The Union International Union Against Tuberculosis and Lung Disease

ASHOKA UNIVERSITY

CSBC Centre for Social and Behaviour Change

ADDRESSING BEHAVIOURAL BARRIERS TO DIAGNOSING TUBERCULOSIS IN INDIA

Survey Insights from Five States

Supported by
Gates Foundation

The Union International Union Against Tuberculosis and Lung Disease

ASHOKA UNIVERSITY | CSBC Centre for Social and Behaviour Change

Addressing Behavioural Barriers to Diagnosing Tuberculosis in India:

Survey Insights from Five States

2025

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Addressing Behavioural Barriers to Diagnosing Tuberculosis in India: Survey Insights from Five States

Executive Summary

Tuberculosis (TB) remains a critical public health challenge in India, accounting for nearly 26% of the global TB burden (World Health Organization [WHO], 2024). Despite advancements in testing and treatment, barriers to seeking care for complaints that are symptoms of TB persist (Helfinstein et al., 2020). This report outlines key findings from a Knowledge-Attitudes-Practices (KAP) survey commissioned by the International Union Against Tuberculosis and Lung Disease (The Union) with the support of the Gates Foundation, and conducted with technical support from the Centre for Social and Behaviour Change (CSBC, Ashoka University) across five states - Haryana, Himachal Pradesh, Madhya Pradesh, Rajasthan, and Uttar Pradesh. The project aimed to identify the underlying demand-side behavioural and perceptual barriers to diagnosing TB.

Objectives:

The study aimed to understand why individuals delay or avoid visiting a doctor for advice and testing when experiencing symptoms of pulmonary TB. It focused on the role of knowledge gaps, risk perception, avoidance of doctors or health facilities, stigma, and behavioural factors such as time preference and risk aversion. It also tested whether behaviourally informed messages could encourage earlier care-seeking for symptoms of TB.

Data:

The survey, completed in October 2024, covered **4,116** respondents, sampled to ensure diversity across location (urban/rural), sex, income, and age. The survey features a combination of hypothetical and experience-based questions. Additionally, a survey-based messaging experiment examined the impact of different messages on intentions to seek diagnostic care. A separate set of questions, administered to a sub-sample with a persistent cough during data collection, provided deeper insights into the actual uptake of diagnostic services.

Findings:

1. ***Large Intention-Action Gap in Care-Seeking:*** While **92%** of respondents reported willingness to consult a doctor for persistent symptoms, only **68%** of those with a two-week cough had in fact sought medical advice. Among the coughing sub-sample, low salience of cough as a serious symptom was a major reason for delay.
2. ***High Awareness but Gaps in Specific Knowledge, Particularly around Transmission:*** Although **99.6%** of respondents were aware of TB, **25%** did not think of it as a common disease in India. Only **4%** correctly identified a cough lasting over two weeks as a key symptom, though **86%** mentioned any cough could be a symptom of TB. While **65%** understood airborne transmission, misconceptions about TB spreading through sharing food and utensils with a person sick with TB remain common. Less educated respondents were more likely to believe that TB spreads through sharing food and utensils.
3. ***Risk Perception:*** While **89%** of people believed anyone can get TB, more than half felt they themselves were not at risk, revealing a clear gap between acknowledging general risk and perceiving personal vulnerability.
4. ***High Levels of Stigma Persist but May Not Directly Hinder Testing:*** A majority fears disclosure of TB diagnosis, views it as bad luck, and attributes blame to patients. Although stigma around TB was acknowledged, it was not mentioned as a primary reason for avoiding healthcare. Instead, as observed in the coughing sub-sample, people avoided seeing a doctor because they did not view their symptoms as serious and were worried about the cost and time involved.
5. ***People Recommend Government Doctors for Treatment with the Least Hassle:*** When asked where someone could seek treatment with the least hassle, **74%** recommended government doctors (for any sickness, not TB specifically). Recommendations of government services as least hassle are more common among rural respondents, and there was no clear association with income. Endorsement is somewhat higher among TB-affected households and lower among women.
6. ***Behavioural Messaging Insights:*** The experiment tested seven different messages designed to encourage timely care-seeking. Messaging that invoked a champion, by framing TB as a disease that can affect anyone, including Amitabh Bachchan, was associated with stronger intentions to seek care. This effect was observed in reported intentions, and needs further testing in real-world settings.

Takeaways for advocacy and messaging:

This comprehensive analysis provides actionable insights for policymakers and health communicators, emphasising the need for targeted approaches to improve TB testing and reduce its burden in India.

Make persistent coughs salient and actionable

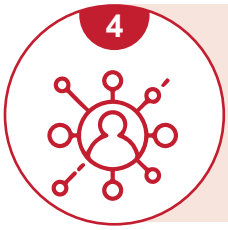
Communication should convince people that a cough lasting two weeks or more is serious and requires a visit to a qualified doctor. Among the symptoms of pulmonary TB, a persistent cough is the most common, visible, and easily recognisable early indicator of active infection. Making it the lead message in public communications has practical value. Early diagnosis is essential to identify the cause, including ruling out pulmonary TB, and begin timely treatment.

Highlight that anyone can get TB

Highlight that anyone can get TB, and a persistent cough should never be dismissed. Stress the benefits of early action, such as simpler treatment and protecting family members.

Use clear, memorable messages from public figures

Use clear, memorable messages from public figures who have recovered from TB. Appeals to responsibility and emotions may be more effective than increasing the salience of TB prevalence.



Invest in outreach for low-literacy audiences

Invest in outreach for low-literacy audiences through radio, ASHA workers, and village health platforms. Tailor the delivery but keep the messaging consistent.

Do not assume stigma reduction alone will increase care-seeking

There is no conclusive evidence from the survey that anti-stigma campaigns will directly improve care-seeking rates, although they serve other important goals such as preserving livelihoods or promoting social justice. Reduce TB-related stigma and social isolation by correcting misconceptions about transmission: clarify that TB spreads through air, not through sharing utensils or surfaces.

1. Introduction

Understanding how to communicate the importance of regular testing for maintaining good health is critical for policymaking worldwide. This is particularly important in low and middle-income countries, where high disease burdens can undermine human capital formation and, in turn, limit economic opportunities. Tuberculosis (TB) is one of India's long-standing health challenges. It affects **179** per **1,00,000** population (National TB Elimination Programme, 2024) and accounts for nearly **26%** of the global TB burden (World Health Organization, 2024).

According to India's National TB Prevalence survey, **64%** of those who display symptoms of TB do not seek healthcare (Indian Council of Medical Research, 2022). The World Health Organization (2022) estimates that **18%** of people who developed TB worldwide in 2020 were undiagnosed or unreported. In 2023, India accounted for **16%** of the global gap between estimated and newly reported TB cases. (WHO, 2024).

As per the latest round of the National Family Health Survey (2019–21), self-reported incidence of pulmonary TB is lower among women than among men, and higher in rural areas compared to urban areas. The survey also reveals that while over **90%** of respondents have heard of TB and nearly **70%** correctly identify it as an airborne disease, misconceptions about its transmission persist. Specifically, **65%** of respondents believe TB can spread through sharing utensils, touching an infected person, food, sexual contact, or mosquito bites. Additionally, nearly **20%** of respondents feel that a TB diagnosis within the family should be kept secret, suggesting ongoing stigma, discrimination, and avoidance related to the disease.

This report draws on an individual-level survey across five high-burden states in India (Haryana, Himachal Pradesh, Madhya Pradesh, Rajasthan, and Uttar Pradesh) to examine KAPs around TB and identify behavioural barriers to seeking care for TB symptoms. The survey was conducted on a general population sample, ensuring representation across urban and rural areas. Although other available studies among the general population have focused on knowledge about TB transmission (Bäckdahl & Sharma, 2021; Chinnakali et al., 2013; Dumpeti et al., 2020; Shashikantha & Sheethal, 2022; Sreeramareddy et al., 2013; Thapa et al., 2016; Kulkarni et al.,2014; Muniyandi et al., 2015; Samal & Dehury, 2017) or stigma and discrimination (Sagili et al., 2016), to the best of our knowledge there has been no multi-site study that comprehensively documents behavioural barriers to seeking care for TB symptoms in India. Nor has such work been integrated with targeted advocacy, communication, and social mobilisation (ACSM). While several studies examine KAPs in the context of TB (Sagili et al., 2016; Sreeramareddy et al., 2013; Craciun et al., 2023), few have linked these directly to messaging and health communication policy. Thus, this project aims to contribute to the existing understanding of TB, with a specific focus on why individuals either delay diagnosis for TB or avoid screening or testing for TB.

Drawing on literature from India and other high TB-burden countries, this report examines factors such as stigma, doctor avoidance, knowledge gaps and risk perception. Each of these has distinct implications for designing health communication campaigns to encourage TB testing and screening. The survey had two novel elements built in: (a) a set of questions directed to a sub-sample of respondents with an active cough, to enable a focused examination of their knowledge, attitudes, and practices; and (b) a messaging experiment embedded within the survey, providing an initial test of behaviourally informed messages in the Indian context, where little evidence currently exists.

The report also contributes to the growing literature on what works for encouraging TB testing. Goldberg et al. (2023), for example, find that providing financial incentives for recommending others in their social network for screening improves overall testing as well as identification of TB patients in Delhi NCR, Madhya Pradesh, and Rajasthan between 2017-18. Paul et al. (2012) highlight barriers to testing that stem mainly from challenges in accessing testing and health facilities in India. Since treatment delays can be critical in the fight against TB (Deo et al., 2020), it is important to investigate the barriers related to KAP that might precede structural barriers. For instance, Chang and Cataldo (2014) cite stigma as a key determinant of care-seeking, which in turn is closely associated with attitudes and perceptions related to TB. In this report, we examine how knowledge, attitudes, and stigma relate to diagnostic care-seeking behaviour.

High-level results suggest an intention–action gap in TB testing: while only **10%** reported avoiding seeking medical care when sick, in practice, just **68%** of those with a cough lasting over two weeks had consulted a doctor. Overall, self-reported delays in diagnosis are associated with perceptions that symptoms are not serious and with concerns about over-prescription, testing, and eventual diagnosis. Adding to the literature on TB-related stigma, we do not find descriptive evidence that stigma constitutes a barrier to seeking medical advice or testing for TB symptoms. Results from the survey messaging experiment suggest that care-seeking can be encouraged by featuring a champion in the message, such as a celebrity with lived experience of TB.

The remainder of this report is organised as follows: Section 2 presents the data and empirical strategy; Section 3 outlines the key findings and situates them within prior work; and Section 4 discusses their implications; Section 5 describes the limitations of this report; and Section 6 concludes with key takeaways for health communication to encourage visiting a doctor and getting tested for TB symptoms.

2. Data and Methodology

Procedure

The data for this survey was collected by DAI Research in April and May 2024. A second round, carried out in September 2024, targeted only high-income households to meet representativeness requirements. The data collection procedure was identical across rounds, except enumerators screened households by socio-economic status in September, including only those that owned a car or reported an annual income above **₹5,00,000.**

Informed consent procedures were reviewed and approved by the ethics committees at Ashoka University and The Union. Surveyors were trained to read out information regarding the survey and address any questions before asking for consent to participate. There were no monetary incentives for participation in the survey and respondents were informed that participation was voluntary. Those respondents who consented to participate were asked to sign a consent form (Appendix 1: Consent Form).[4]

Figure 1: State-wise distribution of respondents

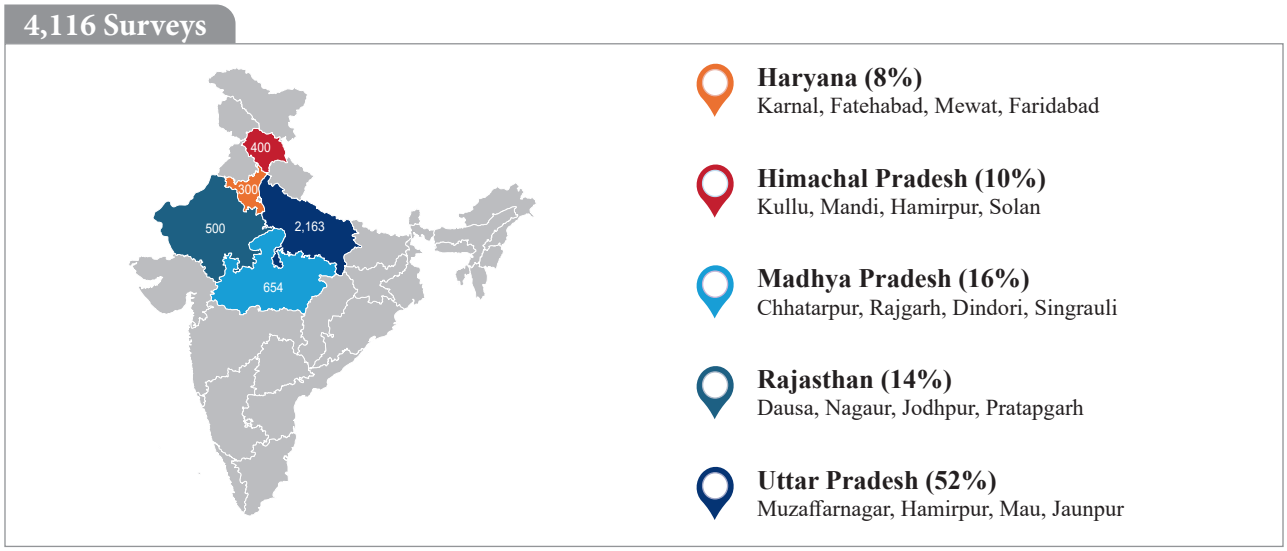


Table 1: Prevalence of TB (ICMR, 2022)

State	TB crude prevalence (per 1,00,000 population)	Percentage symptomatic who did not seek care
Haryana	477	88.0%
Himachal Pradesh	378	60.9%
Madhya Pradesh	337	77.1%
Rajasthan	432	65.5%
Uttar Pradesh	427	64.1%

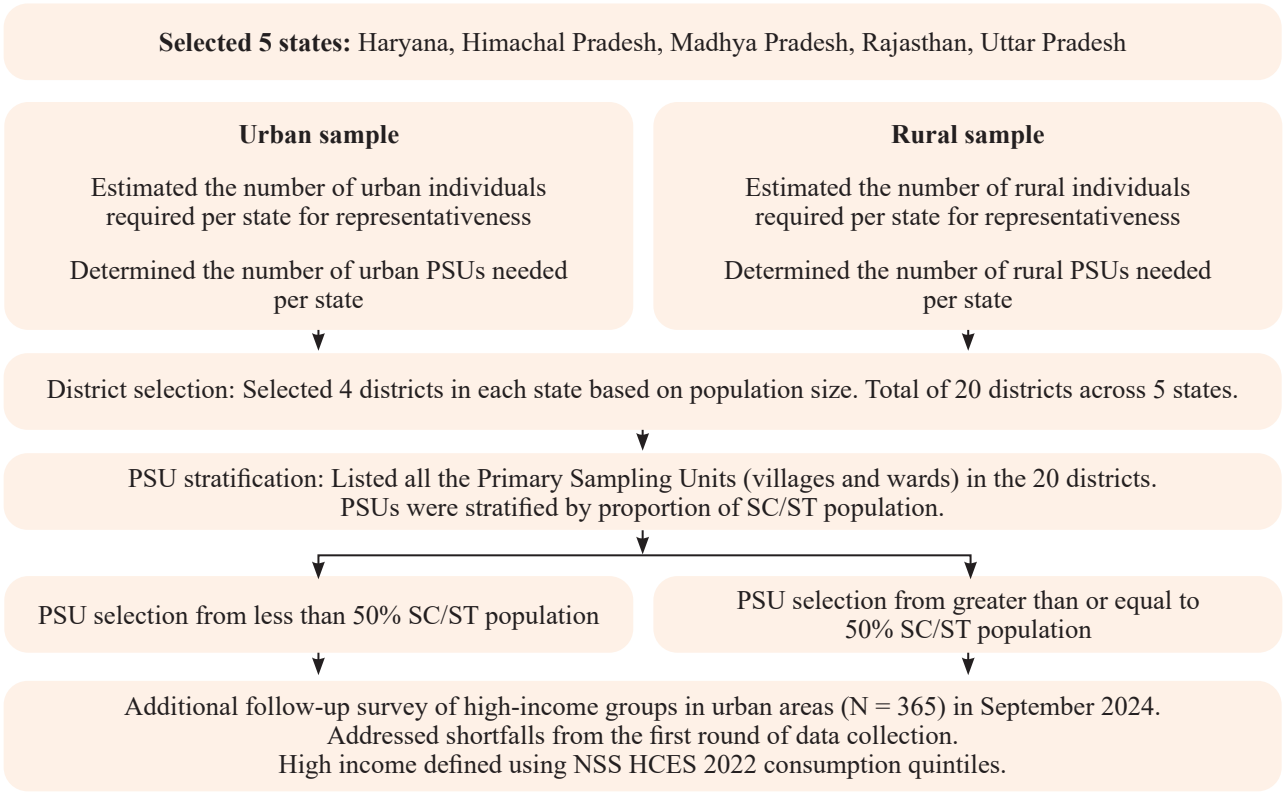
The distribution of the sample is provided in Figure 1. These five states were selected for their high crude prevalence of TB and poor health-seeking behaviour among TB-symptomatic people (ICMR, 2022; Table 1). The urban–rural distribution of respondents across the five states mirrors the proportions reported in the 2011 Census for their total populations. For instance, the proportion in the total sample from Rajasthan is the same as that of urban Rajasthan in the total population of the five states.

The sampling was conducted using a multi-stage stratified random sampling methodology, as outlined in Figure 2. To ensure adequate representation of women and older age groups in our sample, we set quotas for gender and age. We surveyed an equal proportion of women and men, and used the state-level age distribution from the 2011 Census data to set quotas for each age category. We referred to the World Health Organization's Global Tuberculosis Report 2022 to define the age categories. The categories are 18 to 24 years, 25 to 34 years, 35 to 44 years, 45 to 54 years and 55

[4] If the respondent was unable to sign, they were requested to provide a thumbprint. The surveyor captured a photograph of the signed consent form for research records, while the respondent retained the signed form.

to 64 years. The data collection procedure was rigorously backed by a careful monitoring protocol, which included a combination of daily high-frequency checks, complete audio audits, and telephonic backchecks.

Figure 2: Sampling methodology[5]



Measures

The survey included a range of measures related to knowledge, attitudes, and practices around TB. The main variables focus on behaviour around seeking care for TB diagnosis, captured through the following indicators:

Knowledge:

- Awareness of TB symptoms
- Modes of transmission
- Diagnosis
- Treatment
- Cure

were considered as potential barriers to timely advice and testing for TB symptoms.

Stigma:

- Stigma related to TB testing
- Myths and misconceptions
- Perceived norms in the community that may discourage timely diagnosis

Perceptions:

- Perceptions of the seriousness of TB symptoms
- Perceived risk of contracting TB
- Perceptions of TB testing and treatment

Diagnostic care-seeking:

- Self-reported (hypothetical) number of days before consulting a doctor for different TB symptoms
- Willingness to take a TB test if recommended
- Rational ignorance, measured as deliberate avoidance of diagnosis (i.e. choosing not to know one's TB status because the perceived costs of testing or treatment outweigh the expected benefits, for example, believing recovery is not possible)
- Avoidance of doctors and general health-seeking behaviour

[5] The second round of data collection focused only on high-income groups, with quotas applied at the state level rather than the PSU level. High-income households were defined using the top consumption quintiles of each PSU from the National Sample Survey Organization's (NSSO) 2022 Household Consumer Expenditure Surveys (HCES). Wards with fewer high-income households in the first round were prioritised, resulting in a total sample of N = 350.

Other behavioural measures:

- Measures of internality (the belief that one has control over life outcomes)
- Helplessness and fatalism (feelings of lack of control or inevitability);
- Time preferences (two items on present bias, i.e. the tendency to prioritise immediate outcomes over longer-term benefits)
- Risk preferences (loss aversion, i.e. the tendency to fear losses more than valuing equivalent gains, measured using survey items and the Gneezy-Potter method, included in the second round only)

Socio-demographics and health:

- Age
- Education
- Employment status
- Migration background
- Sources of information
- Smoking and alcohol use
- Nutrition
- Family history of TB and COVID-19
- Past testing history

Furthermore, a module was administered to respondents who reported that they themselves, or someone in their household, was experiencing a cough at the time of the survey. Two hundred forty-two respondents **(6%)** reported having a cough, and 204 respondents **(5.2%)** reported that a family member had a cough. This sub-sample (n = 446) provided insights into actual care-seeking for TB diagnosis and related attitudes and perceptions, helping to better understand the intention–action gap. Finally, all respondents were randomly assigned to receive an audio-visual message on TB (see Appendix 2: Messaging Experiment) and were then asked about their likelihood of visiting a doctor and enquiring about TB if they experienced a cough.

This survey departs from previous KAP surveys and diagnostic studies in India by examining broader barriers to accessing care, i.e. factors that are not specific to TB but influence care-seeking more generally. One such barrier is the general avoidance of healthcare facilities such as hospitals and clinics. In India, common reasons for avoidance include place of residence, religion, socioeconomic status, lack of availability of facilities, long waiting times and financial constraints (Sangar et al., 2019).

A second, more general barrier examined in this report is what behavioural science terms rational ignorance. Taber et al. (2015) found that patients with mild symptoms often rationalised that they would recover on their own, reducing the perceived need to consult a doctor. Others avoided treatment due to fear of bad news or feelings of guilt, with such emotions shaping their behaviour. Reich & Reich-Graefe (2019) further show that anxiety, low literacy, lack of information, poor communication, and family pressures create uncertainty and risk that reinforce rational ignorance, where patients refrain from acquiring knowledge because the perceived costs outweigh the benefits. In this survey, rational ignorance was framed as not wanting to know if one had TB or avoiding timely testing due to hopelessness about the possibility of recovery. Such uncertainty can sustain behavioural patterns that prevent patients from seeking treatment.

The report also examines general time and risk preferences as potential barriers to seeking care. Patients are more likely to value treatments that offer tangible benefits in the short term over those with longer-term outcomes. Time preferences are closely linked to attitudes towards risk and uncertainty, which can further influence care-seeking behaviour.

Analysis framework

Broad trends around KAPs are inferred using a combination of cross-tabulations, descriptive statistics, and data visualisation techniques. These are supplemented with preliminary regression models, informed by existing literature (Chang & Cataldo, 2014; Craciun et al., 2023), but not intended to establish causality (see Appendix 3: Regression Frameworks). The results should therefore be interpreted as correlations or associations, providing a statistical overview of the factors linked to diagnostic care-seeking for TB.

3. Results

Sample characteristics

The sample was broadly representative of each state in terms of age, income, and gender distribution across rural and urban areas. Overall, **48.3%** of respondents were female, and the mean age was 35 years (range: 18–64). About **72%** of respondents lived in rural areas. Education levels were relatively high, with **93%** having completed some schooling and **68%** at least Class 8. At the time of the survey, **56%** were employed in occupations such as agriculture, wage labour, artisan work, petty trade, organised trade or business, government or private service, household or shop assistance, and gig work. The sample was predominantly rural among the lowest-income households (**60%** rural in households earning less than **₹1,25,000** per annum) and predominantly urban among upper-middle income groups (**25%** urban in households earning **₹5,00,000** – **₹15,00,000** per annum) (Appendix 4, Figure A4.1). In terms of risky behaviours, **30.2%** of respondents were smokers and **12.9%** consumed alcohol. With respect to TB, **8.5%** reported that either they or a family member had been affected, while **10.8%** reported having a cough themselves or living with someone with a cough at the time of the survey.

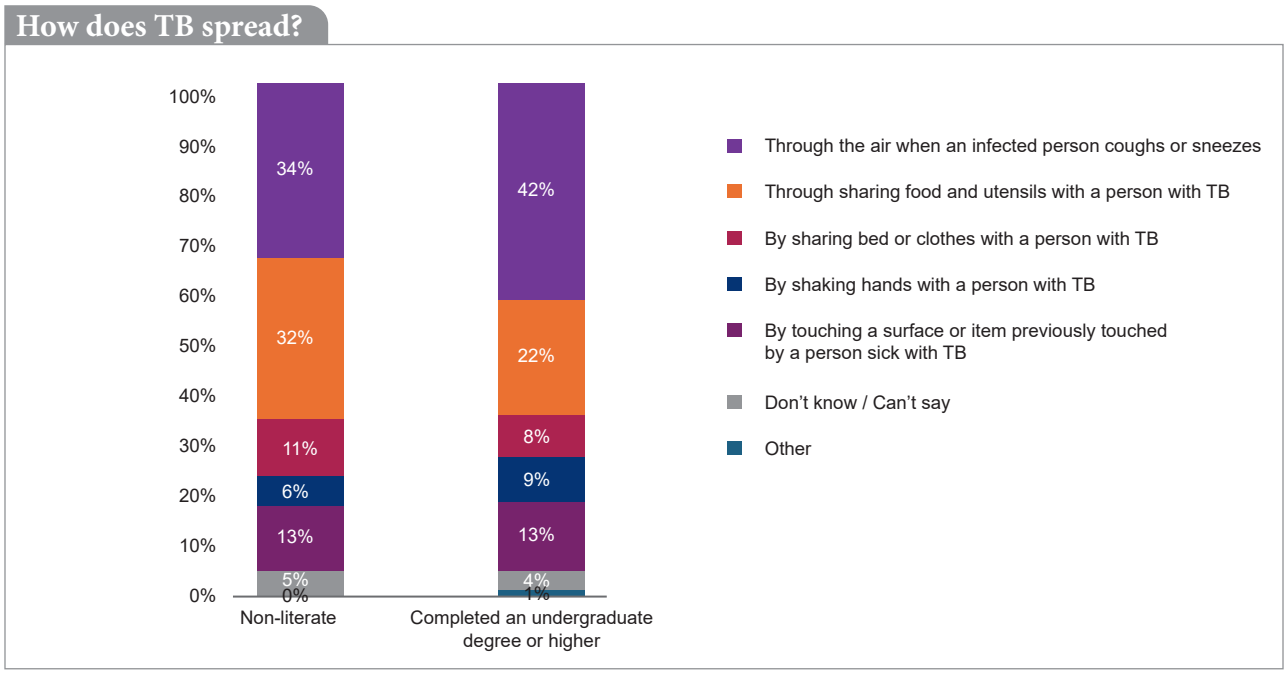
Knowledge about TB

Awareness of TB as a disease was high among respondents, with nearly all **(99.6%)** reporting that they had heard of the disease. However, one in four **(25%)** did not recognise TB as a common disease in India. This lack of recognition was more pronounced among urban respondents **(30%)** compared to rural respondents **(24%)**, and among men **(29%)** compared to women **(22%)**. In terms of access to health information, younger people tended to rely on YouTube and Facebook, while older respondents relied more on television. About one-fifth reported getting health information directly from healthcare providers or health camps, though the majority relied on media sources (Appendix 4, Figure A4.2).

- ***Symptoms:*** **86%** of respondents recognised a cough as a symptom of TB, which is higher than the **52%** observed by Huddart et al. (2018) among patients at treatment initiation and the median of **76%** found in a December 2022 unpublished report[6] prepared by Kantar and commissioned by the Union (International Union Against Tuberculosis and Lung Disease (The Union 2022); Appendix 5, Table A5.1; see also Appendix 4, Figure A4.3 for **86%**).
- ***Transmission:*** **65%** correctly identified airborne transmission, an improvement over the median of **54%** reported by (The Union 2022), but misconceptions remain widespread. The most common misconception, shared by **44%** of respondents, was that TB spreads through sharing food or utensils. This is lower than the **70%** reported by DeLuca et al. (2018) in a study conducted with household contacts of newly diagnosed pulmonary TB patients. Individuals with lower education were more likely to believe that TB spreads through shared utensils (Appendix 4, Table A4.2, note 2). The figure below (Figure 3) descriptively highlights the contrast between non-literate individuals and those with at least an undergraduate degree.

