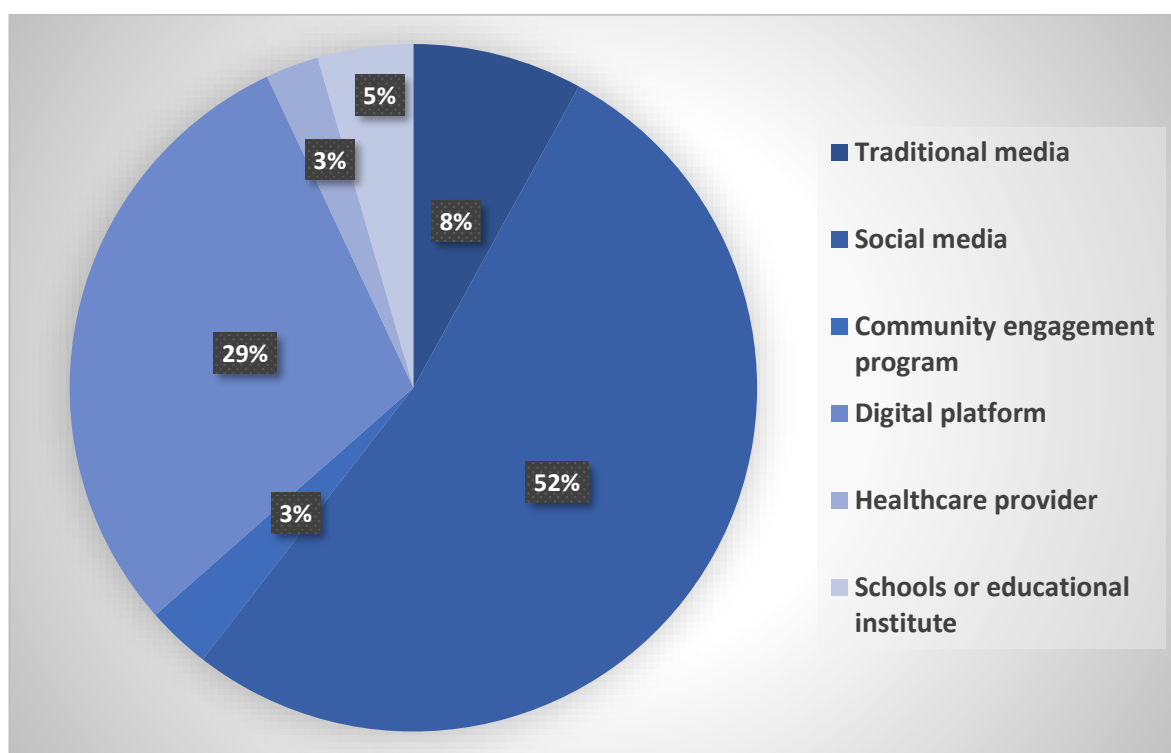


Fig.4.3.3 Communication source with least clarity

According to the graph, 105 individuals identify social media as the platform with the least clarity regarding tuberculosis information. This is attributed to the prevalence of myths and misconceptions on social media, which often confuse individuals about what information to trust. In contrast, 29% of respondents believe that digital platforms,

ranked second in terms of clarity, primarily provide one-way information without adequate opportunities for people to seek clarifications or ask questions. This highlights the challenges faced in effectively communicating accurate health information through online channels.

While social media and digital platforms are popular, enhancing media literacy is essential to combat misinformation. Public health efforts should leverage the reliability of healthcare providers and the reach of traditional media. A combination of these sources, along with targeted community and educational programs, can improve TB awareness and control.