[6] Their estimate was based on unweighted data from 8 cross-sectional studies involving the general population. The estimate is a simple median of proportions reported across these studies without accounting for differences in sample sizes or study quality.

Figure 3: TB transmission knowledge by education levels.



Categories between the extremes of non-literate and graduates are hidden for clarity.
(Total sample size = 4,101,[7] multiple responses allowed, total responses = 6,940)[8]

Further, approximately **38%** of respondents in urban high-income groups (annual household income > **₹15,00,000**) were able to correctly identify transmission channels for TB, compared to only **24%** in the high-income rural group (Appendix 4, Figure A4.10). This difference could reflect inherent variations in the composition of high-income groups in rural and urban areas (e.g., occupations, education, information environment, and other unobserved factors). Similar income levels may not necessarily imply comparable profiles across settings.

- ***Testing and Treatment:*** About **25%** of respondents reported no knowledge of diagnostic methods (Appendix 4, Figure A4.4), which is a higher rate of unawareness than the **13%** reported by (The Union 2022). Most respondents **(90%)** knew that TB testing and treatment are free. Knowledge about free TB diagnosis and treatment at government facilities tended to increase with age and education (Appendix 4, Figure A4.2). Those in the highest income bracket were less likely to know that TB testing is free. TB-affected households were more knowledgeable about TB diagnosis and treatment (Appendix 4, Table A4.2). Further, among households that had experienced TB, **66%** were aware of sputum testing, **68%** were informed about the 6-8 month treatment period (compared to **41%** and **46%** respectively in households that never had a TB patient).

To summarise knowledge across domains, an aggregate index covering knowledge of transmission, testing, treatment, recovery, and awareness of free services was constructed (see Results section, "Deep Dive into Stigma, Knowledge, and Diagnostic Care-Seeking Behaviour," and Appendix 4, Table A4.2 for details).

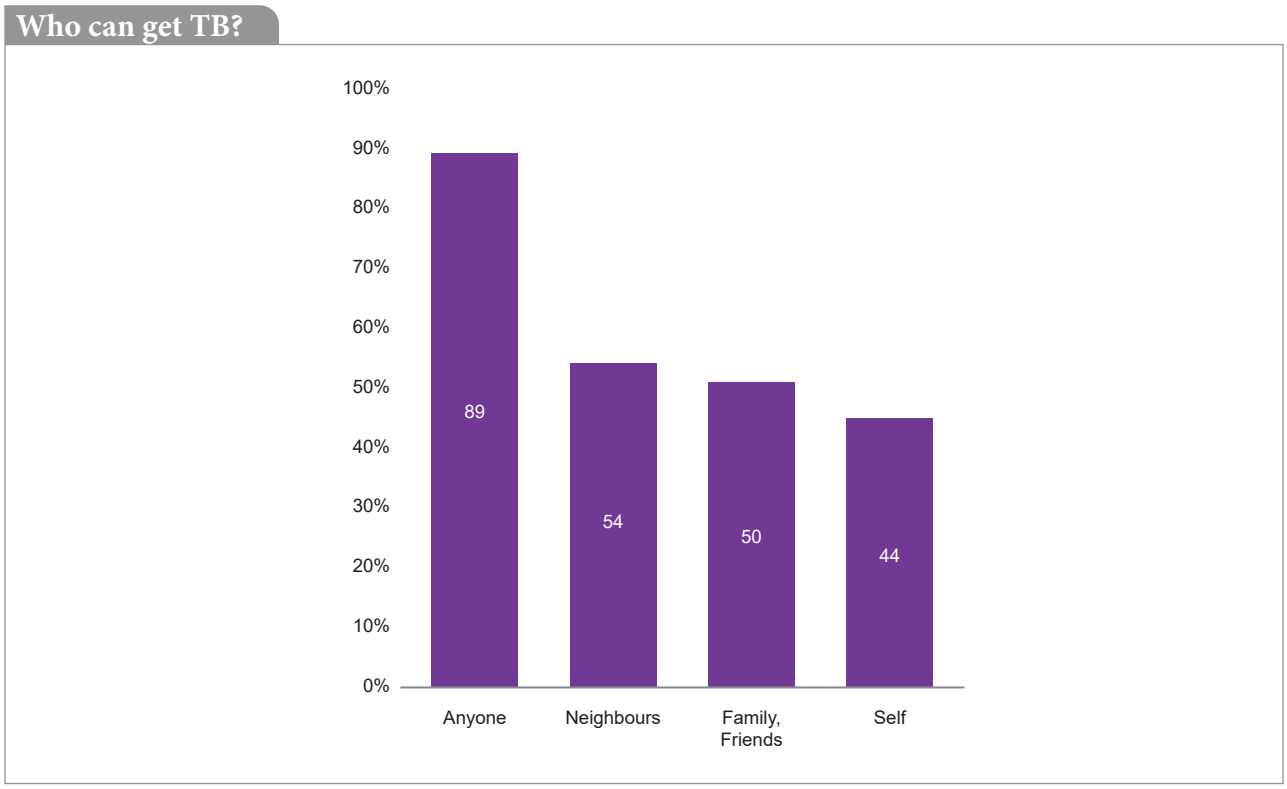
Perceptions of TB risk and treatment challenges

A large majority of respondents **(89%)** agreed that anyone can contract TB (Figure 4), yet only around **44%** believed they themselves were at risk. Descriptively, households affected by TB were more likely to believe that anyone can contract the disease **(93%)**, compared to households without a history of TB **(88%)**. Non-literate respondents were more likely to perceive themselves as less susceptible to contracting TB (**38%** among non-literate vs. **45%** among literate groups).

[7] Of the 4,116 respondents, those who had not heard of TB were not asked subsequent questions on knowledge or behavioural barriers. However, they were asked whether they had a cough at the time of the survey, and if so, completed the cough sub-module along with demographic questions.

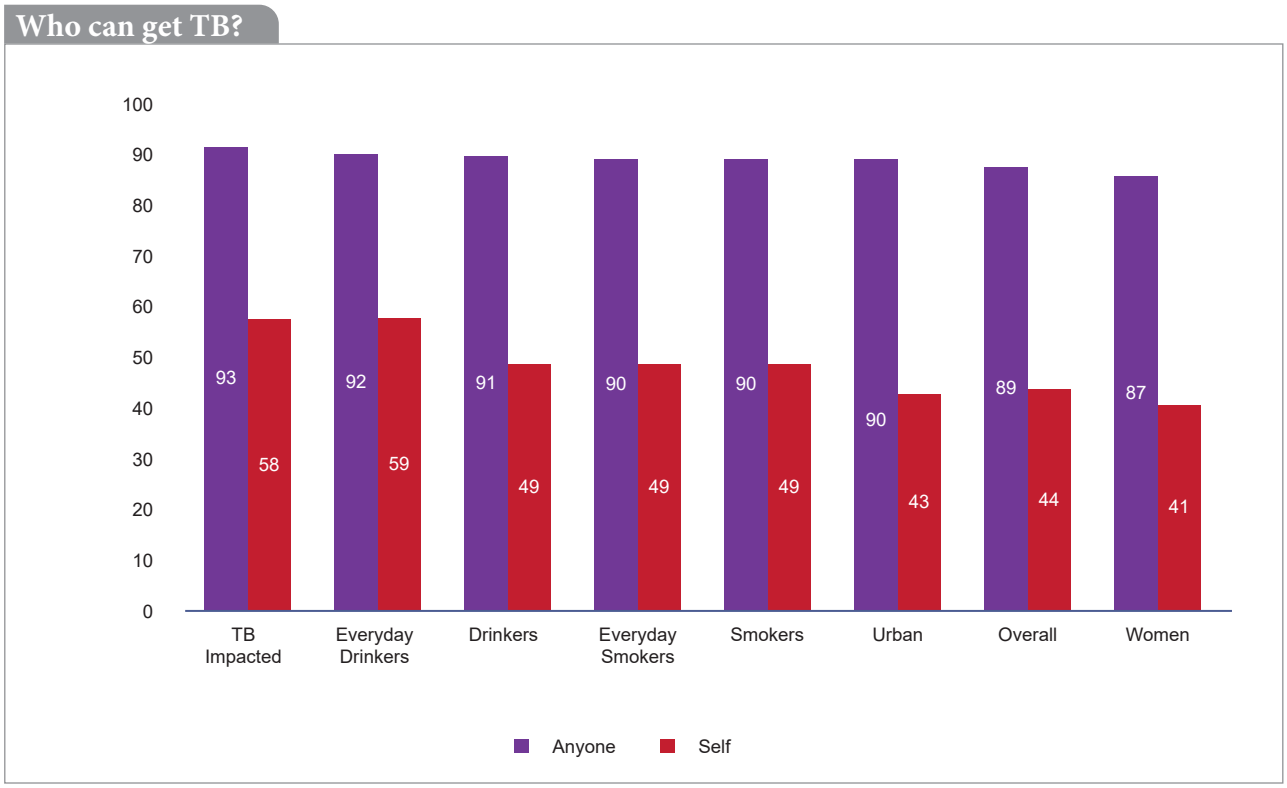
[8] This figure shows the percentage of responses, not the percentage of respondents. Since each respondent could provide multiple answers, the total percentage reflects all individual responses, rather than unique respondents. Although on average 65% of respondents correctly recognised TB's airborne transmission, the figure represents responses among the non-literate and those with a graduate degree, not distinct individuals. (See Figure 3)

Figure 4: Percentage who responded 'yes' to 'who' can get TB



Descriptively, across subgroups, the broad pattern remains similar (Figure 5). Respondents are more likely to say that anyone can get TB than to see themselves at risk. TB-impacted households and everyday drinkers show somewhat higher self-perceived risk. Smokers, urban respondents, and women show slightly lower self-risk awareness. Overall, perceptions of personal vulnerability appear consistently lower than general awareness across groups.

Figure 5: Who can get TB gap: Proportion of respondents who believe anyone can get TB and those who believe they themselves can get TB for different subgroups.

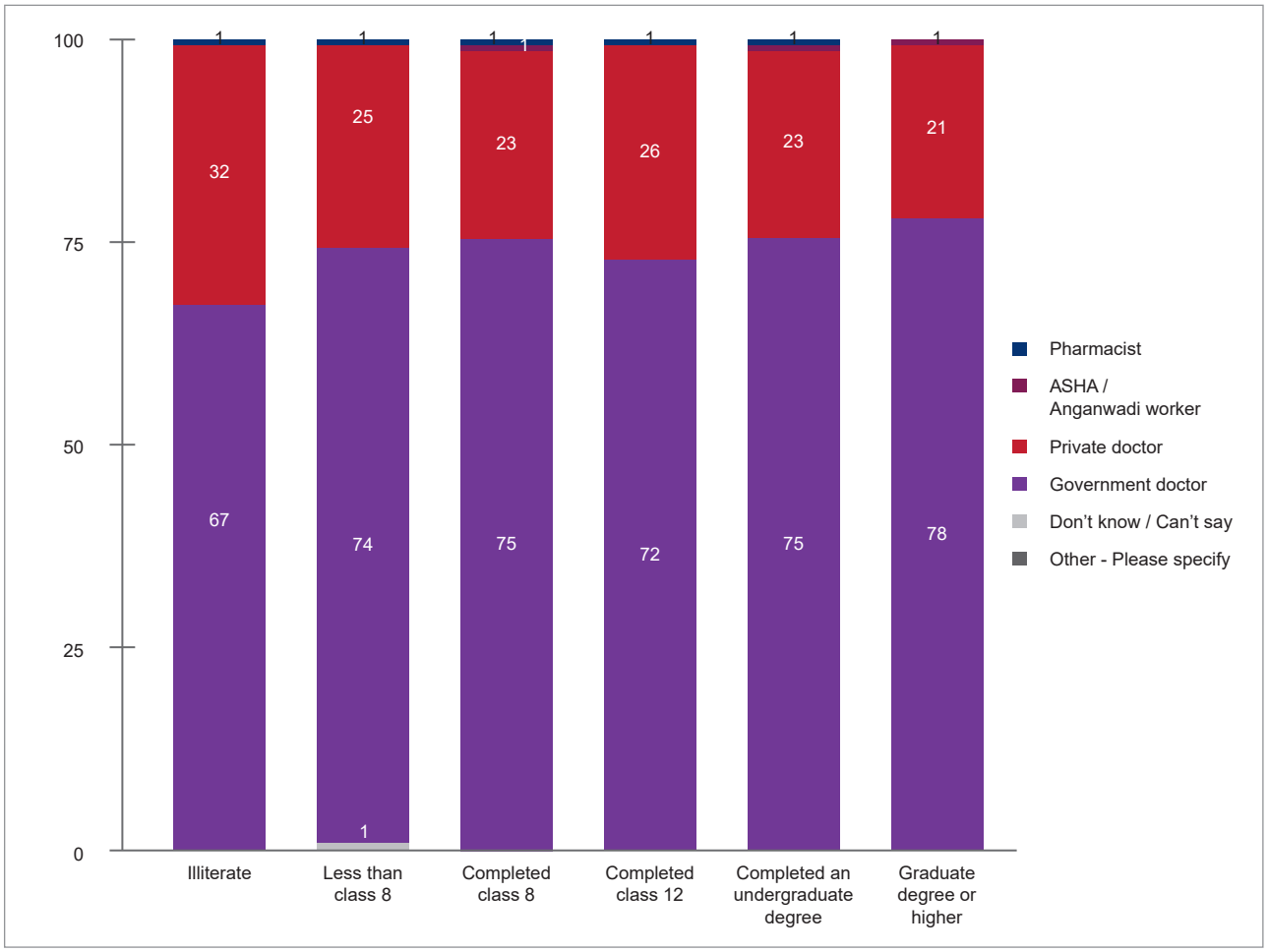


While most respondents **(79%)** consider a cough lasting two weeks or more to be serious, individuals with lower levels of education were less likely to do so (Appendix 4, Table A4.4). Among non-literate respondents, **20%** did not view it as a major concern. Less educated respondents were also more likely to perceive TB treatment as difficult (Appendix 4, Table A4.4): on average, **40%** of respondents held this belief, rising to **66%** among the non-literate and falling to **16%** among those with at least a graduate degree. Hope for recovery from TB was also lower among those with lower levels of education (Appendix 4, Table A4.3).

When asked where someone could seek treatment with the least hassle, **74%** recommended government doctors (for any sickness, not TB specifically).[9] Endorsement of government doctors for treatment with lesser hassle was more common among rural respondents (Appendix 4, Table A4.4). Endorsement was somewhat higher among TB-affected households and lower among women and smokers (Appendix 4, Table A4.4). There was no clear association with income.

Descriptively, recommendations of government services as least hassle generally increase with education. Among those with an advanced graduate degree, **78%** endorsed government services while only **67%** among non-literate respondents recommended government services for treatment with the least hassle (Figure 6).

Figure 6: For general illness, percentage of respondents recommending treatment options with the least hassle, by education level



If someone you know were sick, where would you suggest they go to get treated with the least possible hassle? (n = 4,101)

[9] In the overall sample (n = 4,104), 74% reported that they would recommend a government doctor if someone they knew needed treatment with the least possible hassle (for a general illness). However, when asked where they themselves usually seek care for general health problems, only 52% said they go to a government doctor. This suggests that while many people personally opt for private doctors, they nonetheless perceive private healthcare settings as more burdensome compared to government facilities.

Stigma

The survey finds no conclusive evidence that stigma is associated with seeking medical advice or getting tested for TB symptoms (Appendix Table A4.3); however, respondents expressed strong expectations of stigma when asked directly.

Fatalism, blame, and stigma remain widespread: **79%** of respondents viewed TB as a sign of bad luck

76% attributed blame to the patient

Respondents also anticipated that TB could carry serious personal and social consequences, including reduced marital prospects, limited employment opportunities, and experiences of discrimination or avoidance.

Descriptively, **79%** of those from TB-impacted households believed that contracting TB was the individual's fault, compared to **75%** in non-TB households.

Despite these high levels of stigma, actual diagnostic care-seeking for symptoms does not appear to be significantly hindered; people still seek help when TB is suspected. The contrast is stark: **41%** of respondents believed fear of TB would deter people from seeking care (n = 4,101), yet only **0.02%** of those in the coughing sub-sample reported avoiding care due to stigma (n = 46). This gap possibly reflects an overestimation of negative behaviours, which may be reinforced by the availability heuristic: when people witness or hear about others avoiding care because of fear of TB, they may assume such behaviour is widespread. In reality, most individuals still seek care despite stigma, but the perception of stigma fosters the belief that others would not.

Furthermore, descriptively, the coughing sub-sample appeared more likely to be worried about their colleagues or employer finding out if they went to get a TB test than the general sample. They also tended to agree more often that if someone gets TB, it's their own fault (**80%** vs. **75%** in the non-coughing general sample).

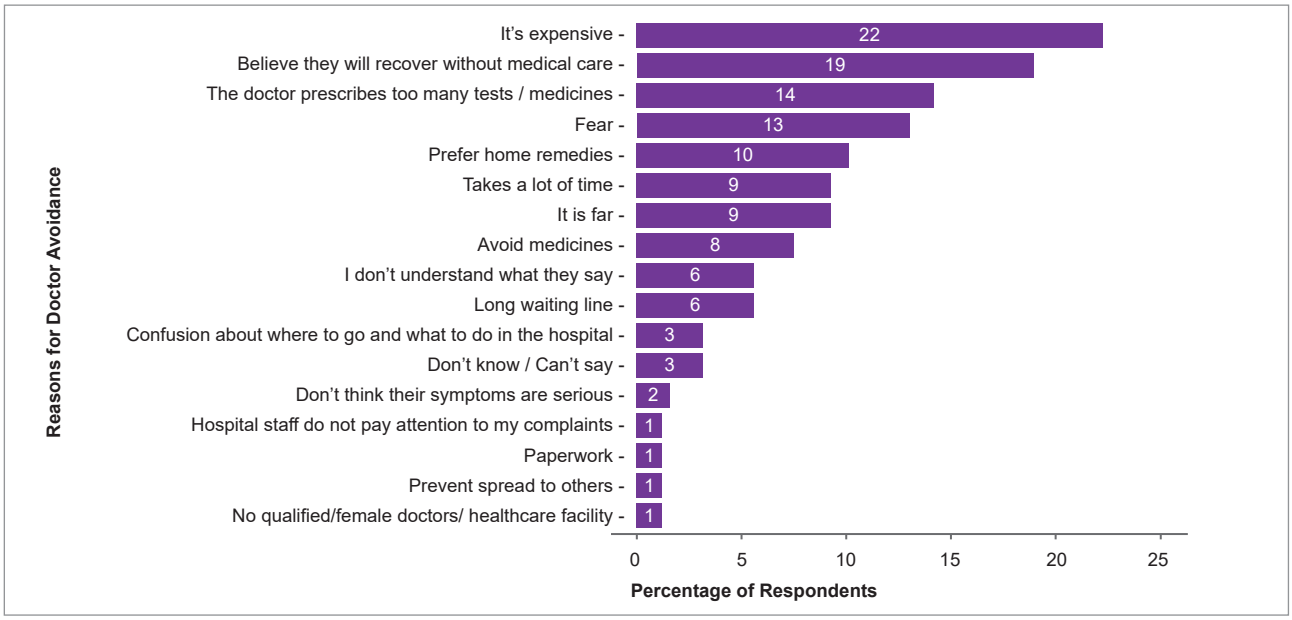
Avoidance of doctors, clinics and hospitals

The survey indicates that **10%** of respondents (n = 409) have at some point avoided going to a doctor, health centre or hospital when sick. Descriptively, non-literate respondents are almost twice as likely to avoid doctors and hospitals as those with a university degree.

Several factors contribute to this avoidance (Figure 7). Cost was identified as the primary barrier, with **22%** indicating that the expense of healthcare prevents them from seeking treatment. Other significant reasons included the belief that recovery can occur without medical intervention (**19%**), concerns about the over-prescription of tests and medications (**14%**), and a preference for home remedies or self-medication (**10%**). Additionally, some cited factors such as long waiting times or fear of diagnosis as contributing to their decision to avoid medical care. These findings underscore the importance of developing cost-effective healthcare delivery models and public awareness campaigns to address these barriers and encourage timely medical consultations.

Respondents were asked whether they would get tested for TB if a doctor recommended it. Only **1%** of the sample said they would not get tested (n = 38). Among these respondents, reasons for their reluctance included the belief that they did not have TB and the fear that a positive test result could lead to job loss.

Figure 7: Reasons for avoiding going to a doctor, health centre or hospital when sick



(Total sample size = 409 respondents who reported ever avoiding doctors, multiple responses allowed, total responses = 512)

Diagnostic care-seeking intentions and behaviour

Most respondents believe that one should consult a doctor within a week of developing a cough **(82%)**. Further, **79%** of respondents considered a cough lasting longer than two weeks as serious. Almost all respondents **(99%)** reported that they would take a TB test if a doctor recommended it, and about 48% of respondents correctly identified that TB treatment takes 6-8 months.

Previous research (Jangid et al., 2016) has shown that limited awareness of government programmes can lead to delayed diagnosis, particularly among young women. This survey found that awareness of free TB testing and treatment at government centres tended to be somewhat higher among older respondents, and females showed slightly higher awareness of free testing (Appendix 4, Table A4.2). No meaningful difference in awareness was observed between young females (aged 18–24) and young males for testing or treatment (see Appendix 4, Table A4.2, note 4).

No group reported an average intention to wait more than 10 days before consulting a doctor for any symptom. The longest intended wait time reported was for cough with loss of appetite and weight loss, with an average of around 10 days. Unlike findings from Helfinstein et al. (2020), who report that smokers are less likely to seek care, our respondents do not show a similar pattern. In our study, smokers reported seeking care slightly sooner, by a little over half a day, than non-smokers, although this difference is small and significant (Appendix 4, Table A4.3).

We examined behavioural influences on intended care-seeking in hypothetical situations. About **23%** of respondents displayed present bias, meaning they placed more weight on immediate costs and inconveniences than on future health benefits. In health settings, present bias can lead individuals to delay or avoid care because the immediate effort feels more salient than the future benefits of acting early. The majority were not present-biased and were willing to face present inconveniences for future health benefits. Present bias did not have a statistically significant effect on intended wait time before consulting a qualified doctor for a cough (Appendix 4, Table A4.3).

Diagnostic care-seeking in the coughing sub-sample

While the overall sample reflects health-seeking intentions, the coughing sub-sample provides a picture of actual care-seeking behaviour. **6%** of respondents reported having a cough at the time of the survey, and **5.2%** (n = 204) reported that a family member had a cough.

Among individuals with a cough lasting more than two weeks (n = 146), **68%** sought advice from someone. Among those who did not seek advice (n = 46), **56%** selected at least one "low-seriousness" reason (believing the symptoms were not serious or would resolve on their own). This indicates that low salience of cough is a major reason for the gap between intention and action in the coughing sub-sample. Doctor avoidance **(8%)** was another reason, and **3%** reported that they would rather not find out, reflecting rational ignorance (Appendix 4, Figure A4.6a).

A similar pattern appeared among those who delayed seeking advice but eventually consulted someone (n = 35). In this group, **71%** selected at least one low-seriousness explanation ("not serious" or "advice not required") (Appendix 4, Figure A4.6b).

Among those who did consult someone (n = 104), the most common advice was medication for the cough **(31%)**. Only **17%** were prescribed a sputum test and **13%** an X-ray.

Based on descriptive comparisons, the coughing sub-sample reported lower internality, i.e. the belief that personal actions can prevent illness (**71%** for the general sample vs. **68%** for the coughing sub-sample), and higher levels of helplessness (**22%** for the general sample vs. **33%** for the coughing sub-sample) and fatalism (**24%** for the general sample vs. **33%** for the coughing sub-sample). Taken together, these patterns indicate that people experiencing symptoms may feel less in control and more discouraged, which could affect whether and when they seek care.

Deep dive into stigma, knowledge, and diagnostic care-seeking behaviour

This section briefly summarises key findings from the survey related to stigma, knowledge, and diagnostic care-seeking behaviours, including how these outcomes differ across key vulnerable groups. While earlier sections drew on select regression findings to support key observations, this section presents all regression results together for clarity. These analyses help illustrate how stigma, knowledge, and care-seeking are associated with sociodemographic characteristics and related health behaviours. The methodology for the regression analyses is outlined in Appendix 3. These results should be interpreted as correlations between various factors and stigma, knowledge, and care-seeking practices among the respondents.

• *Stigma*

A stigma index was created using seven survey items related to perceived TB stigma. Combining the seven items into a single measure helps reveal overall patterns in how people perceive TB-related stigma, which may not be apparent when examining each question individually. Items were reverse-scored so that higher values indicate greater stigma, and then combined as an unweighted average (item distributions in Appendix 4, Figure A4.11; regression results in Appendix 4, Table A4.1). Overall, we do not observe large gaps in stigma across common subgroups such as smokers, drinkers and respondents based in rural locations.

Within this generally flat profile, some patterns point to possible differences between groups, but these differences are small. Women and people who believe TB is difficult to treat are a little more likely to report higher perceived stigma. In contrast, reporting of perceived stigma is a bit lower among people with a family history of TB, older individuals, and those with more education or higher incomes. These latter differences are especially small, even though they are statistically significant. Many other subgroup contrasts, including rural versus urban residence, smoking status, and most alcohol-frequency categories, do not differ significantly from their reference groups.

Programmatically, the results point toward broad, population-level stigma reduction rather than narrowly targeted subgroup interventions.

• *Knowledge*

The assessment of TB knowledge is based on seven questions and a composite index. Seven of these measures focused on specific aspects of TB, including how it spreads, TB testing, treatment, cure and recovery duration; and awareness of free testing and free treatment. Respondents were scored 1 for each correct answer and 0 for an incorrect answer (Appendix 4, Table A4.2). The composite knowledge index shows the proportion of correct answers across the seven knowledge measures to provide a broader understanding of overall TB knowledge.

Overall, differences in TB knowledge across subgroups such as gender, age, smoking, alcohol use, and family history of TB are generally small. However, certain knowledge areas, such as how TB spreads and recovery, show significant gaps, with less than half of respondents answering these questions correctly. This suggests that a consistent core message with emphasis on TB transmission and recovery should be delivered to all groups.

• *Care-seeking practices*

This analysis examines three aspects of intended diagnostic care-seeking behaviour: average intended waiting time before seeing a doctor after noticing symptoms, whether individuals prefer not to know about the disease (rational ignorance) and their hope for recovery if diagnosed. Except for waiting time, the other outcomes were recoded as binary variables (Appendix 4, Table A4.3).

Individuals who believe TB is more likely to occur (to themselves, others, or anyone) intend to wait slightly longer before consulting a doctor. However, they were also less likely to show rational ignorance, indicating they were more open to information about their diagnosis.

Individuals with a family history of TB intended to wait slightly longer, about 1.5 additional days, before seeking care. Older individuals also expressed slightly longer intended delays before seeking care.

Key vulnerable groups - Minor variations in attitudes and perceptions toward TB

We examined whether some groups, such as women, people with lower education or income, rural households, smokers, alcohol users, and people with a family history of TB, hold markedly different views or experiences related to TB. Overall, the patterns appear broadly similar across the sample. When we look at the statistical associations, the differences across groups are very small, usually only 1 to 2 percentage points, and they do not follow a clear pattern. No group stands out as being significantly more disadvantaged than others in how they understand TB, how they feel about it, or how they seek care.