4.4 AWARENESS ABOUT GOVERNMENT INITIATIVES

4.4.1 Awareness on Government Initiatives

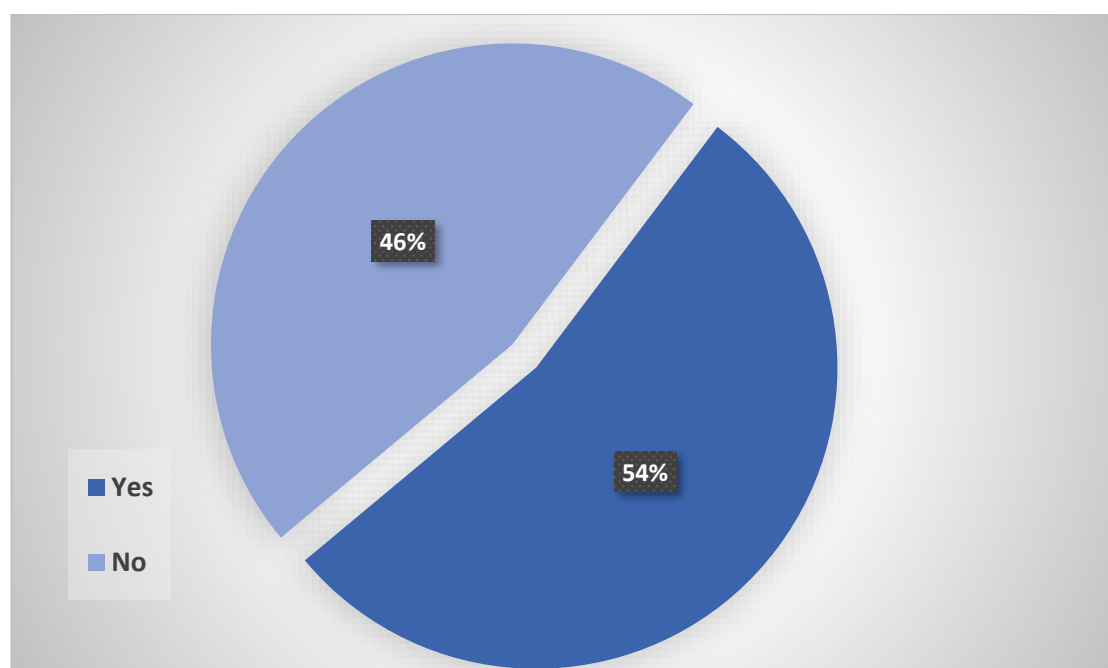


Fig. 4.4.1 Percentage of people who have heard about the government initiatives on TB

Out of 200 respondents surveyed, 110 individuals are aware of the government initiatives on tuberculosis, while 46% remain unaware. This data suggests a mixed level of awareness among the population regarding governmental efforts to combat tuberculosis. The significant number of respondents who are unaware underscores potential gaps in communication or outreach strategies by health authorities. To close these disparities and increase public participation in disease prevention and control actions, awareness campaigns should be strengthened and information about tuberculosis initiatives should be more easily accessible.