A few small associations emerge based on statistical analyses:

Women 	Women report slightly higher levels of perceived stigma, have a slightly lower understanding of how TB spreads, and are more likely to perceive TB treatment as difficult. They feel marginally more in control of avoiding illness and are a little less likely to choose a government doctor as the least-hassle option for general health problems (Appendix 4, Tables A4.1, A4.2, and A4.4).
Low Education 	People with fewer years of schooling have slightly lower awareness of some aspects of TB diagnosis and treatment, and perceive slightly higher stigma. They are also more likely to avoid a doctor when sick and show rational ignorance. In addition, people with less schooling feel slightly less confident about avoiding illness, take a prolonged cough a little less seriously, and are more likely to believe that TB treatment is difficult (Appendix 4, Tables A4.1–A4.4).
Rural 	Differences for rural respondents are very small and isolated. Rural respondents are slightly more likely to recommend a government doctor as the least-hassle option for general illnesses. Overall, these scattered differences do not suggest a clear or meaningful pattern for rural households in terms of TB knowledge, perceived stigma, or diagnostic care-seeking behaviour (Appendix 4, Tables A4.1–A4.4).
Low income 	Compared with the lowest income group, individuals in higher income groups report a slightly lower perception of stigma. No consistent associations are observed between income and TB knowledge, diagnostic care-seeking intentions, or general health-related attitudes (Appendix 4, Tables A4.1–A4.4).
Smokers 	Smokers report slightly lower TB knowledge, including reduced awareness that TB treatment is free in government facilities. They also indicate a marginally shorter intended waiting time before seeking care for a cough. In terms of health system preferences, smokers are less likely to view government doctors as the least-hassle option for treatment and report slightly higher perceived seriousness of a prolonged cough (Appendix 4, Tables A4.2, A4.3 and A4.4).
Drinkers 	Individuals who drink alcohol daily report slightly lower TB knowledge. They are marginally more likely to say they would get a TB test if recommended by a doctor and report higher perceived control over avoiding illness (Appendix 4, Tables A4.2, A4.3 and A4.4).
Family history of TB 	Individuals with a family history of TB report slightly lower perceived stigma in their communities and somewhat higher TB knowledge. They indicate that they would wait slightly longer before visiting a doctor for a cough. They are also more likely to recommend government doctors for general illnesses and less likely to believe that TB treatment is difficult (Appendix 4, Tables A4.1–A4.4).
Young adults aged 18 to 24 years 	Young adults tend to show slightly lower TB-related knowledge and somewhat higher perceptions of stigma. They also report slightly shorter intended waiting times before visiting a doctor for a cough and are slightly more likely to believe that TB is difficult to treat (Appendix 4, Tables A4.1–A4.4; see notes).

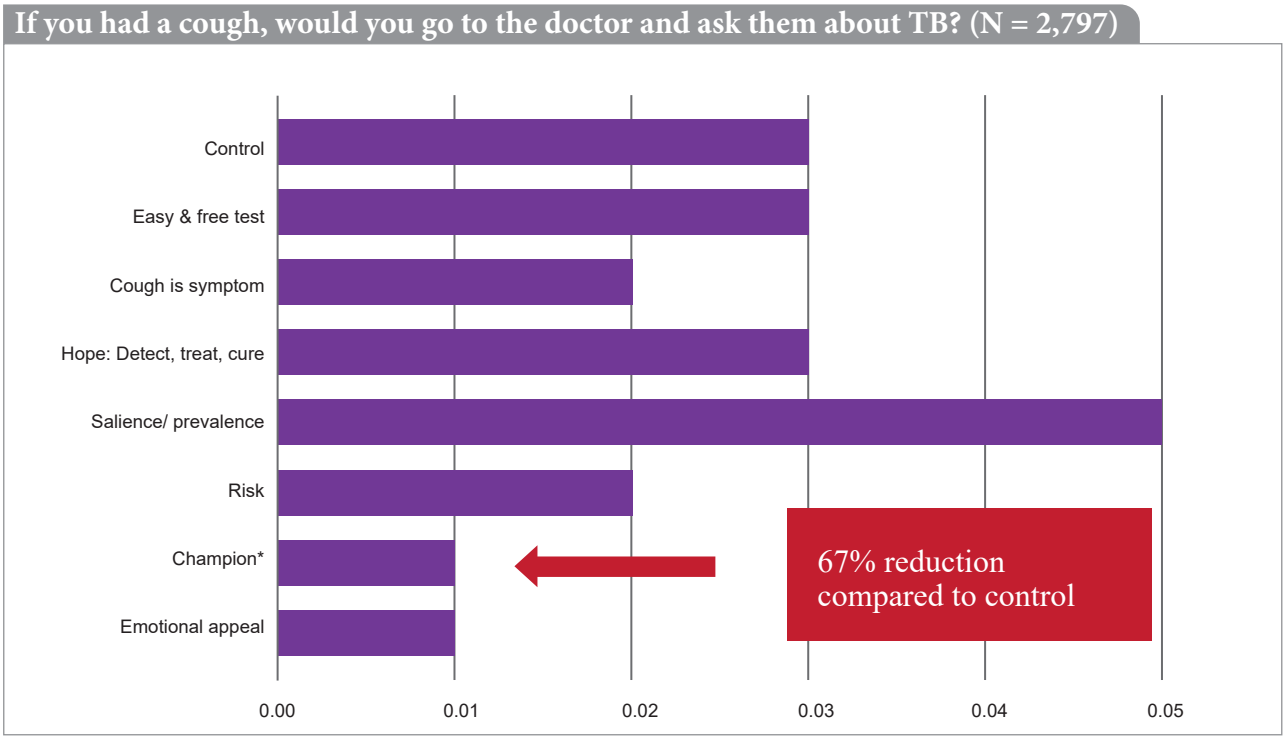
In summary, although minor differences exist, no specific group emerges as a distinctly high-risk group in terms of poor TB KAPs, suggesting that communication and behaviour-change efforts must remain broad-based and population-wide. Messaging that normalises TB care and directly addresses the perception that "TB is difficult to treat," alongside provider engagement and community dialogue, is likely to be more appropriate than highly segmented approaches, given the small differences observed.

Learnings from the survey-based messaging experiment

The survey-based messaging experiment **(see Appendix 2 for the messages)** found that including a champion **(a public figure who recovered from TB)** in the message significantly increased the intention to seek care for TB **(Appendix 4, Table A4.5)**. When respondents were shown the champion clip, the percentage answering 'no' to the question, 'If you had a cough, would you go to the doctor and ask them about TB?' decreased from **3%** to **1%**, a statistically significant reduction at the **10%** level (Figure 8).

Appeals to responsibility and emotions (i.e., the emotional-appeal arm) were more effective than increasing salience of TB prevalence and its proximity in everyday life (Appendix 4, Table A4.6). However, the messages did not influence how long respondents intended to wait before consulting a doctor about a TB test if they had a cough.

Figure 8: Proportion saying "no" to the question "If you had a cough, would you go to the doctor and ask them about TB?"



*Note: *p<0.1; **p<0.05; ***p<0.01*

4. Discussion

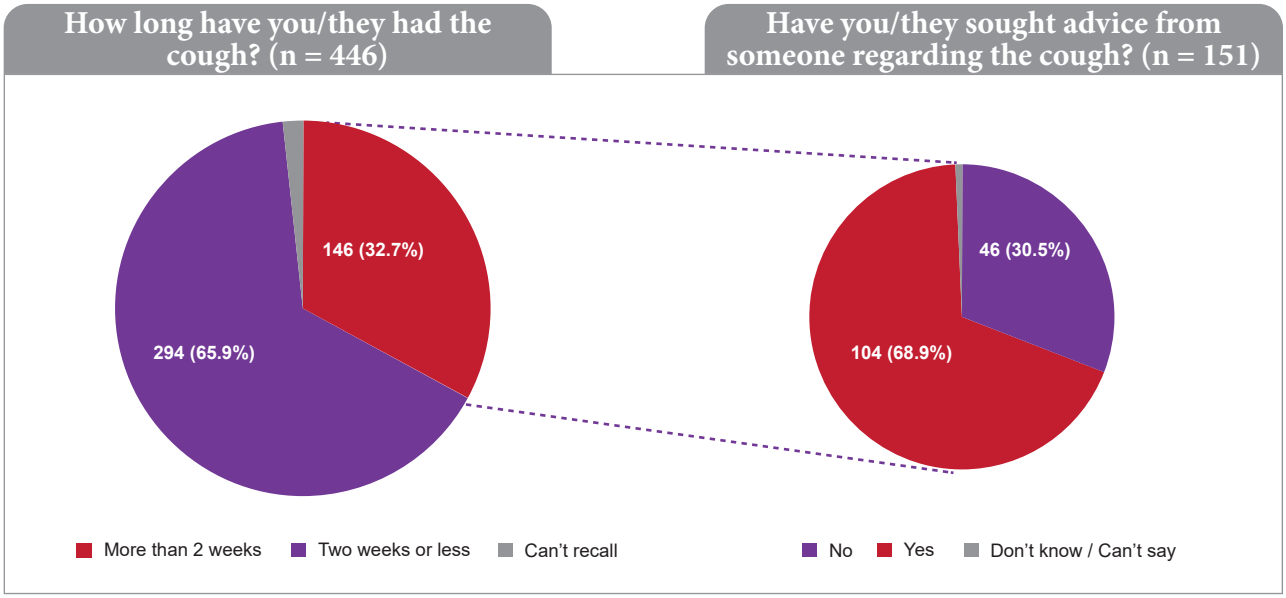
This section interprets the main findings, focusing on how intentions, perceptions, and sociodemographic factors relate to care-seeking behaviour and TB-related attitudes. We discuss the intention–action gap observed among individuals with a prolonged cough, the role of education, perceptions of treatment difficulty, family experience with TB, and the modest associations seen for income and location. Together, these patterns help explain why strong stated intentions may not always translate into timely care-seeking for TB symptoms.

Intention-Action Gap: A comparison of the coughing sub-sample with the overall survey sample highlights a clear gap between intentions to seek care and actual behaviour.

Survey responses indicate strong intentions to seek treatment. Only **10%** of the overall sample reported that they would avoid a doctor or health centre when sick, and **92%** stated they would consult a doctor for a persistent cough of two weeks or more. However, actual behaviour diverges from these stated intentions. In the coughing sub-sample, **90%** had previously indicated they would visit a doctor if they developed a cough lasting two weeks, yet only **68%** actually sought care (Figure 9).

When respondents in the coughing sub-sample were asked why they did not seek care, trivialisation of the symptoms emerged as the primary factor. Half of these respondents believed the cough was not serious or that it would resolve on its own (Appendix 4, Figure A4.6).

Figure 9: Care-seeking among individuals with prolonged cough



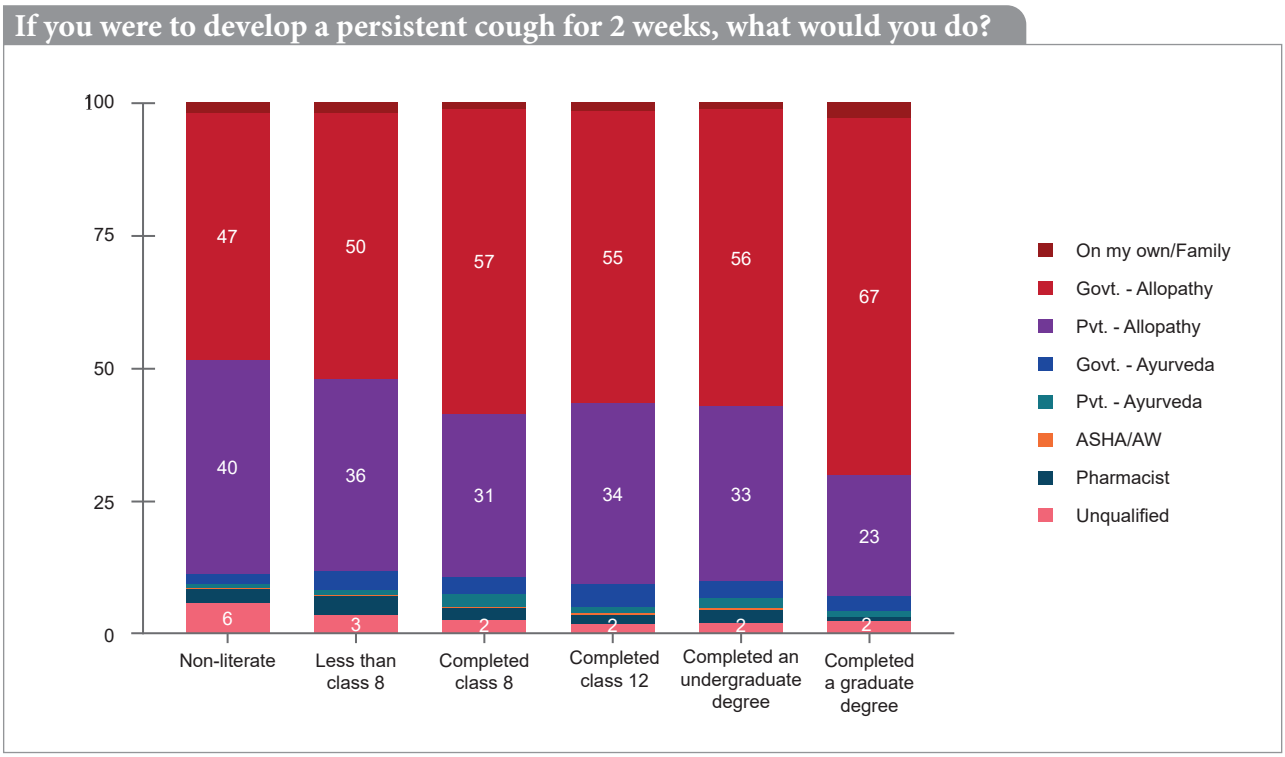
Education: Some education-related differences emerged. Respondents with lower education were less likely to perceive a cough lasting two weeks or more as serious (Appendix 4, Table A4.4 and Figure A4.7), and they were also more likely to avoid doctors and hospitals for general illnesses (Appendix 4, Table A4.4 and Figure A4.8). They additionally exhibited lower internality, indicating less confidence in their ability to prevent illness through self-care and preventive measures (Appendix 4, Table A4.4). Perceptions of TB treatment difficulty were also higher among those with lower education (Appendix 4, Table A4.4).

Descriptively, when asked what they would do if they developed a persistent cough lasting two weeks, lower-educated groups were more likely to turn to an unqualified doctor (Figure 10).

On the whole, these patterns suggest that lower education may be associated with slightly lower confidence in managing illness and a greater tendency to delay or avoid care.

[10] Samal and Deury (2017) identify that not recognising symptoms as severe is a primary reason for not seeking or delaying care for TB in Chhattisgarh, India, suggesting that perceptions of severity can influence care-seeking decisions more broadly.

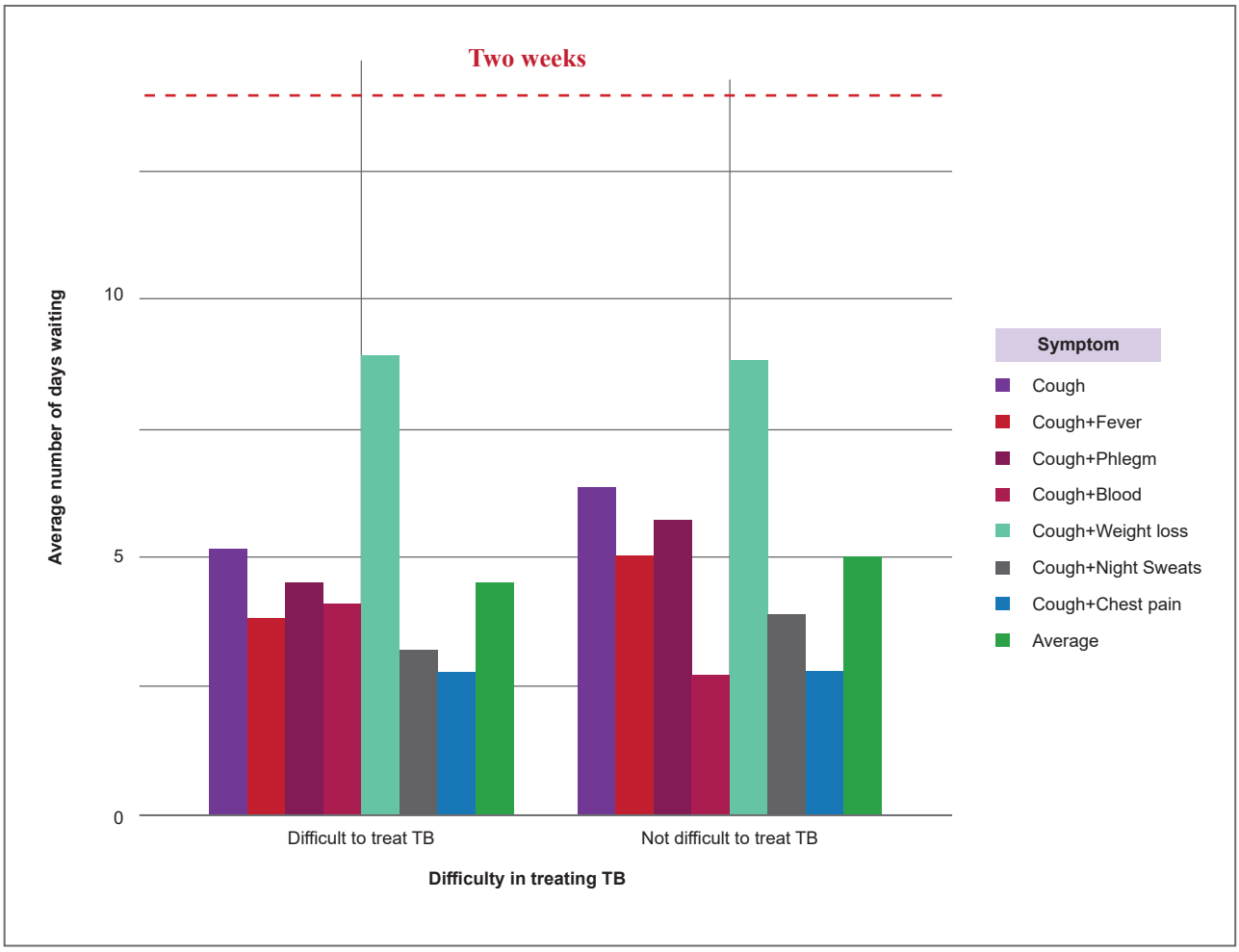
Figure 10: Preferred care-seeking for a persistent cough (2 weeks) by education level (n = 4,082)



Perceived difficulty of treating TB: Prior evidence indicates that communities perceive TB treatment as difficult (Onyango et al., 2020). In this survey, however, 58% of respondents stated that TB is not difficult to treat. Descriptively, differences in intended care-seeking were modest: the intention to see a doctor within a week of developing a cough or other symptoms varied only slightly by this perception.[10] Respondents who considered TB difficult to treat reported an average waiting time of 4.6 days before consulting a doctor, compared to about 5 days among those who did not hold this belief (Figure 11).

Further, descriptive analyses show that respondents who believed TB is not difficult to treat were somewhat more likely to cite expenses, doctors prescribing too many tests and distance as a reason for avoiding care (Appendix 4, Figure A4.5). Irrespective of perceptions of treatment difficulty, sadness and worry emerged as the most common emotional responses to TB. Those who did not perceive treatment as difficult were also more likely to express indifference, whereas respondents who viewed treatment as difficult showed slightly higher levels of fear and sadness (Appendix 4, Figure A4.9).

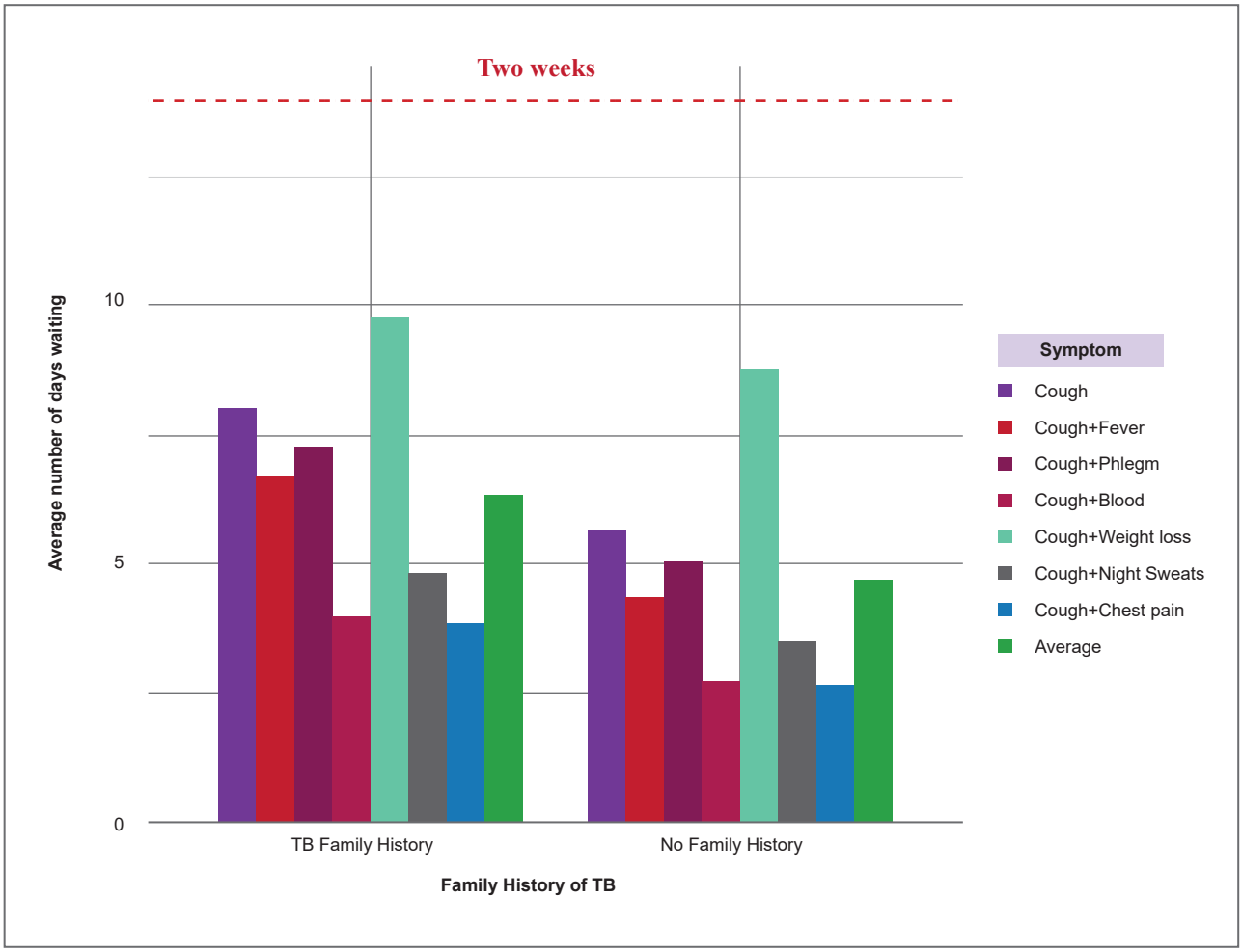
Figure 11: Average days waiting to see a doctor for cough, and other symptoms by perceived difficulty of treating TB (n = 4,101)



Family history of TB: A relatively small proportion of respondents, around **8.5%**, reported that they or someone in their household had previously been affected by TB. Respondents with a family history of TB tended to report longer intended waiting times before consulting a doctor for symptoms; however, they also showed a slightly higher likelihood of getting a TB test (Appendix Table A4.3). In addition, they displayed a somewhat greater tendency to view government doctors as the least-hassle option for treating general illnesses and were less likely to perceive TB treatment as difficult (Appendix Table A4.4). These patterns suggest that familiar experiences with TB may encourage some forms of engagement with the health system while also normalising delayed responses to new symptoms.

The descriptive findings reinforce this interpretation. Individuals from TB-affected households, on average, indicated a longer intended delay before seeking care for TB symptoms (6.7 days compared with 4.6 days). The contrast was even larger when asked about a persistent cough (8.3 days compared with 5.6 days) (Figure 12). They were also slightly less likely to view a cough lasting more than two weeks as serious (**76%** compared with **80%**). Although these differences are modest, they point to a potential normalisation of symptoms within TB-affected households, where prolonged illness or delayed care may feel more normal.

Figure 12: Average days waiting to see a doctor within a week for cough, and other symptoms by family history of TB (n = 4,101)



Income and Location: There were no consistent differences in knowledge or care-seeking by income (Appendix Tables A4.1–A4.4), though respondent s in the lower-middle income group were somewhat more likely to report avoiding going to a doctor for general illnesses (Appendix 4, Table 4.4). Higher-income respondents tended to report slightly lower levels of TB-related stigma compared to the lowest income group (Appendix 4, Table A4.1).

Rural respondents showed a somewhat higher likelihood of recommending government facilities as the least-hassle option for treating general health problems (Appendix 4, Table A4.4). Taken as a whole, this suggests that income and location alone are not reliable predictors of TB-related attitudes or intended behaviour, even though they show some isolated associations with specific outcomes.

Descriptive findings also showed that high-income rural respondents had lower knowledge of TB transmission compared to high-income urban respondents (Appendix 4, Figure A4.10). These differences likely stem from variations in occupations, education, access to information, and other unobserved factors that influence how income translates to health knowledge and behaviours. In particular, income levels may not reflect the same social or professional profiles in rural and urban contexts, with varying access to resources, healthcare services, and health information.

In terms of seeking advice for a persistent cough, descriptive data showed an overall preference for allopathy, with respondents generally favouring government allopathic treatment within this category (Figure 13). However, no clear difference in preferences emerged across income classes. Similarly, both rural and urban respondents exhibited an overall preference for allopathy when asked what they would do if they developed a persistent cough for two weeks (Figure 14). Descriptively, urban respondents showed a somewhat higher preference for private allopathic treatment compared to their rural counterparts, though this difference was modest.

Figure 13: Doctor preference by income class (n = 4,082)

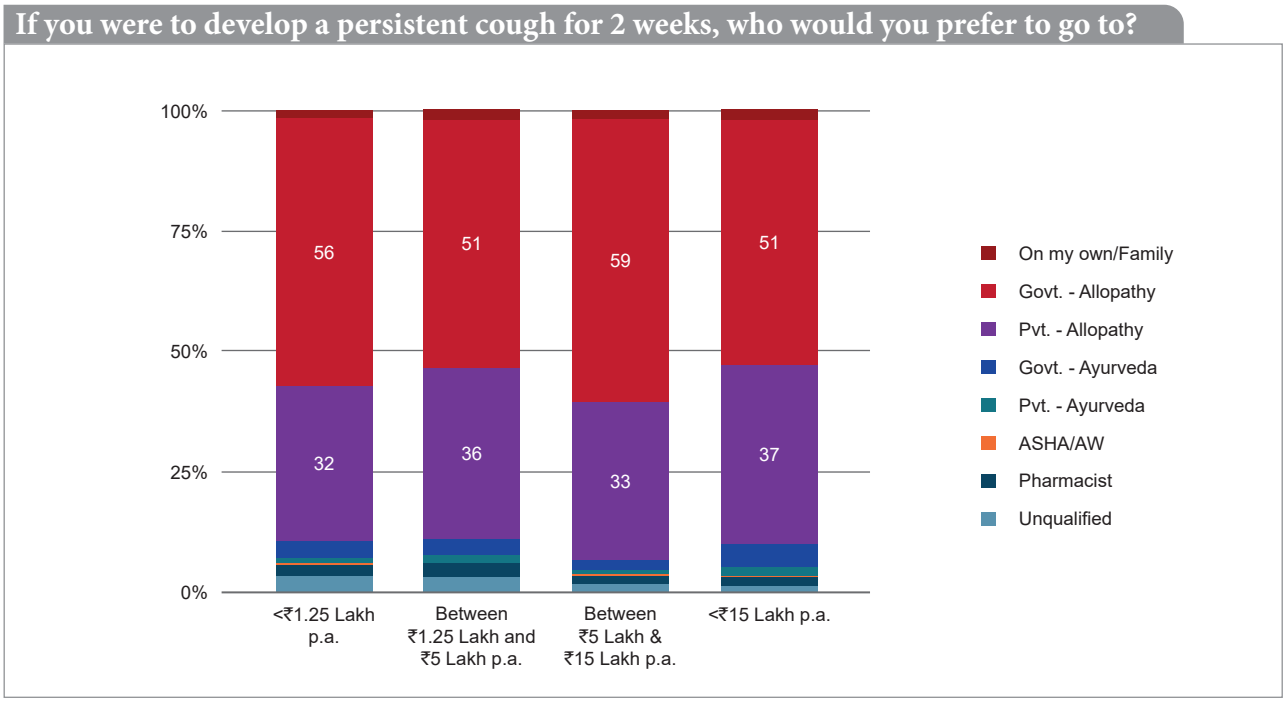
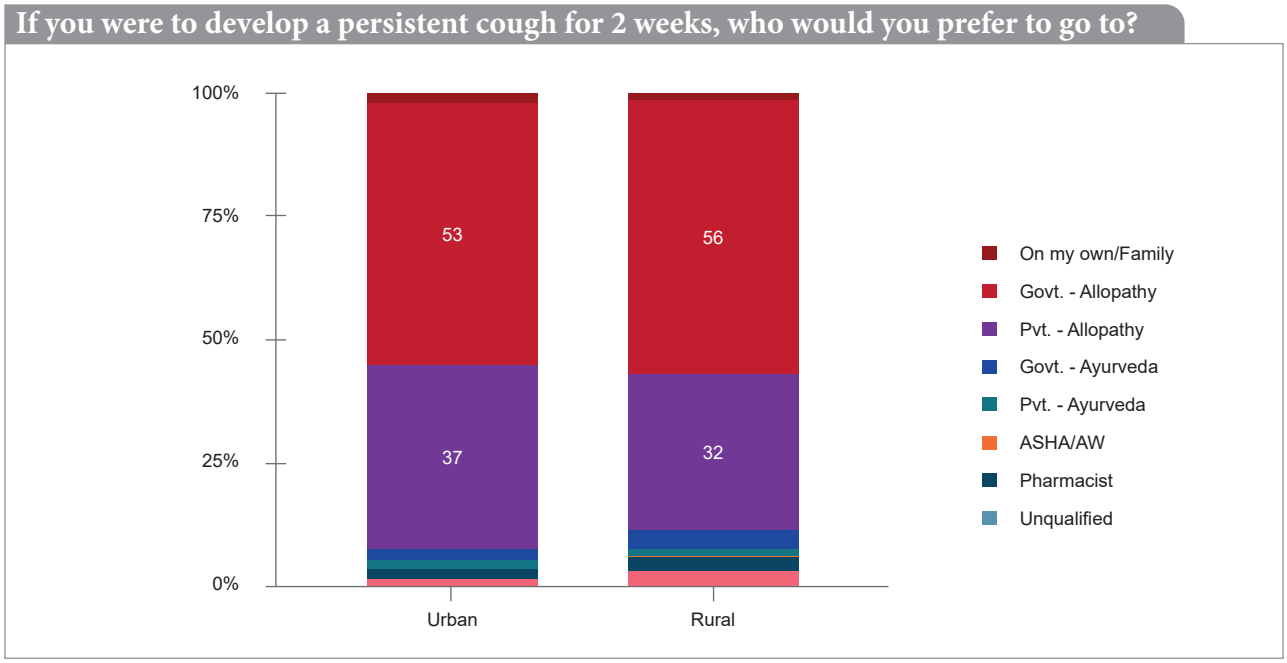
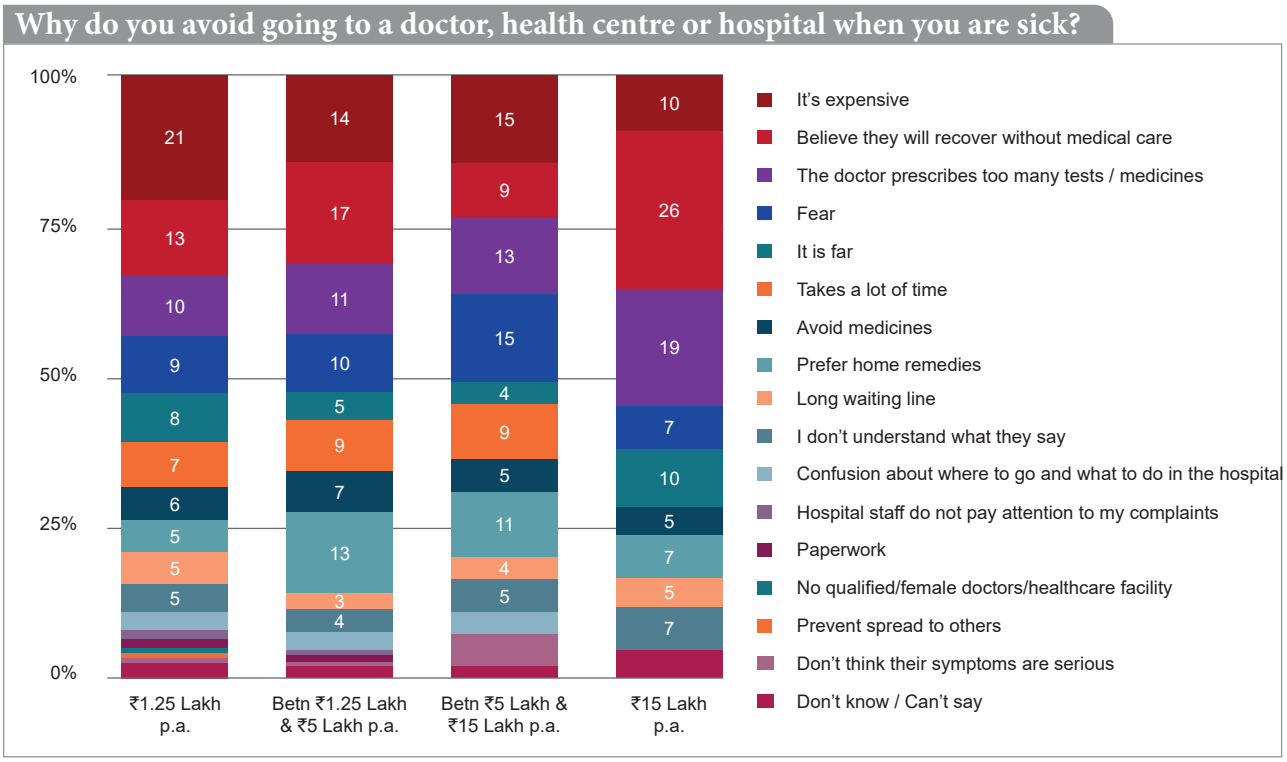


Figure 14: Doctor preference by location (n = 4,082)



Descriptively, when we analyse the reasons for avoiding care among the **10%** of respondents who reported ever avoiding doctors, hospitals, or health centres, we find that the lowest-income group is most likely to cite expenses as a reason for avoidance, while the highest-income group is most likely to believe they will recover without medical care. They are also the most likely to report that doctors prescribe too many tests or medicines (Figure 15).

Figure 15: Reasons for doctor avoidance by income class



(n = 401, multiple responses allowed, total responses = 512)

Figure 16: Summary of barriers and evidence on barriers

Doctor avoidance

Many with persistent cough avoid doctors. Only **68%** with a cough lasting over two weeks saw a doctor.

Perception of cough as not serious

Many did not think their cough was serious, delaying care. **45%** of those not seeking care for a cough said it wasn't serious.

TB Knowledge

Gaps in knowledge about transmission and treatment, especially among less educated groups. **46.5%** believed they could not personally get TB.

Present bias

Present bias led to delays. **23%** of the full sample displayed present bias, favouring immediate inaction.

Rational ignorance

A small group **(3%)** deliberately avoided knowing if they had TB, choosing rational ignorance.

Fear of diagnosis or the medical process

Only 15 respondents mentioned fear of diagnosis and 12 mentioned fear of injections as reasons to avoid care.

Stigma

Stigma was not commonly cited as a reason for avoiding care, although **42%** expected others to avoid care due to stigma.

Costs of diagnosis/ treatment

Cost was not a significant factor, with **90%** knowing testing and treatment are free at government facilities.

5. Limitations of This Study

While this study provides valuable insights into TB KAPs in high-burden states in India with poor health-seeking behaviour among symptomatics (ICMR, 2022), several limitations should be considered.

- First, the data were collected in two phases, which may have led to some variation in responses over time. However, because the second sample was relatively small (around **9%** of the total) and was drawn by prioritising PSUs where high-income respondents had been underrepresented in the first round, any potential impact on the study's overall findings is likely minimal.
- Second, the data on diagnostic care-seeking behaviours mainly reflect hypothetical scenarios regarding responses to TB symptoms, including decisions about testing. These responses may be influenced by social desirability bias, as they concern how long one should typically wait upon experiencing TB symptoms. To address this, we focused on a sub-sample of individuals currently exhibiting symptoms, such as coughing for 2 weeks or longer, to gain insights into actual care-seeking behaviour. Although this included broad questions about the duration of their cough and whether they had sought advice, it does not capture specific dates or systematically record the time.
- Third, alongside knowledge, attitudes, and behaviours, this survey incorporated select behavioural-science measures such as present bias, loss aversion, internality, fatalism, etc. Future work could expand this lens to include factors like overconfidence and reliance on heuristics, which may also strongly influence care-seeking (Milkman et al., 2021).
- Lastly, research has shown that decisions to test or screen for TB are influenced by social networks and financial incentives (Goldberg et al., 2023). While it is difficult to directly assess the impact of financial incentives in this context, collecting data on social networks could provide valuable insights into the role of peer influence and help shape future advocacy and social messaging campaigns.

6. Concluding Remarks and Key Takeaways

This report identifies several critical factors contributing to barriers in diagnosing TB, including lack of awareness, underestimation of the seriousness of symptoms such as persistent cough, misunderstandings about TB treatment, avoidance of formal care and behavioural tendencies such as present bias. The following takeaways provide insights for policymakers on the areas where targeted interventions and messaging could make a significant impact:

01 ***Increase salience of cough being potentially serious:*** Campaigns should emphasise that prolonged coughs require medical attention, highlighting both the risks of delayed treatment and the benefits of early diagnosis and testing. While people do associate cough with TB, the perception that a cough is "not serious" remains a significant barrier to timely care-seeking and must be addressed. Communication should also speak to the tendency to take a risk or wait and see, by outlining the consequences of delaying care, such as health complications, higher treatment costs, and risk of transmission. These should be contrasted with the benefits of early action, including simpler treatment and protection of family members. Campaigns should encourage individuals to schedule a check-up promptly if a cough persists.

02 ***Promote campaigns for everyone to strengthen personal risk perception:*** Campaigns should emphasise that anyone can contract TB, thereby increasing individual as well as community-level risk perception. Messaging must go beyond general awareness to highlight personal vulnerability, not just collective concern.

03 ***Use clear, memorable messages from public figures who have recovered from TB:*** National figures such as Amitabh Bachchan, who personally experienced TB, serve as powerful champions by lending visibility and credibility. Campaigns should continue to feature proven TB messengers. Appeals to responsibility and emotion may be more effective than increasing salience about the prevalence of TB.

04 ***Focus on core behavioural drivers, with tailored outreach for specific groups:*** Since gaps in knowledge and perception are largely consistent across groups, campaigns should prioritise core behavioural drivers. Messages should emphasise that TB is not hard to treat and that individuals can take control of their health. For low-literacy populations, the delivery can be tailored while keeping the messaging consistent, using platforms such as radio, ASHA workers, and village health programmes. Other groups that may benefit from tailored delivery include women and younger individuals. For example, younger individuals might respond better to social media campaigns emphasising TB's curability and the availability of free treatment.

05 ***Don't focus on stigma to increase care seeking:*** Stigma still exists and shapes the social experience of TB. Many respondents expected it to be a reason for others to delay seeking care, but people with a cough did not themselves report stigma as a reason to avoid medical care. Efforts to reduce TB-related stigma and social isolation may be directed toward correcting common misconceptions about transmission. For example, emphasising that TB spreads through the air rather than through sharing utensils or touching surfaces. While such efforts have value, the survey provides no conclusive evidence that anti-stigma campaigns will directly improve care-seeking rates, even though they may serve other important goals such as preserving livelihoods or promoting social justice.

These insights offer direction for future policy interventions and public health campaigns aimed at overcoming the barriers to TB testing. By focusing on core issues and adopting targeted messaging strategies, policymakers can promote timely care-seeking to diagnose TB.

7. Reference

Bäckdahl, T., & Sharma, M. (2021). Knowledge and transmission risk awareness of tuberculosis among the pilgrims attending a religious mass gathering in India: A cross-sectional study. *BMC Public Health,* 21(1), 2141. https://doi.org/10.1186/s12889-021-12192-8

Chang, S.-H., & Cataldo, J. K. (2014). A systematic review of global cultural variations in knowledge, attitudes and health responses to tuberculosis stigma. The International Journal of Tuberculosis and Lung Disease, 18(2), 168–173. https://www.ingentaconnect.com/content/iuatld/ijtld/2014/00000018/00000002/ar008

Chinnakali, P., Ramakrishnan, J., Vasudevan, K., Gurumurthy, J., Upadhyay, R. P., & Panigrahi, K. C. (2013). Level of awareness about tuberculosis in urban slums: Implications for advocacy and communication strategy planning in the national program. *Lung India,* 30(2), 139–142. https://doi.org/10.4103/0970-2113.110422

Craciun, O. M., Torres, M. D. R., Llanes, A. B., & Romay-Barja, M. (2023). Tuberculosis Knowledge, Attitudes, and Practice in Middle- and Low-Income Countries: A Systematic Review. Journal of Tropical Medicine, 2023, 1–15. https://doi.org/10.1155/2023/1014666

DeLuca, A., Dhumal, G., Paradkar, M., & others. (2018). Addressing knowledge gaps and prevention for tuberculosis-infected Indian adults: A vital part of elimination. BMC Infectious Diseases, 18(1), 1–7.

Deo, S., Singh, S., Jha, N., Arinaminpathy, N., & Dewan, P. (2020). Predicting the impact of patient and private provider behavior on diagnostic delay for pulmonary tuberculosis patients in India: A simulation modeling study. PLOS Medicine, 17(5), e1003039. https://doi.org/10.1371/journal.pmed.1003039

Dumpeti, S., Jothula, K. Y., & Naidu, N. K. (2020). Awareness about tuberculosis and RNTCP services among rural people in Nalgonda district, Telangana. *Journal of Family Medicine and Primary Care,* 9(7), 3281–3287. https://doi.org/10.4103/jfmpc.jfmpc_415_20

Goldberg, J., Macis, M., & Chintagunta, P. (2023). Incentivized Peer Referrals for Tuberculosis Screening: Evidence from India. American Economic Journal: Applied Economics, 15(1), 259–291. https://doi.org/10.1257/app.20200721

Helfinstein, S., Engl, E., Thomas, B., & others. (2020). Understanding why at-risk population segments do not seek care for tuberculosis: A precision public health approach in South India. BMJ Global Health.

Huddart, S., Bossuroy, T., Pons, V., & others. (2018). Knowledge about tuberculosis and infection prevention behavior: A nine city longitudinal study from India. PLoS One, 13(10).

Indian Council of Medical Research (ICMR). (2022). National TB Prevalence Survey in India 2019-2021 (p. 212). Indian Council of Medical Research. https://tbcindia.mohfw.gov.in/wp-content/uploads/2023/05/25032022161020NATBPSReport.pdf

International Institute for Population Sciences (IIPS) and ICF. 2021. National Family Health Survey (NFHS-5), 2019-21: India: Volume I. Mumbai: IIPS.

International Union Against Tuberculosis and Lung Disease (The Union 2022). *Indicators to evaluate tuberculosis ACSM interventions* (Unpublished report).

Jangid, V., Agrawal, N., Yadav, G., & others. (2016). Health-seeking behavior and social stigma for tuberculosis in tuberculosis patients at a tertiary-care centre in North West India. Int J Med Sci Public Health, 5.

Kulkarni, P., Kudale, A., Arasu, K., Darby, W., & Rangan, S. (2014). Tuberculosis knowledge and awareness in tribal-dominant districts of Jharkhand, India: implications for ACSM. *Public Health Action,* 4(3), 189-194.

Mandal, S., Rao, R., & Joshi, R. (2023). Estimating the Burden of Tuberculosis in India: A Modelling Study. Indian Journal of Community Medicine, 48(3), 436. https://doi.org/10.4103/ijcm.ijcm_160_23

Milkman, K. L., Gromet, D., Ho, H., Kay, J. S., Lee, T. W., Pandiloski, P., Park, Y., Rai, A., Bazerman, M., & Beshears, J. (2021). Megastudies improve the impact of applied behavioural science. Nature, 600(7889), 478–483. https://www.nature.com/articles/s41586-021-04128-4

Muniyandi, M., Rao, V. G., Bhat, J., Yadav, R., Sharma, R. K., & Bhondeley, M. K. (2015). Health literacy on tuberculosis amongst vulnerable segment of population: special reference to: Saharia: tribe in central India. I*ndian Journal of Medical Research,* 141(5), 640-647.

National TB Elimination Programme (NTEP). (2024). India TB Report 2024. Central TB Division, Ministry of Health and Family Welfare. https://tbcindia.mohfw.gov.in/wp-content/uploads/2024/10/TB-Report_for-Web_08_10-2024-1.pdf

Onyango, P. A., Ter Goon, D., & Rala, N. M. (2020). Knowledge, attitudes and health seeking behaviour among patients with tuberculosis: A cross sectional study. *The Open Public Health Journal,* 13, 739–747. https://doi.org/10.2174/1874944502013010739

Paul, D., Busireddy, A., Nagaraja, S. B., Satyanarayana, S., Dewan, P. K., Nair, S. A., Sarkar, S., Ahmed, Q. T., Sarkar, S., Shamrao, S. R. M., Harries, A. D., & Oeltmann, J. E. (2012). Factors Associated with Delays in Treatment Initiation after Tuberculosis Diagnosis in Two Districts of India. PLoS ONE, 7(7), e39040. https://doi.org/10.1371/journal.pone.0039040

Reich, B. A., & Reich-Graefe, R. (2019). Rational Patient Apathy. Seton Hall Law Review, 49, 535– 628.

Sagili, K. D., Satyanarayana, S., & Chadha, S. S. (2016). Is knowledge regarding tuberculosis associated with stigmatising and discriminating attitudes of general population towards tuberculosis patients? Findings from a community based survey in 30 districts of India. PloS one, 11(2), e0147274.

Samal, J., & Dehury, R. (2017). Impact of a Structured Tuberculosis Awareness Strategy on the Knowledge and Behaviour of the Families in a Slum Area in Chhattisgarh, India. Journal of Clinical and Diagnostic Research: JCDR, 11(3), LC11–LC15.

Sangar, S., Dutt, V., & Thakur, R. (2019). Why People Avoid Prescribed Medical Treatment in India? Indian Journal of Public Health, 63(2), 151–153.

Shashikantha, S. K., & Sheethal, M. P. (2022). Awareness about tuberculosis in a rural area of Mandya district: A cross-sectional study in southern Karnataka. *Journal of Family Medicine and Primary Care,* 11(2), 587–592.

Sreeramareddy, C. T., Harsha Kumar, H. N., & Arokiasamy, J. T. (2013). 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. *BMC Infectious Diseases,* 13, 16. https://doi.org/10.1186/1471-2334-13-16

Taber, J., Leyva, B., & Persoskie, A. (2015). Why do People Avoid Medical Care? A Qualitative Study Using National Data. J GEN INTERN MED, 30, 290–297.

Thapa, B., Prasad, B. M., Chadha, S. S., & Tonsing, J. (2016). Serial survey shows community intervention may contribute to increase in knowledge of Tuberculosis in 30 districts of India. *BMC Public health,* 16(1), 1155.

World Health Organization. (2022). *Global Tuberculosis Report 2022.* World Health Organization. https://www.who.int/publications/i/item/9789240061729

World Health Organization. (2024). *Global tuberculosis report 2024*. World Health Organization. https://www.who.int/teams/global-programme-on-tuberculosis-and-lung-health/tb-reports/global-tuberculosis-report-2024

Zimmerman, E., Smith, J., Banay, R., Kau, M., & Garfin, A. M. C. G. (2022). Behavioural barriers and perceived trade-offs to care-seeking for tuberculosis in the Philippines. Global Public Health, 17(2), 210–222.

Appendix 1: Consent Form

Hello! My name is .....and I have come from DAI Research and Advisory Services.

Ashoka University and The Union are conducting this survey. Through this survey, we are trying to understand how people access health services and also what people know and think about diseases like TB.

It will take approximately 40-45 minutes to complete this survey. This survey will be audio recorded for quality purposes.

The information given by you will be kept confidential. Your answers in the survey will be separated from your personal information, such as your name, phone number.

Participating in this survey will not directly benefit you or result in any monetary transaction between us.

Your participation in this study is entirely voluntary. If you have any further questions regarding this survey then you can call on 01146054400 from Monday to Friday from 10:00 AM to 5:00 PM and leave your message for Janhavi Mittal.

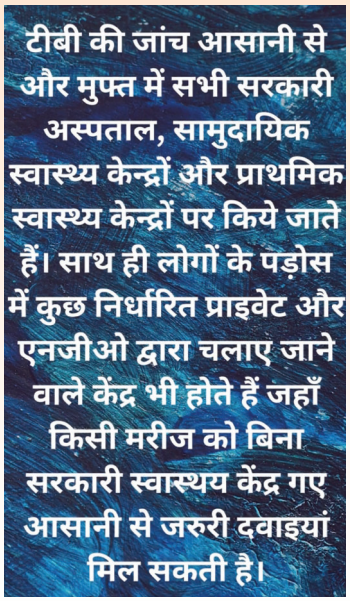
The purpose of this survey has been explained to me. I agree to participate in this survey.

Respondent ID

Signature/thumbprint of the respondent ..... Date .....

Appendix 2: Messaging Experiment

Message 1:

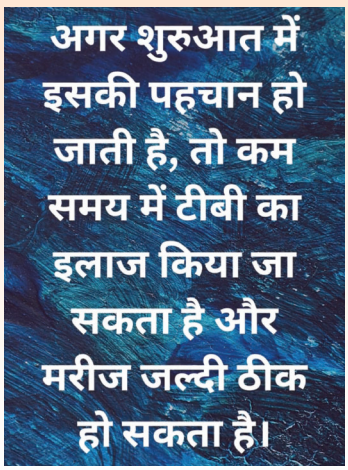


"TB tests are easy and free at all government hospitals, community health centres and primary health centres. There are designated private and NGO- run centres in the community where patients can easily get their medicines, without having to go to the government health centre."

Message 2:

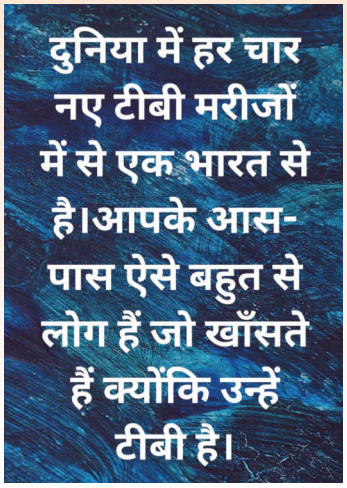
"A persistent cough could be a symptom for TB."

Message 3:



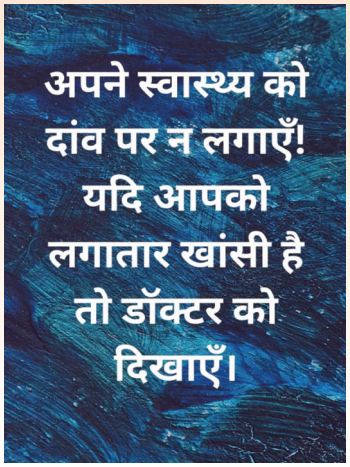
"If detected early, TB can be treated and cured in a short period of time."

Message 4:



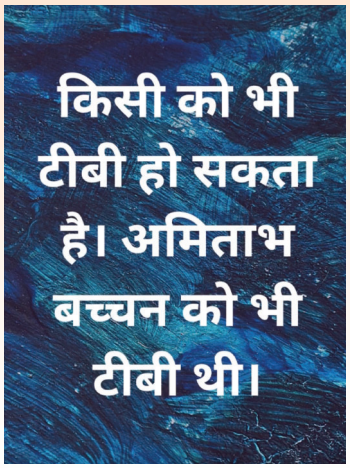
"One out of every four new TB cases in the world is from India. There are a lot of people around you who cough because they have TB."

Message 5:



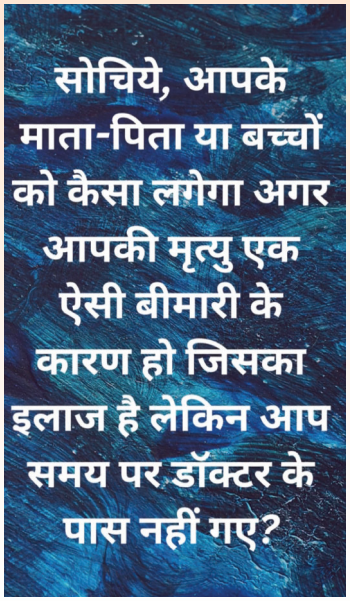
"Don't gamble with your health! See a doctor if you have a persistent cough."

Message 6:



"Anyone can get TB. Amitabh Bachchan too had TB."

Message 7:



“Imagine how your parents or children would feel if you died from a curable disease because you didn’t see the doctor in time?”

Appendix 3: Regression Frameworks

This appendix provides a technical overview of the regression framework used to examine associations between knowledge, stigma, care-seeking for diagnosis, and other health- and TB-related attitudes and behaviours with sociodemographic and relevant factors in the survey.

Composite measures for stigma and knowledge were developed following the approaches described in the report. These measures were included in the regression models both as dependent variables (to identify factors associated with stigma or knowledge) and as independent variables (to examine how stigma and knowledge relate to care-seeking and other behavioural variables of interest). As noted in the report, all results should be interpreted as correlations or associations rather than causal effects.

All estimates are obtained using ordinary least squares (OLS). The reported coefficients indicate how the variable being modelled differs with changes in the covariates, expressed as percentage-point differences in likelihoods or in the relevant units of the variable.

Regression specifications

• *Stigma*

$$Stigma_i = \alpha + \beta_1 FamHistory_i + \beta_2 GetTB_i + \beta_3 TreatmentDifficulty_i + \beta_4 Doctor_i + \beta_5 X_i + \epsilon_i \ (1)$$

Where:

$Stigma_i$ = composite stigma index
Unweighted mean of seven items capturing perceived stigma in the community, including concerns related to marriage, employment, and seeking advice for a cough

$FamHistory_i$ = family history of TB
Indicator equal to 1 if the respondent reports that any household member has had TB; the reference category is respondents with no family history of TB.

$GetTB_i$ = belief that anyone can get TB
Indicator equal to 1 if the respondent agrees that TB can affect anyone.

$TreatmentDifficulty_i$ = perceived difficulty of treating TB
Indicator equal to 1 if the respondent believes TB treatment is difficult.

$Doctor_i$ = preferred doctor type when seeking treatment for a cough
Categorical variable capturing the type of provider respondents say they would visit if they had a persistent cough.

X_i = sociodemographic covariates
Includes age, age squared, gender, education categories, income class, rural residence, smoking, alcohol use, nourishment status, and occupation.

ϵ_i = error term, with standard errors clustered at the primary sampling unit (PSU) level.
This specification is estimated for both the composite stigma index and each individual stigma item, allowing examination of variation in specific dimensions of stigma in addition to overall patterns.

• *Knowledge*

$$Knowledge_i = \delta + \gamma_1 FamHistory_i + \gamma_2 Stigma_i + \gamma_3 InfoHealth_i + \gamma_4 X_i + \epsilon_i \ (2)$$

Where:

$Knowledge_i$ = composite knowledge index
Proportion of correct responses to seven items on TB transmission, testing, treatment, and recovery.