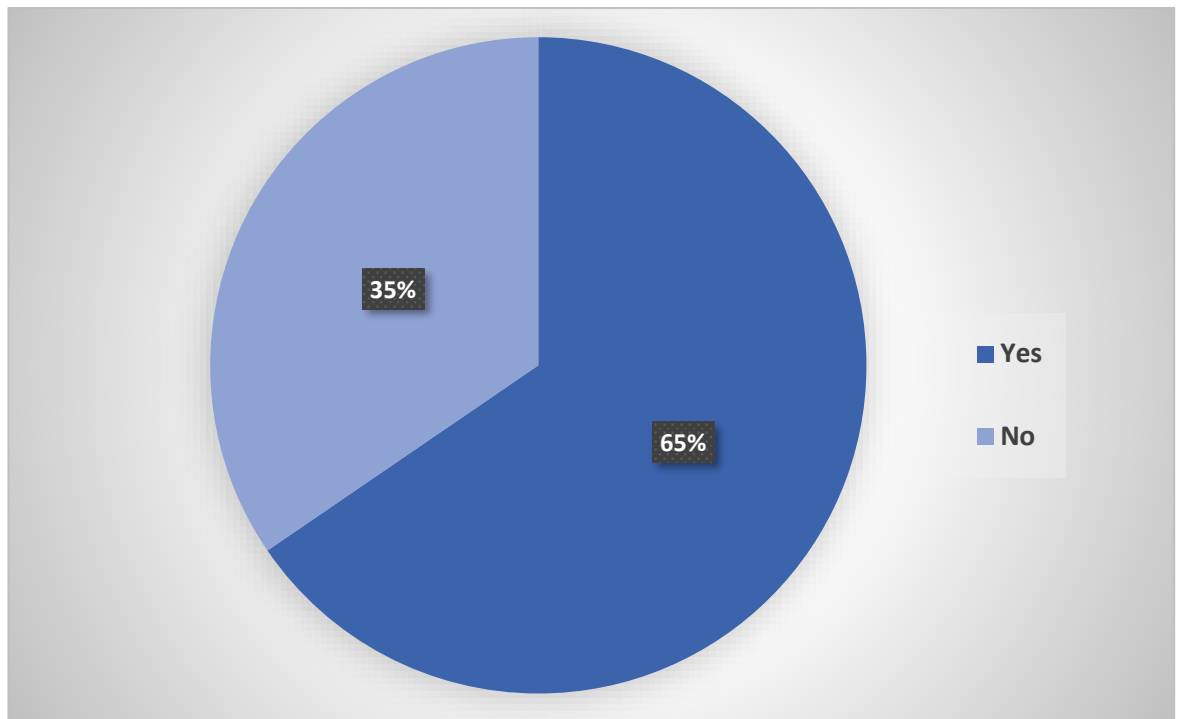


Fig.4.4.2 Percentage of people who are aware of the free diagnostics and treatment given by government.

Just 65% of respondents are aware that the National TB Elimination Programme offers free diagnosis and treatment, despite the fact that 110 respondents are aware of numerous government initiatives. This disparity indicates that in order to guarantee that people are completely aware of the resources at their disposal, more focused and efficient communication techniques are required.

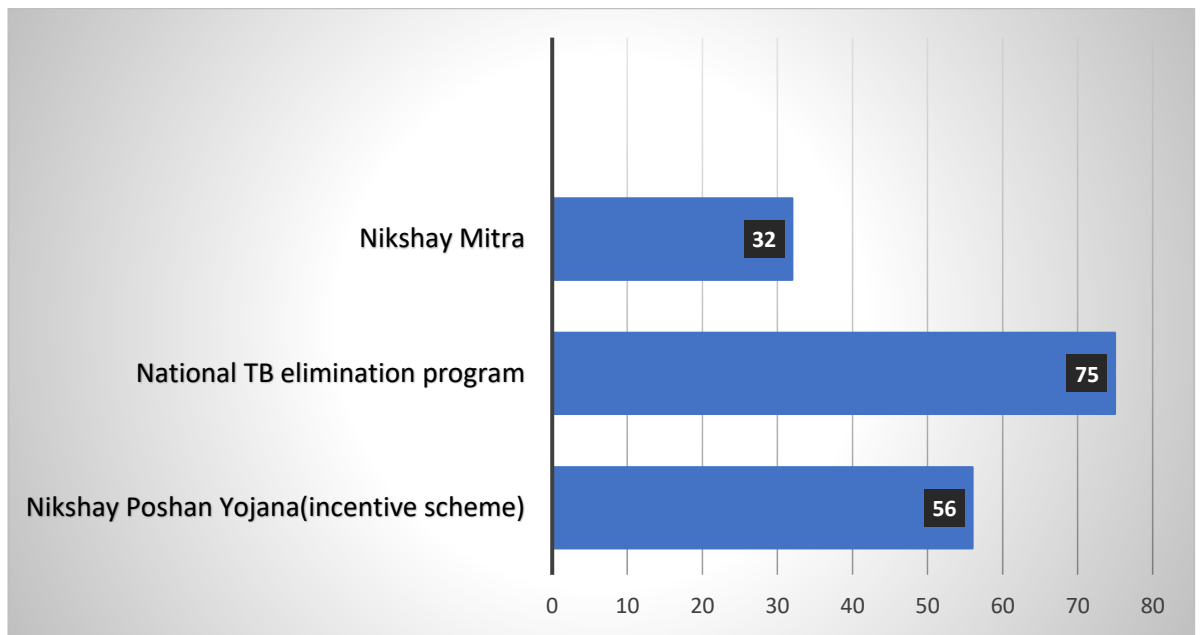


Fig.4.4.3 Awareness about different initiatives

Notably, too little is known about other major projects, such as the Nikshay Poshan Yojana and the Nikshay Mitra initiative. Of those surveyed, just thirty-two were aware of the Nikshay Mitra project and fifty-six knew about the Nikshay Poshan Yojana, which provides a ₹500 nutritional support incentive. These poor levels of understanding imply that many patients would not be able to benefit from these crucial services due to a lack of information.