$FamHistory_i$ = family history of TB
Indicator equal to 1 if the respondent reports that any household member has had TB; the reference category is respondents with no family history of TB.

$Stigma_i$ = composite stigma index
Unweighted mean of the seven stigma items. Same stigma measure defined above.

$InfoHealth_i$ = number of information sources on health reported by the respondent
Count of different sources from which respondents report receiving health information.

X_i = sociodemographic covariates and primary media source
Includes the same sociodemographic characteristics as in the stigma specification, along with the respondent's primary media source.

ϵ_i = error term, with standard errors clustered at the primary sampling unit (PSU) level.
As with stigma, this model is estimated using both the composite knowledge index and the individual knowledge items, enabling comparison of broader and item-level knowledge patterns.

• *Care-seeking for diagnosis*

We model several care-seeking for diagnosis-related measures using the following general specification:

$$Care_i = \omega + \kappa_1 LikelihoodOfTB_i + \kappa_2 Doctor_i + \kappa_3 Knowledge_i + \kappa_4 Stigma_i + \kappa_5 PresentBiased_i + \kappa_6 LossAverse_i + \kappa_7 FamHistory_i + \kappa_8 Findout\_TB_i + \kappa_9 Self\_efficacy_i + \gamma X_i + \epsilon_i (3)$$

Where:

$Care_i$ = care-seeking for diagnosis measure

One of:

- Intended waiting time before seeking care for a cough, based on the question: "Imagine there is a woman/man
- with a cough and fever. How long should they wait before going to a qualified doctor?"
- Rational ignorance around care-seeking
- Hopefulness about recovery

$LikelihoodOfTB_i$ = perceived likelihood of TB index
Composite index summarising the perceived likelihood that the respondent, their family/friends, and neighbours could get TB.

$Doctor_i$ = preferred doctor type when seeking treatment for a cough
Categorical variable capturing the type of provider respondents say they would visit if they had a persistent cough.

$Knowledge_i$ = composite knowledge index
Unweighted proportion of correct answers to the TB knowledge items. Same as specified above.

$Stigma_i$ = composite stigma index
Unweighted mean of the seven stigma items. Same stigma measure defined above.

$PresentBiased_i$ = present-bias measure
Indicator capturing preference for immediate outcomes relative to delayed outcomes.

$LossAverse_i$ = loss-aversion measure
Indicator reflecting a stronger weighting of losses compared to gains.

$FamHistory_i$ = family history of TB
Indicator equal to 1 if any household member has had TB; the reference category is no family history of TB.

$Findout\_TB_i$ = finding-out index
Average level of concern about neighbours or employers discovering that the respondent had been advised to test for TB.

$Self\_efficacy_i$ = self-efficacy index
Composite measure capturing perceived control over avoiding illness (with reverse-coded items for helplessness and fatalism).

X_i = sociodemographic covariates
Includes age, age squared, gender, education categories, income class, rural residence, smoking, alcohol use, nourishment status, and occupation.

ϵ_i = error term, with standard errors clustered at the primary sampling unit (PSU) level.

• Other Health and TB-related attitudes and behaviours

We also model several additional attitudes and behavioural measures using the following general specification:

$$Y_i = \omega + \kappa_1 LikelihoodOfTB_i + \kappa_2 Doctor_i + \kappa_3 Knowledge_i + \kappa_4 Stigma_i + \kappa_5 PresentBiased_i + \kappa_6 LossAvers_i + \kappa_7 FamHistory_i + \kappa_7 FamHistory_i + \kappa_8 Findout\_TB_i + \kappa_9 Self\_efficacy_i + \gamma X_i + \epsilon_i \quad (4)$$

Where:

Y_i = attitudinal or behavioural measure

One of the following:

- Internality, a categorical measure of perceived control over avoiding illness. Responses range from 1 (Never) to 4 (Always).
- Government doctor as the least hassle option, indicator = 1 if a government doctor is recommended
- Doctor avoidance when sick, indicator = 1 if the respondent avoids formal care when ill
- Perceived seriousness of a prolonged cough, an ordinal measure ranging from 1 (low seriousness) to 3 (high seriousness).
- Perceived difficulty of TB treatment, indicator = 1

$LikelihoodOfTB_i$ = perceived likelihood of TB index
Composite index summarising the perceived likelihood that the respondent, their family/friends, and neighbours could get TB.

$Doctor_i$ = preferred doctor type when seeking treatment for a cough
Categorical variable capturing the type of provider respondents say they would visit if they had a persistent cough.

$Knowledge_i$ = composite knowledge index
Unweighted proportion of correct answers to the TB knowledge items. Same as specified above.

$Stigma_i$ = composite stigma index
Unweighted mean of the seven stigma items. Same stigma measure defined above.

$PresentBiased_i$ = present-bias measure
Indicator capturing preference for immediate outcomes relative to delayed outcomes.

$LossAverse_i$ = loss-aversion measure
Indicator reflecting a stronger weighting of losses compared to gains.

$FamHistory_i$ = family history of TB
Indicator equal to 1 if any household member has had TB; the reference category is no family history of TB.

$Findout\_TB_i$ = finding-out index
Average level of concern about neighbours or employers discovering that the respondent had been advised to test for TB.

$Self\_efficacy_i$ = self-efficacy index

X_i = sociodemographic covariates
Includes age, age squared, gender, education categories, income class, rural residence, smoking, alcohol use, nourishment status, and occupation.

ϵ_i = error term, with standard errors clustered at the primary sampling unit (PSU) level.

Summary of Indices

The table below summarises the construction of all the composite/index-based variables used in the analysis:

Summary of indices

The table below summarises the construction of all the composite/index-based variables used in the analysis:

Indices	Construction
Stigma	The stigma index was constructed using seven survey items that captured community attitudes towards TB. Each item was reverse-scored so that higher values indicate greater stigma. The index was calculated as an unweighted average, with values ranging from 0 to 1. The items covered perceptions related to: • fear of discrimination, • marriage prospects for unmarried women and men, • social exclusion of children with TB, • avoidance of families affected by TB, • potential job loss due to TB, and • reluctance to seek care for a cough because of fear it might be TB. • Higher values indicate stronger stigma towards TB.
Knowledge	The knowledge index was based on seven survey items assessing understanding of TB. Respondents were scored 1 for each correct answer and 0 for each incorrect answer. A composite index was then created by calculating the proportion of correct answers, with values ranging from 0 to 1. The items assessed knowledge of: • transmission of TB, • testing methods, • treatment and cure, • recovery duration, and • availability of free testing and treatment services. Higher values indicate greater knowledge of TB.
Likelihood of TB	The likelihood of TB index was based on three survey items that asked respondents how likely they thought TB was to occur in their family and friends, in their neighbours, and in themselves. Responses were coded as 1 = no, 2 = maybe, and 3 = yes. The index was calculated as the simple average of these three items, with values ranging from 1 to 3. Higher values indicate a stronger perceived likelihood of TB.
Others finding out about TB	The finding-out index is based on two survey items that measure respondents' confidence in managing the social consequences of a TB test. The items asked whether respondents would feel worried if (1) their neighbours or (2) their employers found out that a doctor had asked them to get tested for TB. Responses were recorded on a 4-point scale (1 = not at all worried, 2 = slightly worried, 3 = worried, 4 = very worried). The index was calculated as the simple average of these two items, with higher values indicating greater worry about others finding out.
Self-efficacy	The self-efficacy index is based on three survey items that capture respondents' perceived control over health and life events. The items asked whether (1) taking care of oneself can help avoid illnesses, (2) one feels helpless when faced with problems, and (3) bad events will happen regardless of one's actions. Responses to each item were recorded on a 4-point scale: 1 = never, 2 = sometimes, 3 = many times, and 4 = always. Before averaging, the negatively framed items (helplessness and fatalism) were reverse-coded so that higher values consistently indicate stronger self-efficacy. The index was calculated as the simple average of the three items, resulting in values ranging from 1 to 4. Higher values represent a stronger sense of personal control and self-efficacy.

Appendix 4: Additional Figures & Tables

Figure A4.1: Income class and location type (n = 4,113)

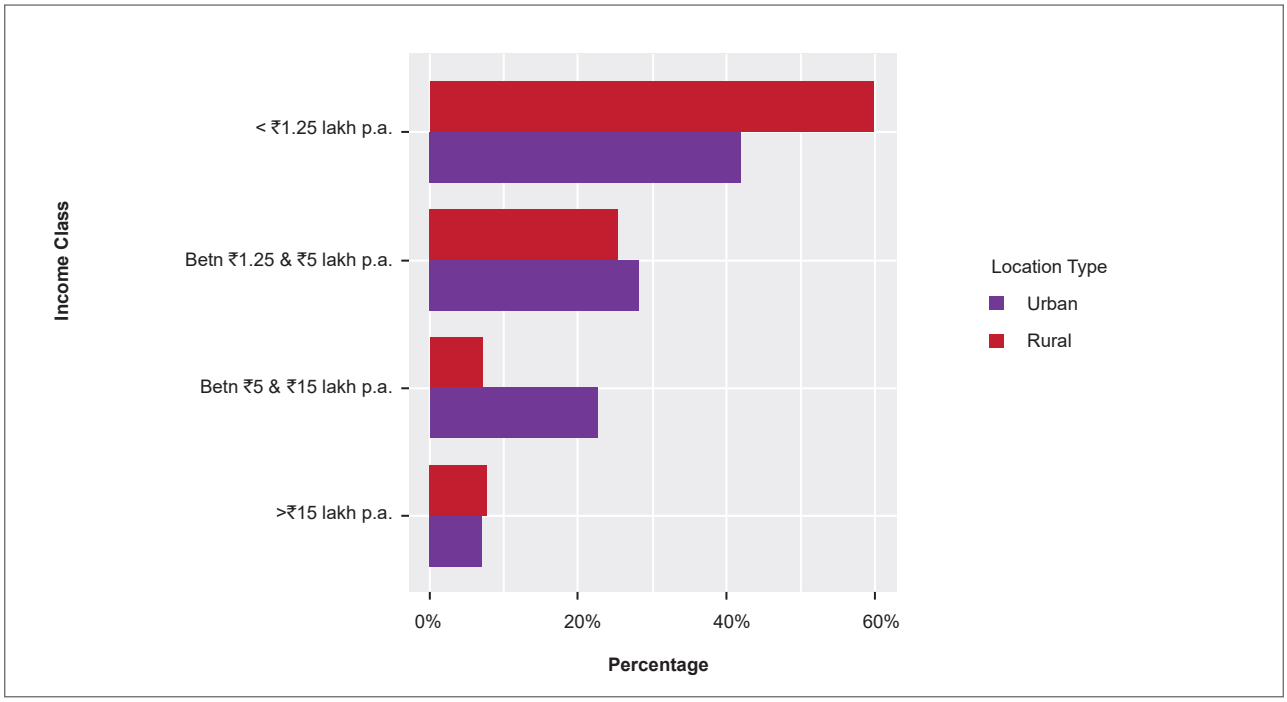
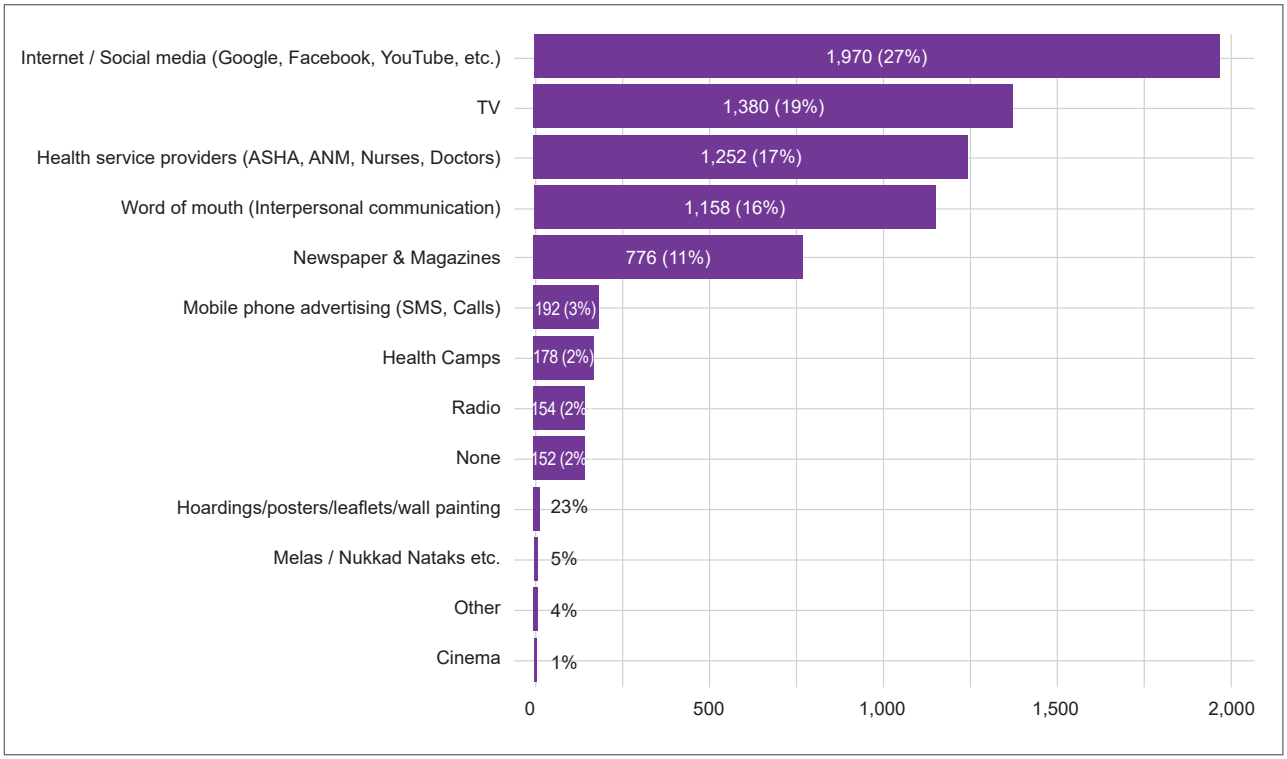
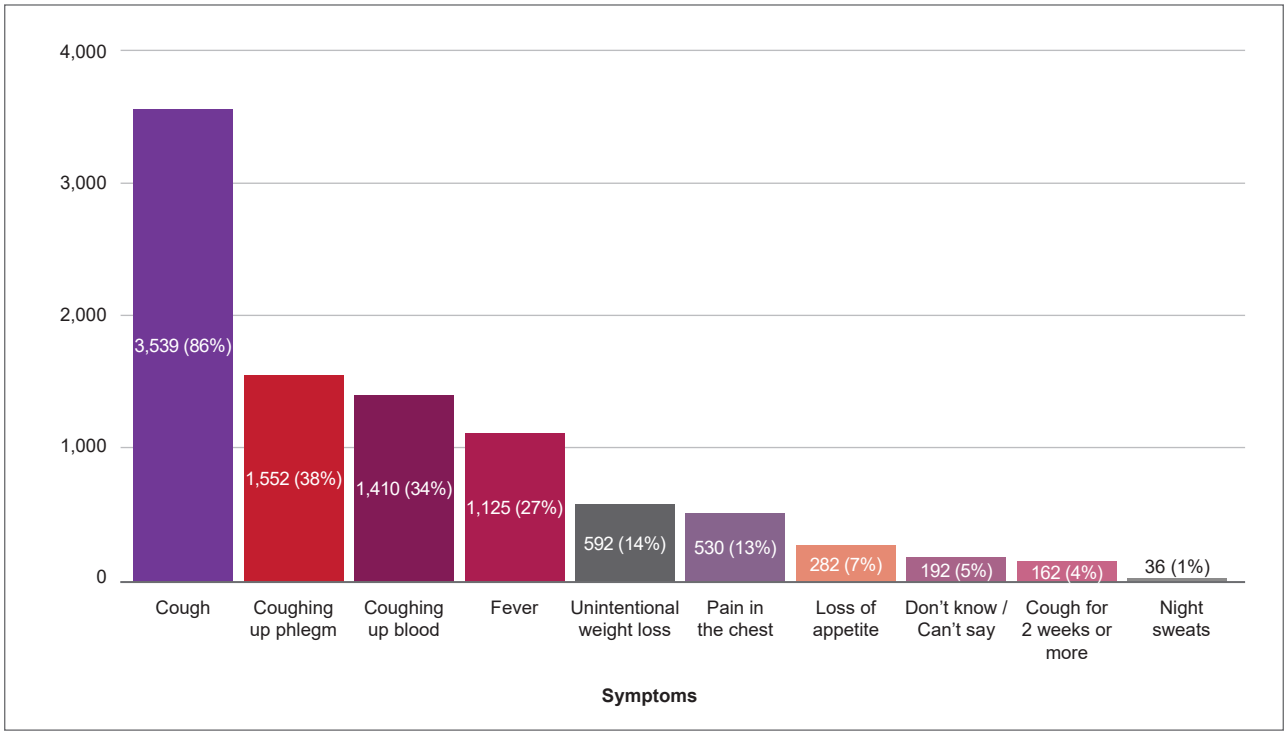


Figure A4.2: Health information sources



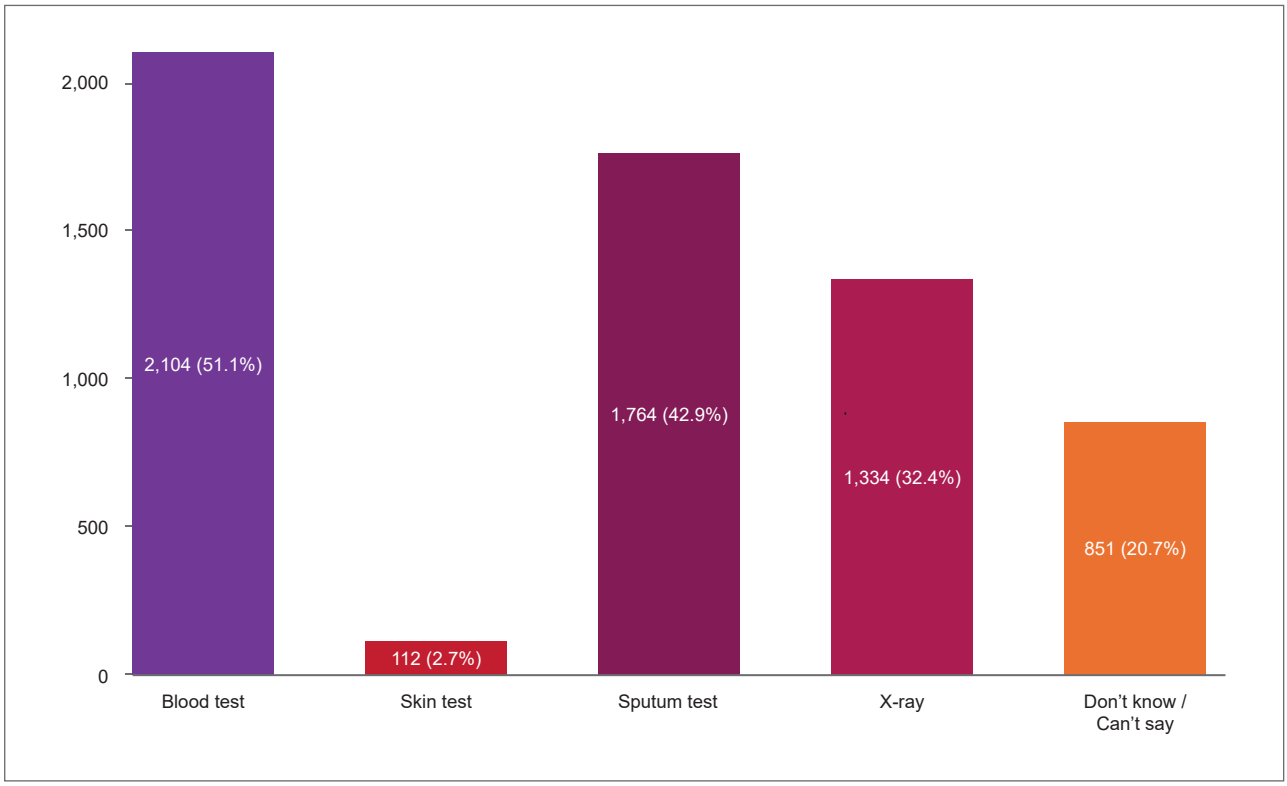
(n = 4,116, multiple responses allowed, total responses = 7,278)

Figure A4.3: Knowledge of TB symptoms



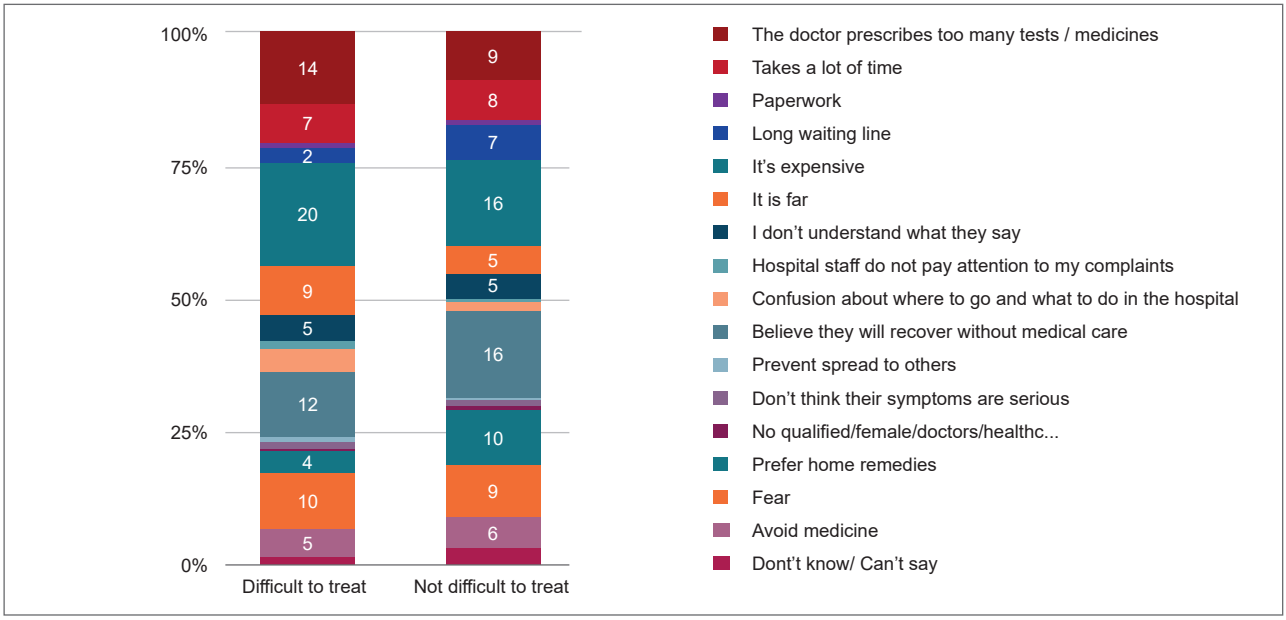
Could you mention a few symptoms of TB? (n = 4,101, multiple responses allowed, total responses = 9,228)

Figure A4.4: Knowledge of testing TB



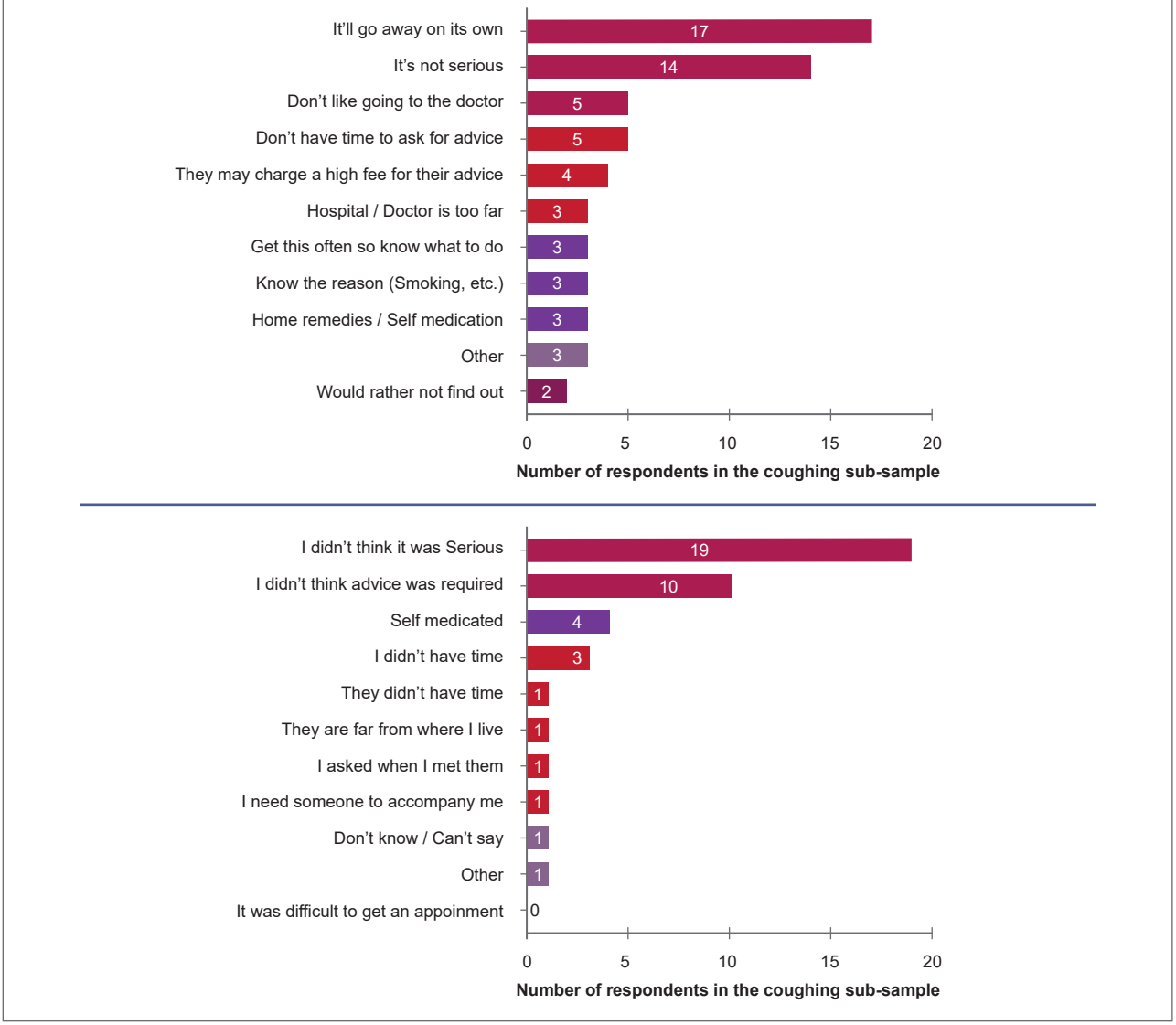
How is TB diagnosed? (Total sample size = 4,101, multiple responses allowed, total responses = 6,164)

Figure A4.5: Doctor avoidance by TB treatment difficulty



(n = 401, multiple responses allowed, total responses = 512)

Figure A4.6: a. Reasons for not seeking care among respondents who had been coughing for more than two weeks; b. Reasons for delaying care among respondents who waited more than two weeks before seeking advice



6a: (n = 46; multiple responses allowed, total responses = 62). Among these non-seekers, 26 individuals (56%) selected at least one "low seriousness" reason ("not serious" or "will go away").

6b: (n = 35, multiple responses allowed; total responses = 42). Among those who delayed, 25 individuals (71%) selected at least one "low seriousness" reason ("didn't think it was serious" or "didn't think advice was required"), including 4 individuals who selected both.