The discussion highlights the need for more outreach and educational measures to close these knowledge gaps. Making sure the public, especially those affected by tuberculosis, is aware of all aspects of government support can lead to improved health outcomes and more effective use of available resources. In the end, promoting an informed and involved community can support the larger goal of tuberculosis elimination.

5. CONCLUSION.

In summary, successful public health campaigns and educational initiatives have played a significant role in the remarkable level of public knowledge about tuberculosis (TB). But myths about how it spreads—like the false notion that it may transmit through handshakes or blood transfusions, for example—remain, highlighting the need for targeted education and outreach initiatives.

Furthermore, there is still a lack of broad public awareness regarding treatment choices, especially DOTS centres, which raises questions regarding the effectiveness of government communication initiatives.

Healthcare providers and community engagement programs are crucial as trusted sources of information. These methods involve face-to-face interaction, allowing for a two-way conversation where individuals can ask questions and clarify doubts, emphasizing the importance of ongoing training and support for medical professionals in tuberculosis education. People are not trusting information from social media as there is an overflow of information, making it difficult to discern what is reliable.

To enhance TB awareness and combat misinformation, improving digital literacy and correcting misconceptions are vital. Intensifying outreach programs and strengthening government initiatives are necessary to reach more uninformed segments of the population and achieve broader goals for TB control and prevention.

By leveraging data from surveys, stakeholders can design targeted interventions and educational programs that address specific knowledge gaps, ultimately improving community-wide TB awareness and prevention efforts.

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QUESTIONNAIRE

Section 1- Demographic Information

1.	AGE	i. 15-25 ii. 26-35 iii. 36-50
2.	GENDER	a. Male b. Female c. Others
3.	OCCUPATION	a. Homemaker b. Student c. Employee d. Self-employee
4.	EDUCATION	a. Illiterate b. Primary c. Secondary d. Higher Secondary e. Graduate f. Post Graduate

Section 2- Awareness about TB Spectrum

1.	Have you heard of tuberculosis (TB)?	a. Yes b. No
2.	What are the common symptoms of TB? (Select all that apply)	a. Persistent cough b. Fever c. Night sweats d. Weight loss e. Fatigue f. Chest pain g. None of the above
3.	How is TB transmitted? (Select all that apply)	a. Through the air when an infected person coughs or sneezes b. Sharing food or drinks c. Physical contact like shaking hands d. Blood transfusion e. Don't know
4.	Can TB be prevented?	a. Yes b. No
5.	If yes, how can TB be prevented? (Select all that apply)	a. Vaccination (BCG) b. Wearing masks

		c. Good ventilation d. Avoiding close contact with infected individuals e. Regular screening and testing f. Don't know
6.	Have you heard about DOTS centres?	a. Yes b. No

Section 3: Government Communication Methods

1.	Have you received any information about TB from the following sources? (Select all that apply)	a. Traditional media (TV, radio, newspapers) b. Social media (Facebook, Twitter, Instagram) c. Community engagement programs (workshops, seminars) d. Digital platforms (websites, mobile apps) e. Healthcare providers f. Schools or educational institutions g. None of the above
2.	Which of the following platform have the most clarity?	a. Traditional media (TV, radio, newspapers) b. Social media (Facebook, Twitter, Instagram) c. Community engagement programs (workshops, seminars) d. Digital platforms (websites, mobile apps) e. Healthcare providers f. Schools or educational institutions g. None of the above
3.	Which of the following platform have the least clarity?	a. Traditional media (TV, radio, newspapers) b. Social media (Facebook, Twitter, Instagram) c. Community engagement programs (workshops, seminars) d. Digital platforms (websites, mobile apps) e. Healthcare providers

		f. Schools or educational institutions g. None of the above
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Section 4: Awareness of Government Initiatives

1.	Are you aware of any government initiatives to combat TB?	a. Yes b. No
2.	If yes, are you aware about the free diagnostics and treatment given by the government	a. Yes b. No
3.	If yes, which initiatives are you aware of? (Select all that apply)	a. Nikshay Poshan Yojana (incentive scheme) b. National Tb elimination program c. Nikshay Mitra d. Other