Figure A4.7: What is the likelihood that a cough for two weeks or more is serious? By education level (n = 4,101)

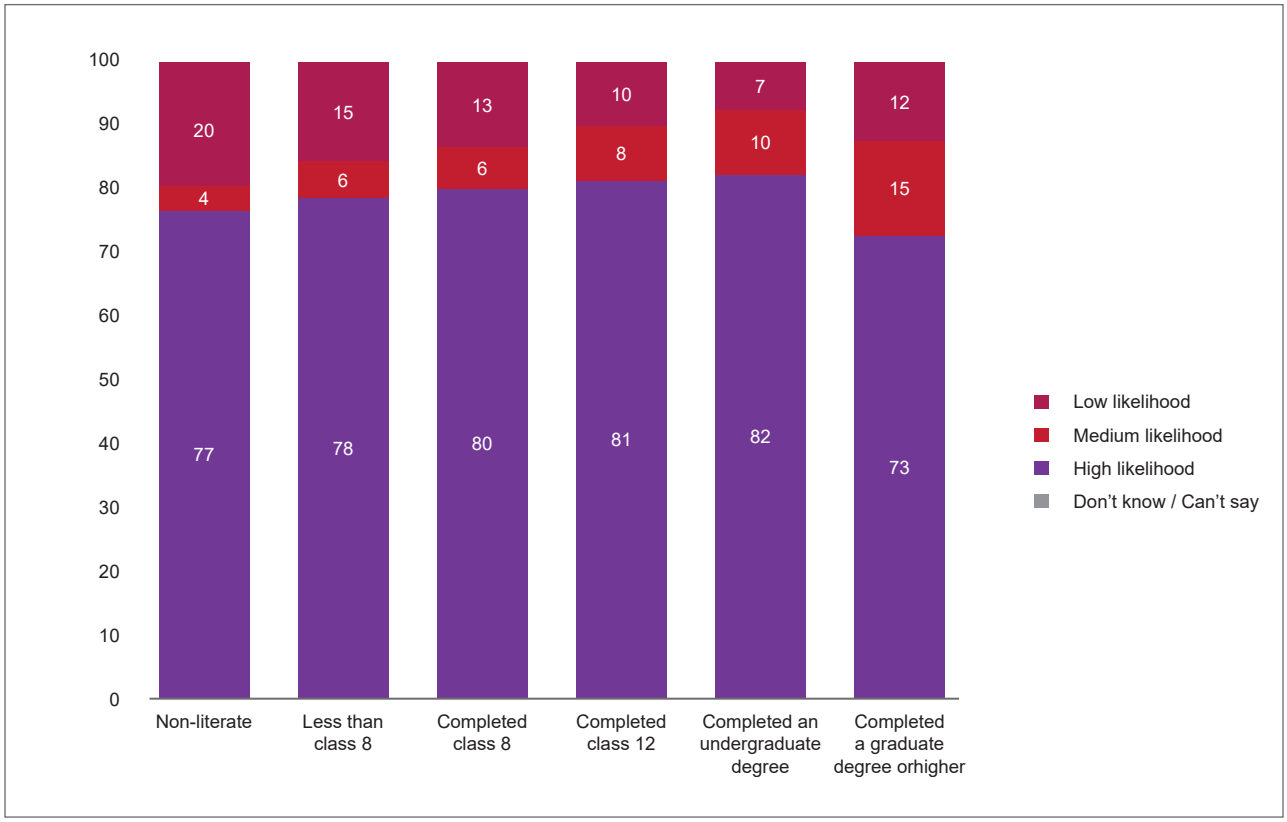
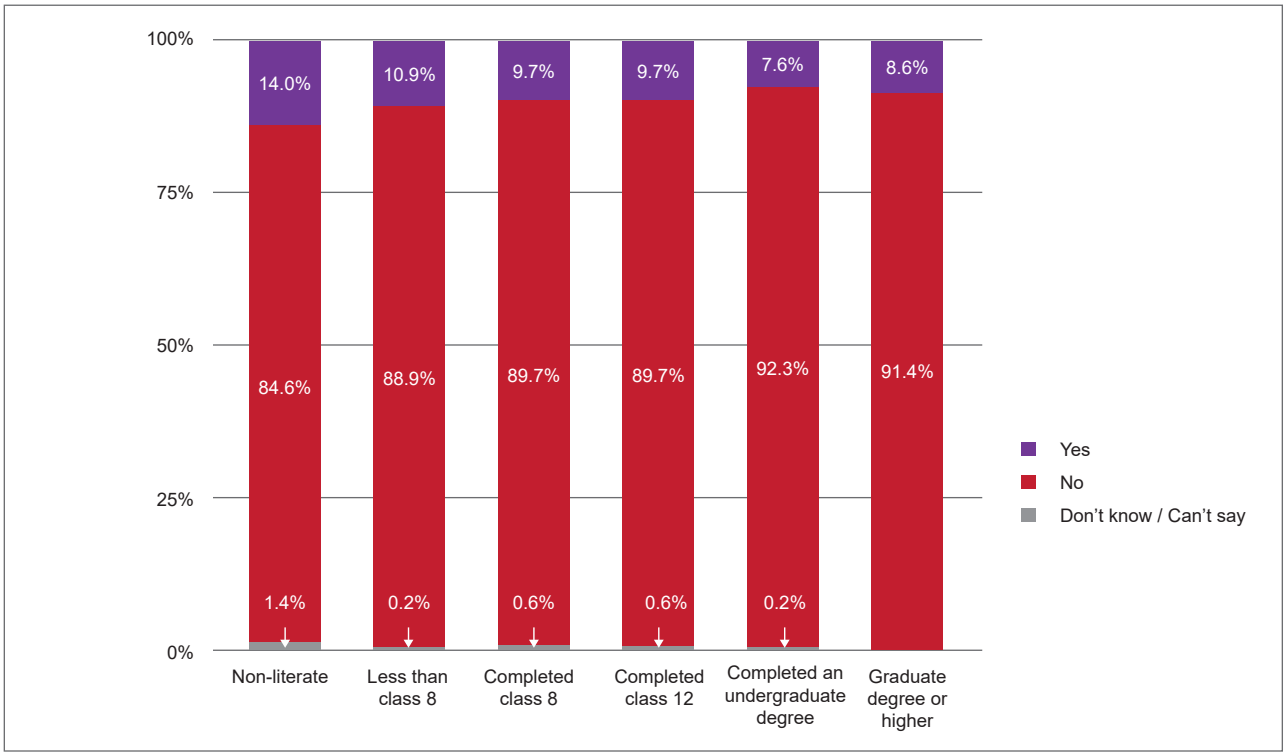


Figure A4.8: Doctor avoidance by education level



Do you ever avoid going to a doctor, health centre or hospital when you are sick? (n = 4,101)

Figure A4.9: Response to TB by difficulty of Treating TB

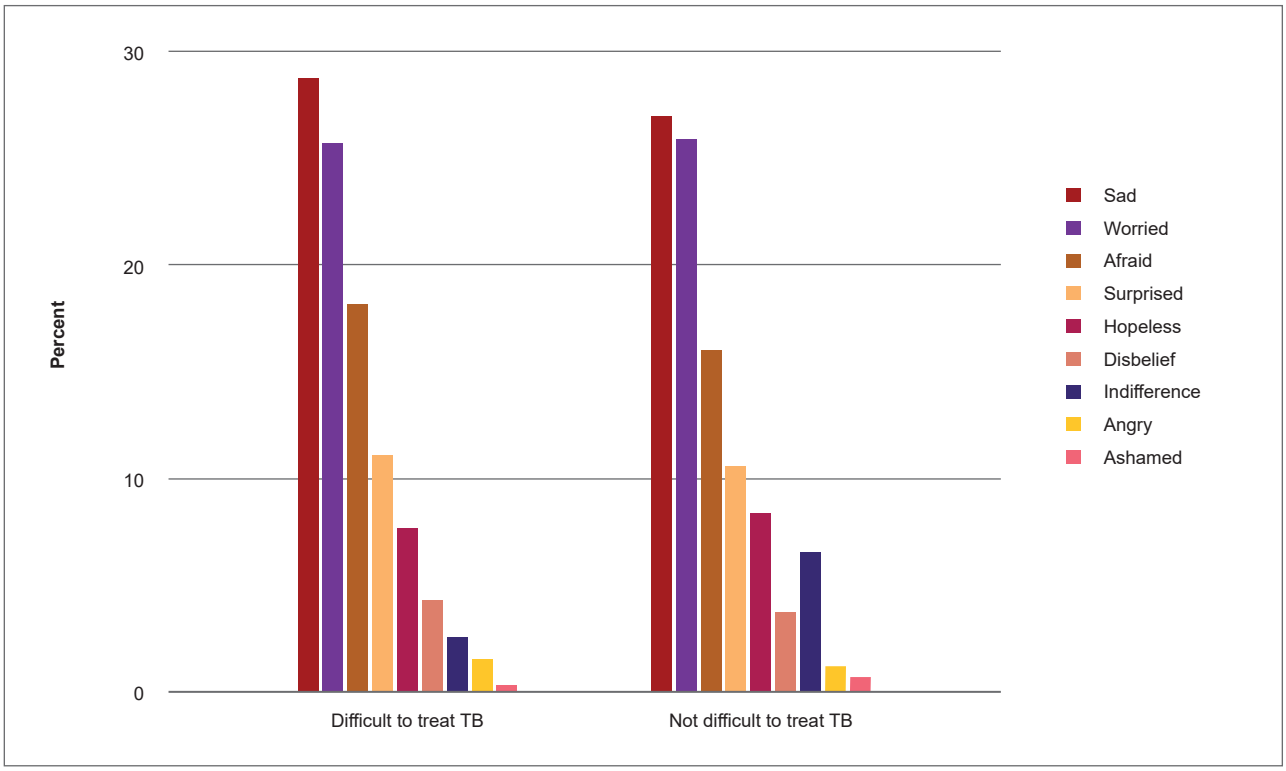


Figure A4.10: Knowledge of TB spread by income Class and location (n = 4,116)

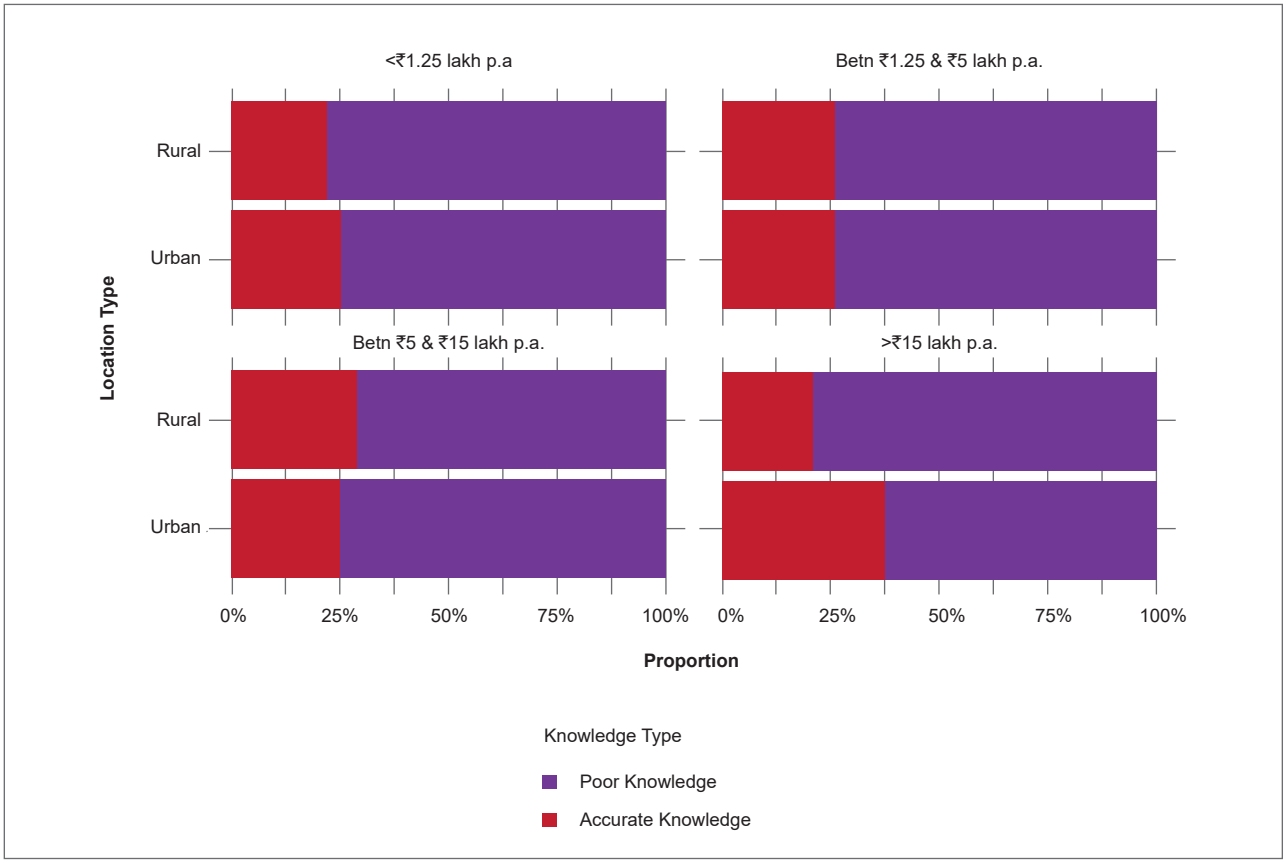


Figure A4.11: Stigma: Individual questions, summary of responses

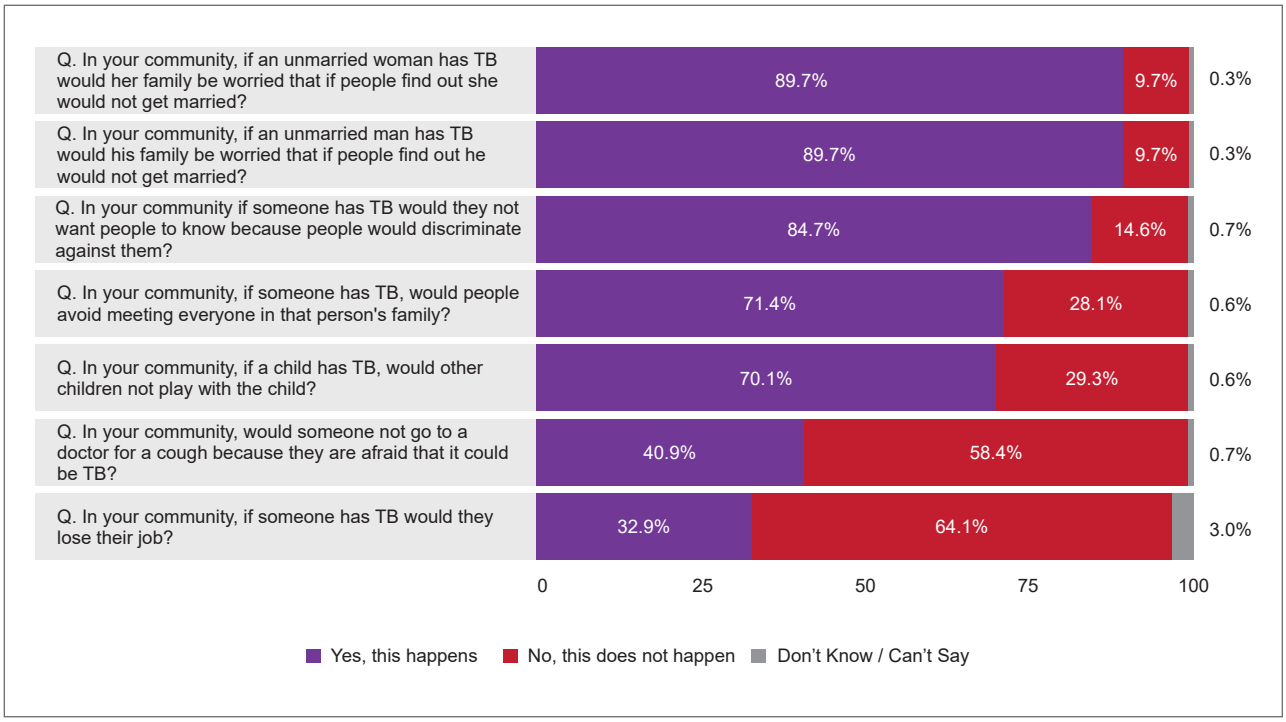


Table A4.1: Associations between stigma, perception and socio-demographic factors

	(1) Do not want people to know	(2) Family will be worried if unmarried woman has TB	(3) Family will be worried if unmarried man has TB	(4) If child has TB, other children would not play	(5) People would avoid meeting	(6) Lose Job because of TB	(7) Not see a doctor for a cough	(8) Stigma Index (Unweighted mean of seven stigma questions)
Female	0.0881***	0.0392***	0.0285**	0.0869***	0.0979***	0.0324	0.0305	0.0566***
	[0.0159]	[0.0125]	[0.0139]	[0.0231]	[0.0238]	[0.0223]	[0.0231]	[0.0115]
Age	-0.00297	0.000289	0.00135	-0.00736*	-0.0161***	-0.0242***	-0.00889**	-0.00824***
	[0.00334]	[0.00259]	[0.00279]	[0.00413]	[0.00399]	[0.00405]	[0.00404]	[0.00212]
Squared Age	0.0000444	-0.00000279	-0.0000204	0.0000855*	0.000185***	0.000227***	0.0000715	0.0000837***
	[0.0000418]	[0.0000322]	[0.0000345]	[0.0000512]	[0.0000495]	[0.0000499]	[0.0000505]	[0.0000259]
Education Level	-0.000366	-0.00142	-0.00264**	0.00221	-0.00582***	-0.0208***	-0.0202***	-0.00702***
	[0.00145]	[0.00119]	[0.00120]	[0.00207]	[0.00200]	[0.00216]	[0.00200]	[0.000986]
Rural	0.00543	0.000439	0.0120	0.0215	0.0509*	0.00543	0.0109	0.0148
	[0.0191]	[0.0163]	[0.0171]	[0.0215]	[0.0279]	[0.0237]	[0.0209]	[0.0138]
Smoker	-0.00386	0.00510	0.00625	-0.0293	0.0133	0.0246	0.00412	0.00200
	[0.0167]	[0.0140]	[0.0140]	[0.0217]	[0.0218]	[0.0172]	[0.0219]	[0.0103]
Alcohol Consumption Frequency (base: Never)								
Everyday	0.00433	-0.0506	-0.00493	-0.0915	0.0147	-0.0966*	0.0572	-0.0223
	[0.0630]	[0.0494]	[0.0422]	[0.0704]	[0.0676]	[0.0506]	[0.0678]	[0.0404]
Most days	0.0327	0.0821***	0.0783***	0.0969	0.123	0.0332	-0.0797	0.0560
	[0.0664]	[0.0139]	[0.0140]	[0.0868]	[0.0744]	[0.103]	[0.0650]	[0.0393]
Some days	0.0566**	0.00570	0.00656	0.00124	0.0131	-0.00760	0.0590**	0.0188
	[0.0222]	[0.0165]	[0.0162]	[0.0284]	[0.0241]	[0.0253]	[0.0277]	[0.0144]
Less than 3 meals a day	0.0112	0.0259**	0.0167	0.0168	0.0240	0.0272	0.0569***	0.0254***
	[0.0135]	[0.0114]	[0.0116]	[0.0169]	[0.0152]	[0.0168]	[0.0154]	[0.00923]
Income Class (base: Less than ₹1.25 lakh p.a.)								
Betn ₹1.25 lakh and ₹5 lakh p.a.	-0.0112	-0.0222**	-0.0299**	-0.00671	-0.0346**	-0.0113	-0.0456**	-0.0235**
	[0.0138]	[0.0103]	[0.0117]	[0.0184]	[0.0165]	[0.0174]	[0.0210]	[0.00953]

Continue...

	(1) Do not want people to know	(2) Family will be worried if unmarried woman has TB	(3) Family will be worried if unmarried man has TB	(4) If child has TB, other children would not play	(5) People would avoid meeting	(6) Lose Job because of TB	(7) Not see a doctor for a cough	(8) Stigma Index (Unweighted mean of seven stigma questions)
Betn ₹5 lakh and 15 lakh p.a.	-0.0396**	-0.00970	-0.0141	-0.0164	-0.0513**	-0.0749***	-0.0605**	-0.0378***
	[0.0196]	[0.0164]	[0.0189]	[0.0293]	[0.0254]	[0.0199]	[0.0277]	[0.0143]
> ₹15 lakh p.a.	-0.0749***	-0.0634***	-0.0408**	-0.0625*	-0.0678**	-0.0557*	-0.0260	-0.0549***
	[0.0256]	[0.0210]	[0.0199]	[0.0342]	[0.0305]	[0.0299]	[0.0276]	[0.0167]
Family History of TB	-0.0198	-0.0488**	-0.0634***	-0.0536**	-0.0714***	-0.00954	-0.0104	-0.0396***
	[0.0212]	[0.0199]	[0.0210]	[0.0254]	[0.0272]	[0.0247]	[0.0299]	[0.0142]
TB can happen to anyone	0.0488**	0.0174	0.0165	0.0743***	0.0347	0.0199	0.0359	0.0348***
	[0.0218]	[0.0173]	[0.0187]	[0.0259]	[0.0270]	[0.0214]	[0.0251]	[0.0132]
TB is difficult to treat	0.0487***	0.0434***	0.0476***	0.0464***	0.0737***	0.120***	0.0914***	0.0669***
	[0.0125]	[0.00942]	[0.0100]	[0.0156]	[0.0154]	[0.0179]	[0.0141]	[0.00802]
Constant	0.630***	0.683***	0.716***	0.507***	0.852***	0.989***	0.628***	0.715***
	[0.0968]	[0.0937]	[0.0913]	[0.121]	[0.115]	[0.104]	[0.123]	[0.0698]
Observations	**3,983**	**3,987**	**3,987**	**3,985**	**3,988**	**3,894**	**3,982**	**3,992**
R^2	**0.033**	**0.035**	**0.036**	**0.027**	**0.047**	**0.113**	**0.075**	**0.099**

Note 1: Models 1–7 report regression coefficients where the dependent variable is a binary indicator equal to 1 if the respondent said yes to prevalence of stigma and 0 if the respondent said no. Model 8 (Stigma Index) represents regression coefficients reported using unweighted mean of seven stigma variables and ranges from 0-1. Additional controls included were occupation and doctor preference when faced with cough. Coefficients should be interpreted as associations rather than causal effects.

How to interpret the table: For instance, female is a binary indicator equal to 1 for women and 0 for men, so the coefficient reflects the average difference between these groups. The coefficient in Column (8) (0.0566) implies that women score about 5.7 percentage points higher on the stigma index than men.

Note 2: To complement the main results, we re-estimated the stigma models using an indicator for being aged 18–24 instead of the continuous age terms, while keeping all other covariates and outcomes the same. Young adults show slightly higher stigma on several items; particularly the belief that people would avoid the family of someone with TB ($\beta = 0.0669$***), that a person with TB would lose their job ($\beta = 0.134$***), and that someone might avoid going to a doctor for a cough out of fear it could be TB ($\beta = 0.0734$***). The composite stigma index also shows a small positive association for this age group ($\beta = 0.0392$***).

Robust standard errors in parentheses clustered at the level of PSU. *** p<0.01, ** p<0.05, * p<0.1

Table A4.2: Associations between TB knowledge, stigma, and socio-demographic factors

	(1) Correct knowledge about TB Diagnostic methods	(2) Correct knowledge about TB treatment duration	(3) Correct knowledge about whether TB can be cured	(4) Correct knowledge about recovery	(5) Correct knowledge about free TB diagnosis	(6) Correct knowledge about free TB treatment	(7) Correct knowledge on how TB spreads+	(8) Proportion of knowledge questions answered correctly
Education	0.00453***	0.000753	0.00222*	0.0000948	0.00472***	0.00316***	0.00247	0.00256***
	[0.00171]	[0.00114]	[0.00126]	[0.000403]	[0.00140]	[0.00114]	[0.00212]	[0.000646]
Female	0.0460**	0.0322**	-0.00139	0.00225	0.0335**	0.0170	-0.0497**	0.0114
	[0.0197]	[0.0140]	[0.0159]	[0.00372]	[0.0145]	[0.0137]	[0.0190]	[0.00718]
Age	0.0187***	0.00517**	0.0167***	-0.00145*	0.00771**	0.00638**	0.0138***	0.00958***
	[0.00411]	[0.00237]	[0.00280]	[0.000766]	[0.00310]	[0.00263]	[0.00350]	[0.00138]
Squared Age	-0.000180***	-0.0000387	-0.000157***	0.0000162*	-0.0000691*	-0.0000585*	-0.000174***	-0.0000946***
	[0.0000483]	[0.0000282]	[0.0000329]	[0.00000925]	[0.0000375]	[0.0000326]	[0.0000419]	[0.0000160]
Rural	-0.0262	0.000734	-0.00295	-0.00222	0.00360	-0.00591	-0.0316*	-0.00922
	[0.0198]	[0.0119]	[0.0106]	[0.00273]	[0.0138]	[0.0126]	[0.0183]	[0.00615]
Smoker	-0.0300*	-0.00390	0.00566	0.00264	-0.0233	-0.0393***	-0.0260	-0.0163***
	[0.0174]	[0.0104]	[0.0107]	[0.00280]	[0.0142]	[0.0144]	[0.0167]	[0.00621]
Alcohol Consumption Frequency (base: Never)								
Everyday	-0.0952	-0.0160	-0.0926**	-0.00666**	-0.0180	0.0589*	-0.0999**	-0.0385*
	[0.0623]	[0.0383]	[0.0466]	[0.00318]	[0.0445]	[0.0309]	[0.0484]	[0.0208]
Most days	-0.00935	-0.0292	-0.0673	-0.00248	-0.134	-0.0928	-0.0579	-0.0561
	[0.0863]	[0.0561]	[0.0630]	[0.00263]	[0.0874]	[0.0720]	[0.0774]	[0.0435]
Some days	-0.00421	-0.00708	-0.0291**	-0.00174	-0.0181	0.0192	-0.0178	-0.00841
	[0.0220]	[0.0139]	[0.0145]	[0.00309]	[0.0201]	[0.0140]	[0.0220]	[0.00756]
Less than 3 meals a day	0.0135	0.0201**	-0.00977	-0.00611*	-0.00371	-0.00241	-0.0278*	-0.00231
	[0.0135]	[0.0102]	[0.0103]	[0.00366]	[0.00996]	[0.0108]	[0.0155]	[0.00487]
Income Class (base: Less than ₹1.25 lakh p.a.)								
Betn ₹1.25 lakh and ₹5 lakh p.a.	-0.0286	0.0116	-0.00494	-0.00246	-0.0176	-0.00469	0.00603	-0.00580
	[0.0177]	[0.00896]	[0.0114]	[0.00267]	[0.0117]	[0.0104]	[0.0169]	[0.00573]

Continue...

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	(1) Correct knowledge about TB Diagnostic methods	(2) Correct knowledge about TB treatment duration	(3) Correct knowledge about whether TB can be cured	(4) Correct knowledge about recovery	(5) Correct knowledge about free TB diagnosis	(6) Correct knowledge about free TB treatment	(7) Correct knowledge on how TB spreads+	(8) Proportion of knowledge questions answered correctly
Betn ₹5 lakh and 15 lakh p.a.	0.0641***	-0.000668	-0.00217	-0.00337	-0.0202	-0.00975	0.0123	0.00576
	[0.0204]	[0.0158]	[0.0161]	[0.00305]	[0.0149]	[0.0144]	[0.0250]	[0.00748]
> ₹15 lakh p.a.	-0.159***	-0.0909***	0.0294	0.00504	-0.0567**	-0.0188	0.0204	-0.0387***
	[0.0239]	[0.0239]	[0.0182]	[0.00667]	[0.0246]	[0.0196]	[0.0283]	[0.00948]
Family History of TB	0.128***	0.0649***	0.0160	0.000657	0.0336**	0.0426***	0.0106	0.0424***
	[0.0191]	[0.00797]	[0.0141]	[0.00421]	[0.0131]	[0.0126]	[0.0252]	[0.00671]
Stigma Index	0.0334	0.0325	-0.0383**	-0.00245	-0.00643	0.000903	-0.0850***	-0.00934
	[0.0286]	[0.0208]	[0.0171]	[0.00609]	[0.0205]	[0.0163]	[0.0287]	[0.00916]
Constant	0.138	0.647***	0.551***	0.0495**	0.585***	0.703***	0.210*	0.412***
	[0.111]	[0.0788]	[0.0745]	[0.0196]	[0.0843]	[0.0651]	[0.112]	[0.0399]
Observations	**4,026**	**4,026**	**4,026**	**4,026**	**4,026**	**4,026**	**4,026**	**4,026**
R^2	**0.065**	**0.035**	**0.043**	**0.009**	**0.033**	**0.025**	**0.019**	**0.080**

Note 1: Models 1–7 report regression coefficients where the dependent variable is a binary indicator equal to 1 if the respondent answered the knowledge question correctly. Model 8 reports results where the dependent variable is the proportion of correct responses out of seven knowledge questions. Additional controls included were occupation, media consumption sources, and total number of sources for health-related information. Coefficients should be interpreted as associations rather than causal effects.

How to interpret the table: For instance, age is a continuous variable measured in years, so the coefficient reflects the change associated with a one-year difference. The coefficient in Column (8) (0.00958) indicates that each additional year of age is associated with a 0.95-percentage-point higher proportion of TB knowledge questions answered correctly. Over a 10-year span, this corresponds to a difference of about 9.5 percentage points, and across a 20-year span, roughly 19 percentage points.

Note 2: Correct knowledge of how TB spreads is not statistically associated with education as shown in (7). However, when we examine the related misconception that TB spreads through sharing food or utensils, we do observe a significant negative association with education. Regressing this belief (coded 1 = Yes, 0 = No) on the same covariates used in Table A4.2 yields an education coefficient of −0.00420 (significant at the 10 percent level). This implies that each additional education level reduces the likelihood of holding this misconception by about 0.42 percentage points. Relative to the sample average education level of 9.4, non-literate individuals are approximately 4 percentage points more likely to believe that TB spreads through shared utensils, while those in the highest education category are about 2.7 percentage points less likely. Across the full education range, this corresponds to a difference of about 6 to 7 percentage points.

Note 3: To complement the main results, we re-estimated the knowledge models using an indicator for being aged 18–24 instead of the continuous age terms, while keeping all other covariates and outcomes the same. The 18–24 age group shows lower TB-related knowledge on most items, including knowledge of TB testing (β = –0.117***), treatment (β = –0.0358***), cure (β = –0.0990***), free diagnosis (β = –0.0530***), free treatment (β = –0.0483***), and how TB spreads (β = –0.0407**). The composite knowledge index also shows a negative association for this age group (β = –0.0556***), indicating overall lower TB knowledge compared with older respondents.

Note 4: We also separately tested an interaction between gender and age 18–24 separately for knowledge of free TB diagnosis and free TB treatment, motivated by prior evidence that awareness of government programmes may be lower among young women (Jangid et al., 2016). The interaction terms were not statistically significant: diagnosis: –0.016, p = 0.533; treatment: –0.008, p = 0.728. For consistency, the interaction terms are not included in Table A4.2 regressions, and coefficients for covariates in the diagnosis and treatment columns are from the main models without interactions.

Robust standard errors in parentheses clustered at the level of PSU. *** p<0.01, ** p<0.05, * p<0.1.

Table A4.3: Associations between care-seeking variables, stigma, knowledge, behavioural factors, and socio-demographics

	(1) Days Waiting	(2) Rational Ignorance	(3) Hopeful of Recovery
Likelihood of TB Index	0.662***	-0.0231***	-0.00509
	[0.181]	[0.00523]	[0.0125]
Doctor preference when faced with cough for 2 weeks (base: self-medicate or do nothing)			
Govt. - Allopathy	-1.438*	-0.0435	0.0481
	[0.852]	[0.0318]	[0.0510]
Pvt. - Allopathy	-1.710**	-0.0346	0.0134
	[0.859]	[0.0309]	[0.0534]
Govt. - Ayurveda	-1.773*	-0.0411	0.0403
	[0.928]	[0.0332]	[0.0648]
Pvt. - Ayurveda	-1.427	-0.0509	0.0353
	[0.995]	[0.0401]	[0.0660]
ASHA/AW	-0.00434	0.00779	0.0283
	[2.388]	[0.0820]	[0.109]
Pharmacist	0.0909	-0.0381	0.0900
	[1.185]	[0.0392]	[0.0578]
Unqualified	0.326	-0.0597*	0.0811
	[1.240]	[0.0348]	[0.0549]
Knowledge Index (Proportion of knowledge questions answered correctly)	1.548*	-0.104***	-0.0262
	[0.839]	[0.0292]	[0.0491]
Stigma Index	0.385	0.00640	-0.0588**
	[0.437]	[0.0154]	[0.0286]
Present Biased	0.380*	-0.00215	0.0107
	[0.224]	[0.00750]	[0.0140]
Loss Averse	-0.102	-0.00370	0.0261**
	[0.200]	[0.00677]	[0.0127]
Female	0.203	-0.00995	0.0174
	[0.281]	[0.0102]	[0.0183]
Age	0.165***	-0.00225	0.00381
	[0.0562]	[0.00177]	[0.00307]
Squared Age	-0.00148**	0.0000214	-0.0000413
	[0.000728]	[0.0000220]	[0.0000379]
Education Level	0.0438	-0.00278***	0.00634***
	[0.0295]	[0.000866]	[0.00208]
Rural	0.394	0.00306	0.218***
	[0.267]	[0.00655]	[0.0310]
Smoker	-0.632**	-0.00757	0.0271*
	[0.254]	[0.00807]	[0.0154]
Alcohol Consumption frequency (base: never)			
Everyday	0.999	-0.0296*	-0.0767
	[1.305]	[0.0176]	[0.0531]

Continue...

...Continue

	(1) Days Waiting	(2) Rational Ignorance	(3) Hopeful of Recovery
Most days	0.316	0.0911	0.0223
	[1.839]	[0.0611]	[0.0641]
Some days	-0.155	0.0154	0.0116
	[0.351]	[0.0107]	[0.0178]
Less than 3 meals a day	-0.165	0.00169	-0.0258*
	[0.181]	[0.00642]	[0.0138]
Income Class (base: Less than ₹1.25 lakh p.a.)			
Betn ₹1.25 lakh and ₹5 lakh p.a.	0.347	0.00521	-0.0227
	[0.256]	[0.00799]	[0.0229]
Betn ₹5 lakh and 15 lakh p.a.	0.289	0.00148	-0.305***
	[0.389]	[0.00903]	[0.0500]
> ₹15 lakh p.a.	0.126	-0.00268	0.0378*
	[0.419]	[0.0106]	[0.0201]
Family History of TB	1.500***	-0.0155*	0.0158
	[0.419]	[0.00784]	[0.0227]
Constant	-1.856	0.301***	0.587***
	[1.548]	[0.0672]	[0.145]
Observations	**4,037**	**4,037**	**4,037**
R^2	**0.035**	**0.030**	**0.179**

Note 1: The variable in column 1 is an unweighted average of the waiting time reported by respondents before seeing a doctor when presenting with symptoms including a cough. Columns 2 and 3 use binary variables as described in the appendix 3. The independent variable Likelihood of TB Index is an unweighted average of three items: perceived likelihood that anyone could get TB, that a neighbour could get TB, and that the respondent themselves could get TB, and ranges from 1 to 3. Additional controls included were occupation, self-efficacy around health and likelihood of finding out about TB, which is the average worry that an employer or neighbour would find out if a doctor asked the person to get tested for TB. Coefficients should be interpreted as associations rather than causal effects.

How to interpret the table: For instance, Age is a continuous variable measured in years. The coefficient in Column (1) (0.165***) indicates that each additional year of age is associated with a 0.165-day longer intended waiting time before consulting a doctor for a cough. This means that a 10-year age difference corresponds to roughly 1.65 additional days of delay, and a 20-year difference corresponds to about 3.3 additional days.

Note 2: To complement the main results, we re-estimated the care-seeking models using an indicator for being aged 18–24 in place of the continuous age terms, while keeping all other covariates and outcomes the same. The 18–24 age group shows a slightly shorter intended waiting time before seeking care for a cough ($\beta = -0.971$***). For the other outcomes, rational ignorance and hopefulness about recovery, the associations for this age group are small and statistically insignificant, indicating broadly similar patterns to older respondents.

Robust standard errors in parentheses clustered at the level of PSU. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A4.4: Associations between health and TB-related attitudes, behavioural tendencies, and socio-demographic characteristics

	(1) Perceived control over avoiding illness (Internality)	(2) Government doctor as preferred treatment with least hassle	(3) Avoid doctor when sick	(4) Perceived seriousness of prolonged cough	(5) TB treatment is difficult
Female	0.173***	-0.0320*	0.00572	0.0217	0.0637***
	[0.0411]	[0.0190]	[0.0135]	[0.0327]	[0.0211]
Age	-0.00348	0.00283	0.000627	0.000644	-0.0291***
	[0.00743]	[0.00358]	[0.00286]	[0.00607]	[0.00443]
Squared Age	0.0000769	-0.0000120	-0.00000886	-0.00000771	0.000290***
	[0.0000925]	[0.0000441]	[0.0000351]	[0.0000786]	[0.0000531]
Education Level	0.0179***	0.000874	-0.00242*	0.0118***	-0.0249***
	[0.00391]	[0.00165]	[0.00128]	[0.00318]	[0.00194]
Rural	-0.000814	0.0485***	-0.00524	-0.0558	0.0322
	[0.0395]	[0.0150]	[0.0163]	[0.0363]	[0.0238]
Smoker	0.0258	-0.0325**	-0.00265	0.0536*	0.0188
	[0.0376]	[0.0152]	[0.0128]	[0.0277]	[0.0178]
Alcohol Consumption frequency (base: never)					
Everyday	0.234**	0.0753	0.0331	-0.152	-0.0524
	[0.103]	[0.0557]	[0.0401]	[0.102]	[0.0602]
Most days	-0.0632	-0.1000	0.0580	-0.131	0.0571
	[0.176]	[0.0718]	[0.0617]	[0.114]	[0.0935]
Some days	0.0607	0.0192	0.0417**	0.0105	-0.0245
	[0.0470]	[0.0199]	[0.0187]	[0.0415]	[0.0263]
Less than 3 meals a day	0.0260	0.00439	-0.0219*	-0.0236	0.00373
	[0.0315]	[0.0131]	[0.0117]	[0.0238]	[0.0180]
Income Class (base: Less than ₹1.25 lakh p.a.)					
Betn ₹1.25 lakh and ₹5 lakh p.a.	0.00397	-0.0259	-0.0329***	0.0334	0.00745
	[0.0318]	[0.0177]	[0.0112]	[0.0220]	[0.0201]
Betn ₹5 lakh and 15 lakh p.a.	-0.0575	0.0114	-0.00504	-0.0419	0.0209
	[0.0448]	[0.0200]	[0.0159]	[0.0507]	[0.0355]
> ₹15 lakh p.a.	-0.0142	-0.0114	-0.00101	-0.00138	0.0119
	[0.0599]	[0.0221]	[0.0165]	[0.0440]	[0.0315]
Family History of TB	0.0176	0.0347*	0.0170	-0.0300	-0.0717**
	[0.0456]	[0.0206]	[0.0176]	[0.0376]	[0.0278]
Doctor preference when faced with cough for 2 weeks (base: self-medicate or do nothing)					
Govt. - Allopathy	0.115	0.140***	-0.112**	0.116	-0.0132
	[0.129]	[0.0499]	[0.0537]	[0.0857]	[0.0592]
Pvt. - Allopathy	0.101	-0.299***	-0.0989*	0.0674	0.0272
	[0.130]	[0.0538]	[0.0566]	[0.0870]	[0.0593]
Govt. - Ayurveda	0.0203	0.120**	-0.0291	0.108	-0.0563
	[0.150]	[0.0566]	[0.0628]	[0.107]	[0.0743]
Pvt. - Ayurveda	0.107	-0.281***	-0.0697	-0.0629	0.00396
	[0.176]	[0.0734]	[0.0699]	[0.145]	[0.0811]

Continue...

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	(1) Perceived control over avoiding illness (Internality)	(2) Government doctor as preferred treatment with least hassle	(3) Avoid doctor when sick	(4) Perceived seriousness of prolonged cough	(5) TB treatment is difficult
ASHA/AW	-0.316	-0.546***	-0.124	0.0883	-0.241*
	[0.235]	[0.107]	[0.0936]	[0.234]	[0.125]
Pharmacist	0.0538	-0.108	0.00911	-0.0277	0.0290
	[0.158]	[0.0726]	[0.0723]	[0.118]	[0.0765]
Unqualified	0.261*	-0.126*	-0.114*	0.137	0.0382
	[0.154]	[0.0721]	[0.0641]	[0.111]	[0.0765]
Stigma Index	0.0796	-0.000718	0.0729***	0.0922*	0.177***
	[0.0590]	[0.0289]	[0.0193]	[0.0474]	[0.0291]
Likelihood of TB Index	0.0648***	0.00289	0.00290	0.0851***	-0.0212*
	[0.0239]	[0.0101]	[0.00769]	[0.0191]	[0.0113]
Knowledge Index	0.135	0.237***	-0.127***	-0.0359	-0.344***
	[0.104]	[0.0494]	[0.0396]	[0.0842]	[0.0571]
Present Biased	0.0292	0.0319*	-0.00368	-0.0354	-0.0382**
	[0.0332]	[0.0163]	[0.0121]	[0.0285]	[0.0178]
Loss Averse	0.0356	-0.0156	0.00369	0.0475**	-0.00275
	[0.0292]	[0.0123]	[0.0103]	[0.0238]	[0.0140]
Constant	0.169	0.400***	0.281***	1.899***	1.171***
	[0.289]	[0.136]	[0.103]	[0.203]	[0.156]
Observations	4,031	4,037	4,037	4,027	4,006
R^2	0.222	0.255	0.030	0.025	0.188

Note 1: Models (1)–(5) report regression coefficients where the dependent variable is: (1) is 1-4, corresponding to never to always, in response to: "Do you feel that taking care of yourself can help avoid illnesses?"; (2) equal to 1 if the preferred source for least-hassle treatment is a government doctor, and 0 otherwise; (3) is 1 if respondent avoids going to a doctor, health centre, or hospital when sick, and 0 otherwise; (4) is 1-3, corresponding to low, medium, and high likelihood that a cough lasting two weeks or more is serious; (5) equal to 1 if the respondent believes TB is difficult to treat, and 0 otherwise. Additional controls included were occupation, self-efficacy around health and likelihood of finding out about TB, which is the average worry that an employer or neighbour would find out if a doctor asked the person to get tested for TB. Coefficients should be interpreted as associations rather than causal effects. Some covariates may be conceptually close to, or potentially downstream of, specific outcomes. For instance, baseline doctor preference may itself be shaped by how seriously respondents view a prolonged cough, so results should be understood as descriptive associations conditional on the included covariates.

How to interpret the table: For instance, education is measured using 17 categories (from non-literate to PhD). Because each category represents only a small step in educational attainment, the per-unit coefficient might appear modest. The coefficient in Column (1) (0.0179) implies that each additional education level increases the likelihood of internality i.e. perceive control over illness about 1.8 percentage points. Relative to the sample average education level (9.4), non-literate individuals are roughly 17 percentage points less likely to internalise, while those in the highest education category are about 12 percentage points more likely. Across the full education range, the difference is around 29 percentage points. Similarly, each additional education level is associated with a 0.24-percentage-point lower likelihood of doctor avoidance in Column (3), a 1.18-percentage-point higher likelihood of perceiving prolonged cough as serious in Column (4), and 2.5 percentage-point lower likelihood of perceiving TB as difficult treatment in (5). Across the full education range, these correspond to differences of about 4 percentage points in Column (3), roughly 19 percentage points in Column (4), and about 40 percentage points in Column (5).

Note 2: We re-estimated these models using an indicator for being aged 18–24 instead of the continuous age terms, with all other covariates unchanged. For internality, choosing a government doctor as the least-hassle option, avoidance of formal care, and perceived seriousness of a prolonged cough, the associations for young adults are small and not statistically significant. The only difference is for perceived difficulty of TB treatment, which shows a small positive and significant association for this age group ($\beta = 0.170$***).

Robust standard errors (in parentheses) are clustered at the PSU level. *** p<0.01, ** p<0.05, * p<0.1.

Table A4.5: Impact of message framing on intention to seek medical advice for TB symptoms

	Intention to 'not' see a doctor for TB
T1: easy and free test	0.077
	(0.479)
T2: information	-0.221
	(0.493)
T3: hope for treatment	0.113
	(0.467)
T4: salience	0.576
	(0.425)
T5: risk	-0.117
	(0.493)
T6: champion	**-1.169***
	(0.672)
T7: emotional	-0.792
	(0.606)
State (Base: Haryana)	
Himachal Pradesh	-0.665
	(0.506)
Madhya Pradesh	-0.950*
	(0.530)
Rajasthan	-0.716
	(0.506)
Uttar Pradesh	-0.871**
	(0.430)
Constant	-2.859***
	(0.510)
Observations	**2,797**
Log Likelihood	**-307.253**
Akaike Inf. Crit.	**638.506**

Note: The table reports logistic regression coefficients where the dependent variable is a binary indicator equal to 1 if the respondent expressed no intention to visit a doctor and ask about TB when experiencing a cough. The independent variable arm compares each experimental arm (T1–T7) to the control arm. The regression includes state fixed effects (Haryana is the reference category). Robust standard errors are reported in parentheses. Statistical significance is indicated as: ***p < 0.01, **p < 0.05, *p < 0.1.

Table A4.6: Impact of message framing (Emotional vs. Salience) on intention to seek medical advice for TB symptoms

	Intention to 'not' see a doctor for TB
Treatment Salience (Base: Treatment emotional)	**1.392****
	(0.568)
State (Base: Haryana)	
Himachal Pradesh	-1.420*
	(0.799)
Madhya Pradesh	-0.897
	(0.709)
Rajasthan	-1.646*
	(0.898)
Uttar Pradesh	**-1.925*****
	(0.679)
Constant	-3.041***
	(0.700)
Observations	**688**
Log Likelihood	**-82.765**
Akaike Inf. Crit.	**177.530**

Note: The table reports logistic regression coefficients where the dependent variable is a binary indicator equal to 1 if the respondent expressed no intention to visit a doctor and ask about TB when experiencing a cough. The independent variable arm compares each experimental arm (T1–T7) to the control arm. The regression includes state fixed effects (Haryana is the reference category). Robust standard errors are reported in parentheses. Statistical significance is indicated as: ***p < 0.01, **p < 0.05, *p < 0.1.

Appendix 5: Comparison of the 2022 systematic review and preliminary meta-analysis (The Union, 2022) with Results From The 2024 Survey That Is The Basis For This Report

Table A5.1: Awareness and knowledge of about disease, symptoms, and mode of transmission

Domain	Indicator	2022 systematic review and meta-analysis			2024 TB survey		Remarks
		Studies (N)	Median (%)	95 % CI (lower-upper)	Response Rate (%)	95 % CI (lower-upper)	
1. Awareness about TB (%)	Heard about TB	8	80	52 – 89	99.6	99.3- 99.7	In the TB survey, respondents were not provided with a predefined list of symptoms. Instead, they were asked to spontaneously list symptoms of TB, and enumerators matched their answers to a symptom list on their devices. Enumerators were trained to record "cough" rather than "cough lasting two weeks or more" unless the respondent explicitly mentioned the duration. Previous studies don't explicitly between general and prolonged coughs. Consequently, respondents who recognised "cough" as a symptom may have been recorded as knowing the specific symptom "cough of two weeks or more," potentially overestimating awareness of the significance of cough duration. Awareness of duration is crucial, as it provides a clear behavioural cue for seeking care.
2. Knowledge about the symptoms of TB (%)	a. A cough of 2 weeks	8	76	61 – 82	4	3-5	
	b. Coughing up blood	8	41	30 – 55	34	33-36	
	c. Fever	7	27	15 – 56	27	26-29	
	d. Pain in the chest	6	21	12 – 30	13	12-14	
	e. Weight loss	6	22	15 – 28	14	13-15	
	f. Night sweat	4	12	2 – 27	0.9	0.6-1.2	
	g. Loss of appetite	6	16	9 - 21	7	6-8	
	h. Cough				86	85-67	
3. Knowledge about mode of transmission (%)	a. Through the air when the infected person cough or sneeze	8	54	38 – 65	65	63-66	
	b. Through sharing food with a person with TB	5	32	31 – 69	44	43-46	
	c. By sharing bed/ Clothes with a person with TB	5	14	10 – 45	14	13-15	
	d. Through handshake with a person with TB	5	13	12 – 23	13	12-14	
	e. Don't Know / Not aware	5	20	14 – 50	11	10-12	
	f. By touching a surface or item previously touched by person sick with TB				21	20-22	Asked in the survey but not in ACSM review

Continue...

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Domain	Indicator	2022 systematic review and meta-analysis			2024 TB survey		Remarks
		Studies (N)	Median (%)	95 % CI (lower-upper)	Response Rate (%)	95 % CI (lower-upper)	
4. Knowledge on who are more prone for TB (%)	a. smokers	4	49	49 – 68	43	42-45	
	b. those living in unhygienic conditions	3	37	36 – 41	22	21-23	
	c. alcoholics	4	26	3 – 28	37	35-38	
	d. family members of TB persons	2	25	20 – 29	7	6-8	
	e. exposed to cough & cold for long time	3	32	18 – 47	11	10-12	
	f. poor people	3	10	6 – 16	NA		This option was not a part of the TB survey
	g. malnourished	4	20	15 – 67	29	28-30	
	h. children	3	5	4 – 6	6	5-6	
	i. HIV positive persons	3	4	3 - 5	0.7	0.5-1.0	
	j. don't know	3	11	10 – 14	7	6-8	

Table A5.2: Knowledge about diagnosis, curability and treatment

Domain	Indicator	2022 systematic review and meta-analysis			2024 TB survey		Remarks
		Studies (N)	Median (%)	95 % CI (lower-upper)	Response Rate (%)	95 % CI (lower-upper)	
1. Knowledge on the mode of diagnosis of TB (%)	a. sputum mear test	6	57	39 – 68	43	42-45	
	b. x ray	6	45	17 – 60	32	31-34	
	c. skin test	2	6	-7 – 19	3	2-3	
	d. blood test	3	52	15 – 79	51	50-53	
	e. don't know	4	13	8 -16	21	20-22	
2. Knowledge about the curability of the TB disease (%)	a. Consider TB as a curable disease completely	6	84	71 – 90	82	81-84	
	b. Consider TB as a curable disease partially	3	10	6 – 13	8	7-9	
	c. not curable	3	1	0 – 3	10	9-11	
	d. don't know	3	4	2 – 6	0	-	
3. Duration of TB treatment (%)	a. 4 weeks or less	3	2	0 – 4	6	5-6	
	b. 1-5 months	3	9	-7 – 25	25	24-26	
	c. 6-8 months	5	42	15 - 54	48	46-49	
	d. More than 8 months	4	15	-13 - 61	14	13-16	
	e. Don't Know	4	25	16 - 30	7	7-8	

Table A5.3: Attitude about TB

Domain	Indicator	2022 systematic review and meta-analysis			2024 TB survey		Remarks
		Studies (N)	Median (%)	95 % CI (lower-upper)	Response Rate (%)	95 % CI (lower-upper)	
1. Self-perception about susceptibility to TB (a measure of the attitude) (%)	Can you have TB? (Yes %)	3	35	31 – 44	44	43-46	

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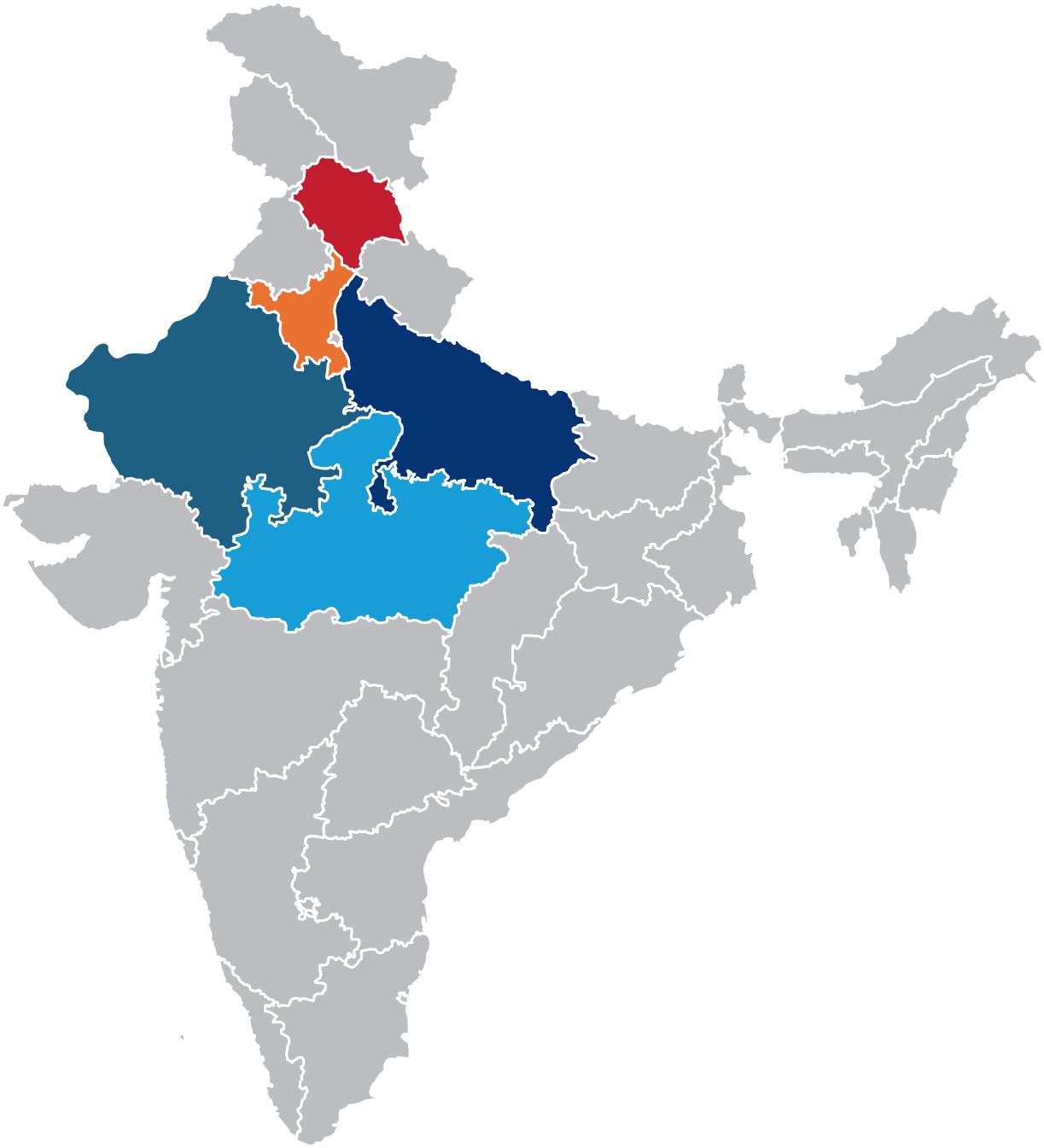
Participants generously shared their time; participation was voluntary, and all data were collected with informed consent and anonymised per protocol. Ethics approvals were given by the Ashoka University IRB (Protocol #23-E-10056-Sharma) and The Union Ethics Advisory Group (#15/2023).

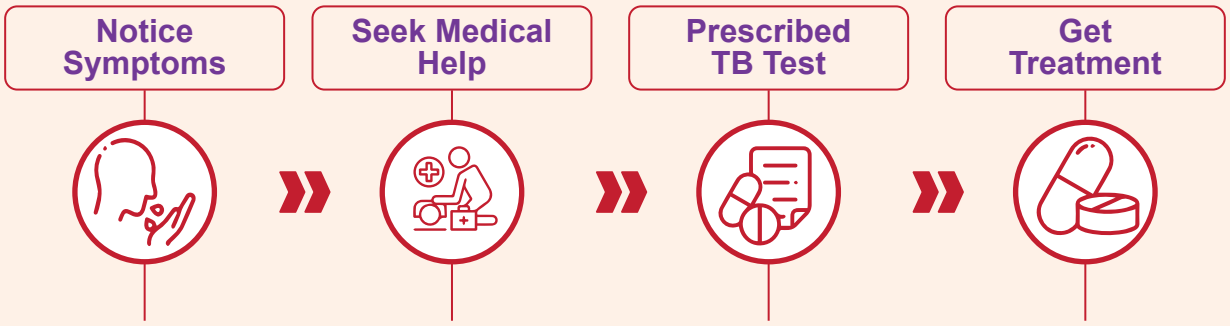
Nine Lessons to Promote Care Seeking in TB Campaigns



Ashoka IRB Protocol #: 23-E-10056-Sharma
Union Ethics Advisory Group number: 15/2023

Framework linking knowledge, attitudes and practices

What are the behavioural barriers to getting tested for Pulmonary Tuberculosis?



The areas of enquiry

Knowledge:

Awareness about the disease, its symptoms, transmission, etc.

Stigma:

Stigma associated with getting tested, myths, perceived norms in the community.

Module for those who have a cough:

Health seeking behaviour of a sub-sample who have a cough at the time of the survey.

Perceptions:

Perception of probability of a cough and other symptoms being serious, of test and treatment, of getting TB.

General desire to avoid hospitals and clinics:

General health seeking behaviour, respectful care, care seeking for a cough, willingness to be tested for TB.

Messaging experiment:

Survey-based experiments on messaging approaches.

This gives us three datasets:

- Full sample
- Extra questions for sub-sample who are actually dealing with a cough
- Survey-based experiments on messaging approaches

Survey overview

Survey: General Sample

4,116 adults in UP, MP, Rajasthan, Himachal and Haryana about TB, specifically investigating:

Knowledge, Perceptions, Stigma, and Avoidance of clinic/hospitals.

01

Module: Coughing Sub-Sample

446 respondents were coughing or had a family member suffering from a cough when we surveyed them, so we asked them questions about their real coughs too.

02

Survey-Based Experiment

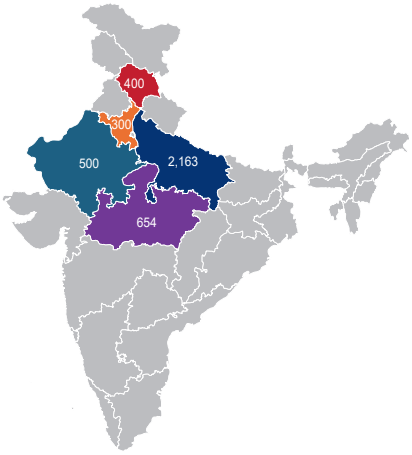
We also ran a survey-based messaging experiment to see what basic messages are promising for a campaign.

03

Survey across 5 states and 20 districts

These states were selected because they have high crude prevalence of TB and poor health seeking behaviour according to the National TB Prevalence Survey 2019-2022

4,116 Surveys



State	TB crude prevalence (per 1,00,000 population)	Percentage symptomatic who did not seek care
Haryana	477	88.0%
Himachal Pradesh	378	60.9%
Madhya Pradesh	337	77.1%
Rajasthan	432	65.5%
Uttar Pradesh	427	64.1%

Haryana (8%)

Karnal, Fatehabad, Mewat, Faridabad

Himachal Pradesh (10%)

Kullu, Mandi, Hamirpur, Solan

Madhya Pradesh (16%)

Chhatarpur, Rajgarh, Dindori, Singrauli

Uttar Pradesh (52%)

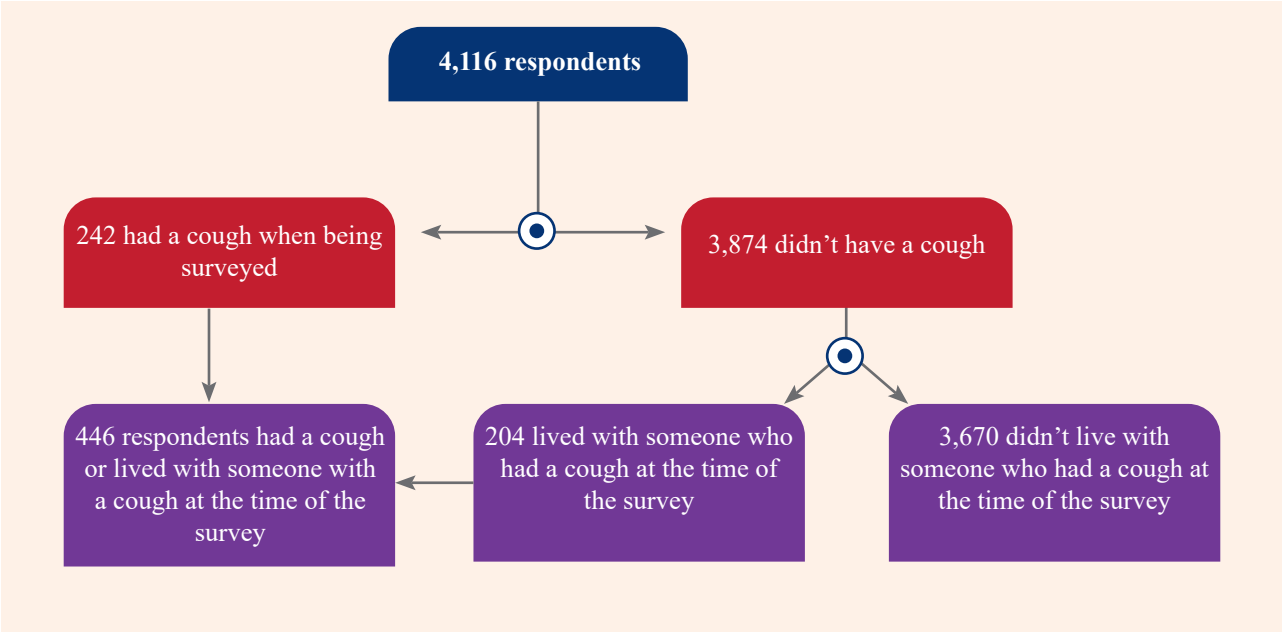
Muzaffarnagar, Hamirpur, Mau, Jaunpur

Rajasthan (14%)

Dausa, Nagaur, Jodhpur, Pratapgarh

We identified cases of active coughs among respondents

Asked these 446 respondents about response to actual coughs: Basis of Intention-Action Gap Analysis



The sample was selected to be partially representative at the state level

Sampling Plan

- Estimated the number of urban respondents and urban primary sampling units (wards) in each state to calculate a representative urban sample for each state.
- Estimated the number of rural respondents and rural primary sampling units (villages) in each state to calculate a representative rural sample for each state.

District Selection

- ***Created two strata:*** High population and low population districts within each state to include variation in density.
- Randomly sampled four districts, two from each strata in each state.

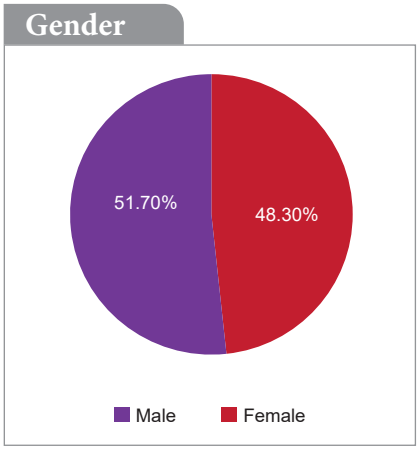
Primary Sampling Unit Selection

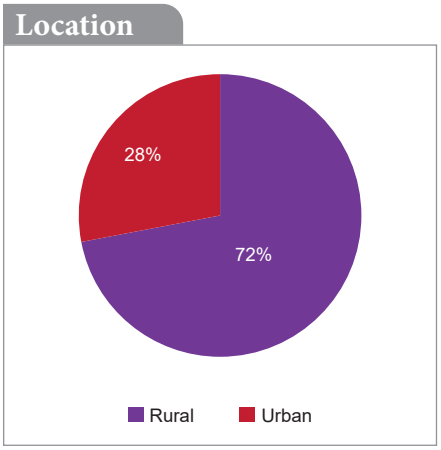
- Listed all PSUs across selected 20 districts.
- ***Created two strata:*** PSU population <50% SC/ST and PSU population >=50% SC/ST to ensure inclusion of marginalised communities.
- Randomly sampled the required number of PSUs, taking 50% of the requirement from each strata.

Surveys

- Set survey quotas for gender and age to ensure representation.
- ***Phase 1:*** 3,751 individuals across 20 districts (Apr-May 2024).
- ***Phase 2:*** 365 individuals from urban areas of five states to overcome a shortfall of high-income households from them (Sep 2024).

The sample was selected to be representative at the state level on socio-demographic characteristics (age, sex, location density, income)



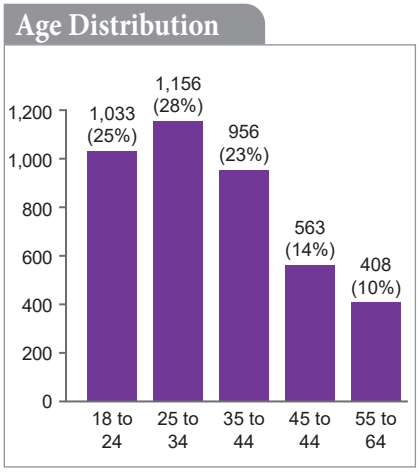


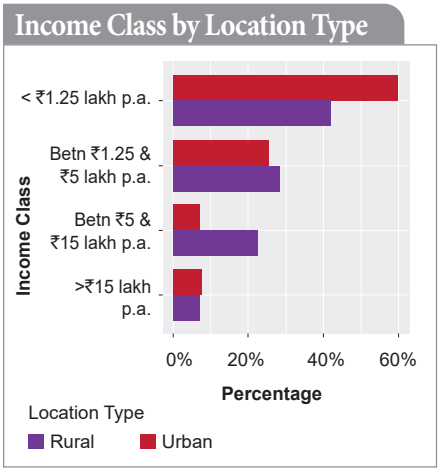
30.2% smokers

84.1% of the smokers are male

12.9% are alcohol consumers; **95.1%** of alcohol consumers are male

8.5% had been impacted by TB (themselves or a family member)





8.9% living away from home

56% of the sample was employed,

31% was engaged in household work,

11% were students,

2% were unemployed. Retired persons made up **1%** of the sample.

The sample is also standard in other important ways

Favorite media is correlated with age

- TV for those over 35
- YouTube for those under 35

Health information is most commonly taken from internet and social media

- Only 20% report getting health advice from medical service providers

Only 22% are present-biased individuals

- A small minority of the sample might delay decisions like care seeking because of a general preference for short-term convenience

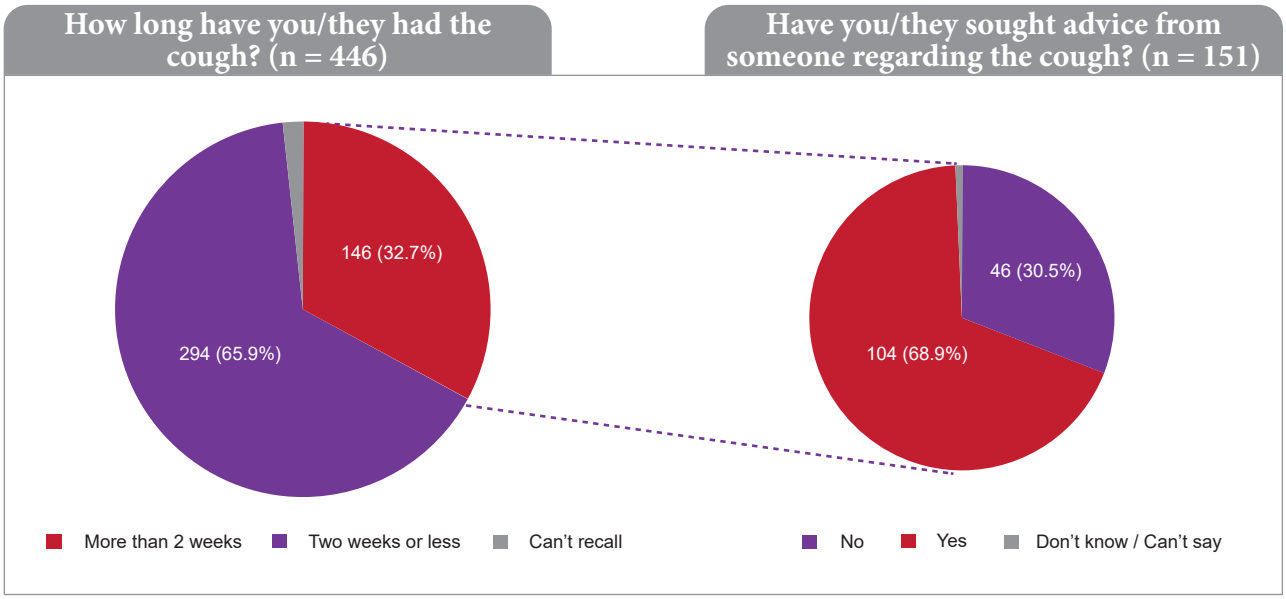
Their risk preferences are what we expect from an unbiased sample

- Most people like a sure gain over a gamble with the potential to win big
- Most also prefer a gamble to a sure loss

Under 9% of respondents diagnosed or had a family member diagnosed with TB

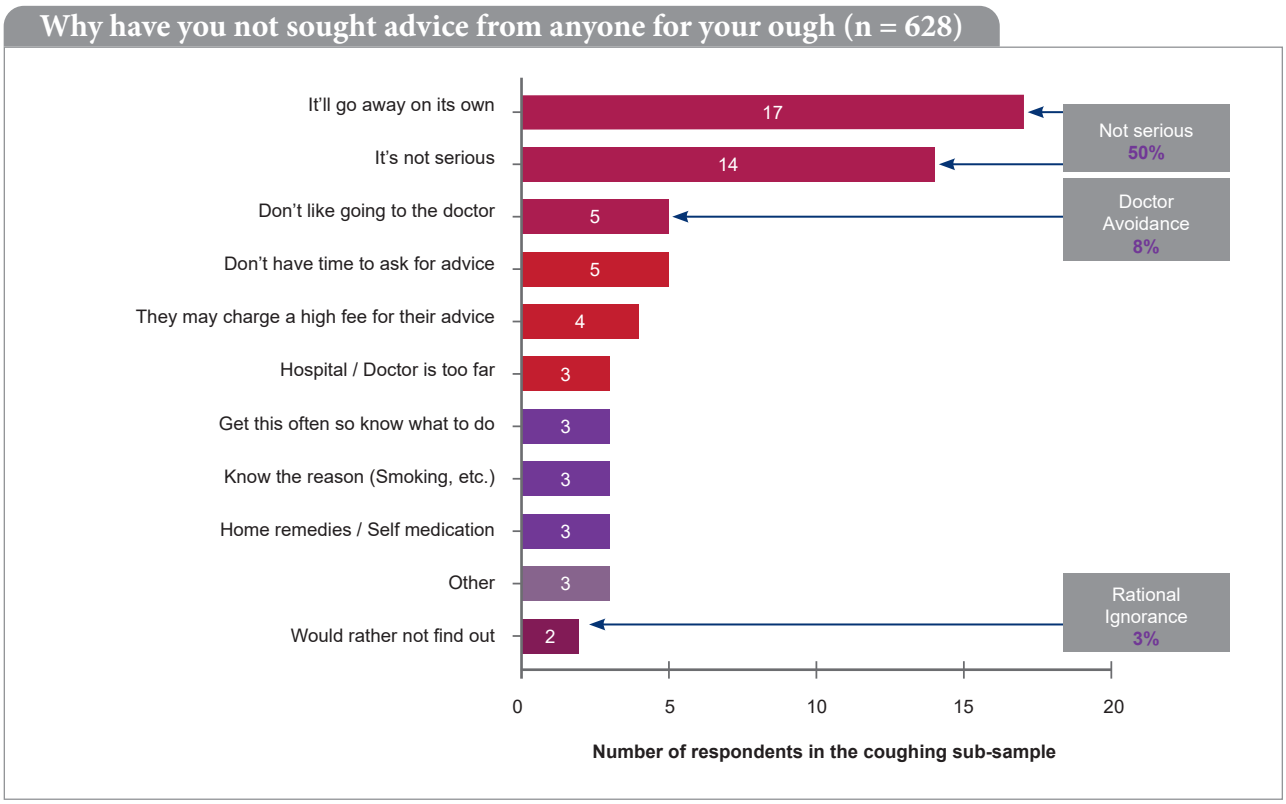
1. Large intention-action gap in care seeking

In the general survey, 92% said they would seek medical care for a cough lasting over two weeks. However, in the coughing sub-sample:



2. Low salience of a cough as potentially serious

Reasons for not seeking care among the coughing sample: Half say not serious or will go away



Note: Respondents could cite more than one reason. Among non-seekers (n = 46), 56% selected at least one "low seriousness" option ("not serious" or "will go away"), consistent with the bar chart totals.

Reasons for avoiding care across samples

Among those who delay, reasons include fear, doubt, and belief that the illness isn't serious.

Do you ever avoid going to a doctor, health centre or hospital when you are sick? (n = 4,101); Why? (n = 409)

- Avoiding medicines: Use of home remedies and general preference to not take medicines
- Wait-and-see approach: Belief in natural recovery; doctor visit only if condition worsens
- Fear and distrust: Worries about diagnosis, injections, and doctors prescribing too many tests or medicines

If the doctor asks you to get tested for TB, would you get tested? (n = 4,101); Why not? (n = 38)

- Because I don't think it is TB
- Because I fear that if the test is positive for TB I would lose my job

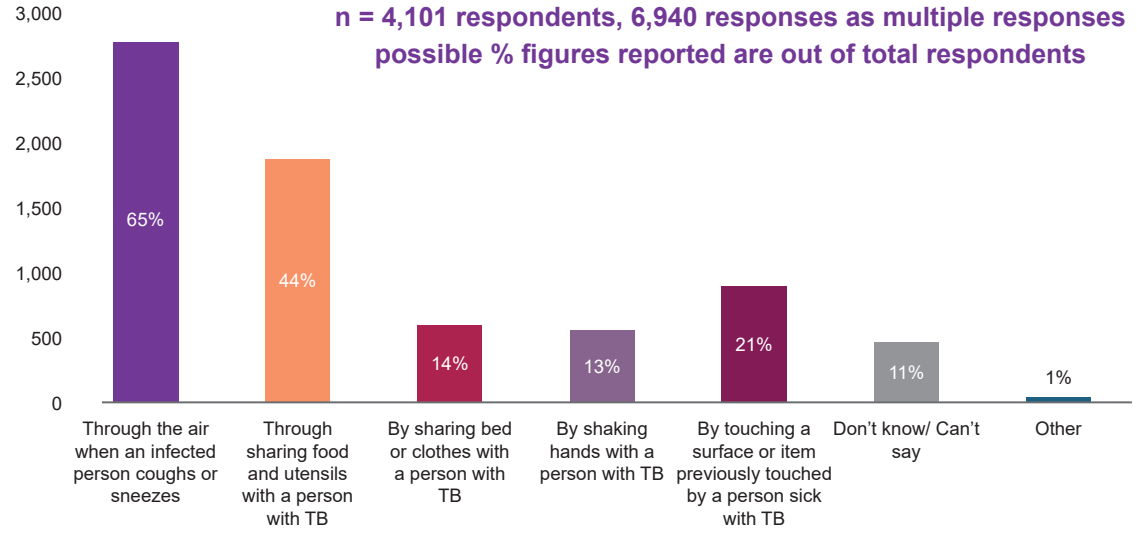
Have you/they sought advice from someone regarding the cough? (n = 151); Why not? (n = 46)

- Not thinking the cough is serious
- Doctor avoidance
- Rational ignorance (~3%)

3. High misinformation about TB transmission

Airborne transmission is well-understood, but misinformation about other modes persists

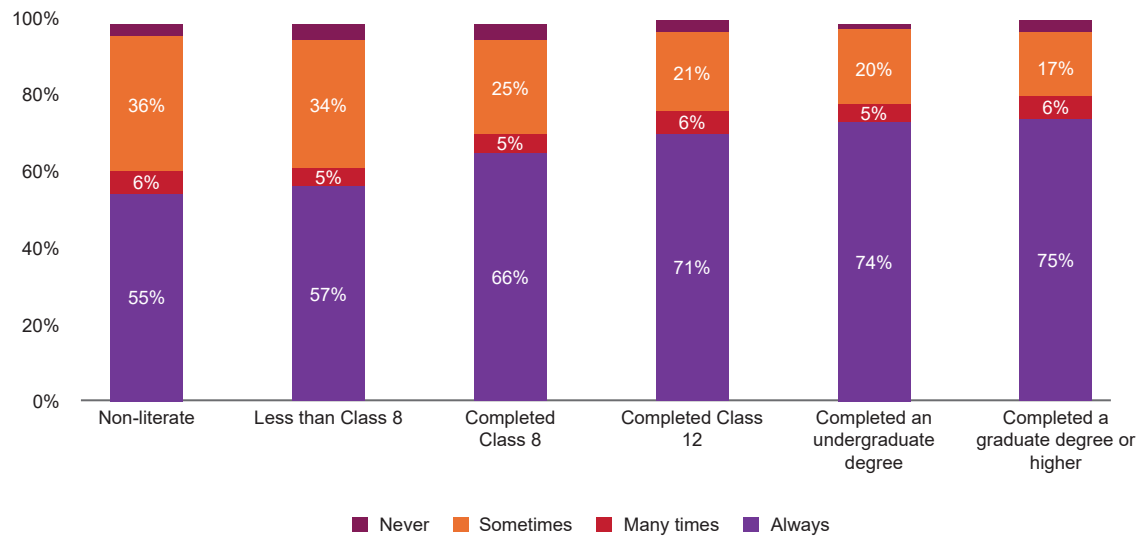
How is TB transmitted?



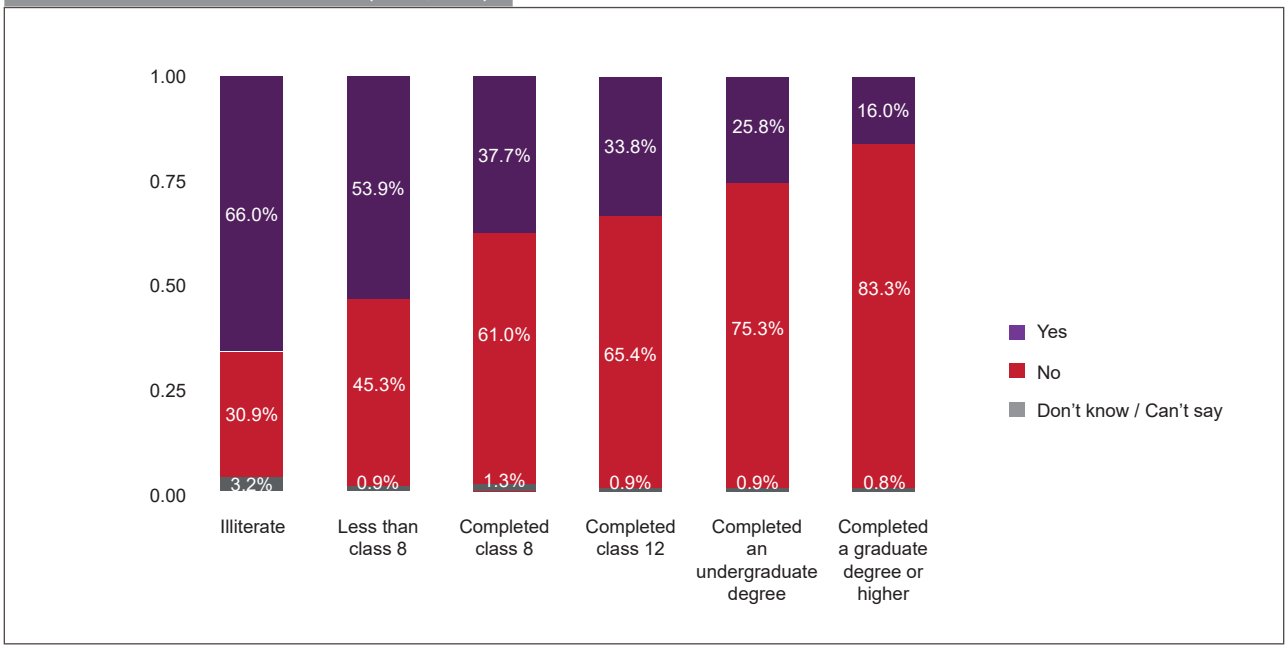
4. Education plays a role in knowledge and perceptions

Less educated respondents are less likely to feel able to avoid illness; more likely to say treating TB is difficult

Do you feel that if you take care of yourself, you can avoid illnesses? (n = 4,101)

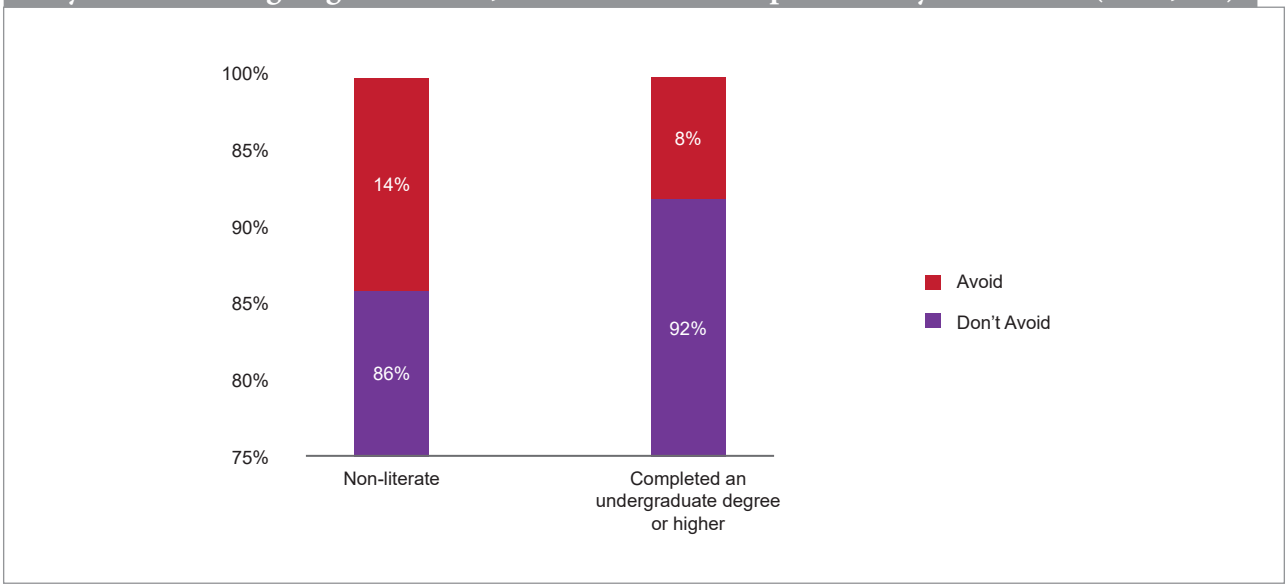


Is it difficult to treat TB? (n=4,101)

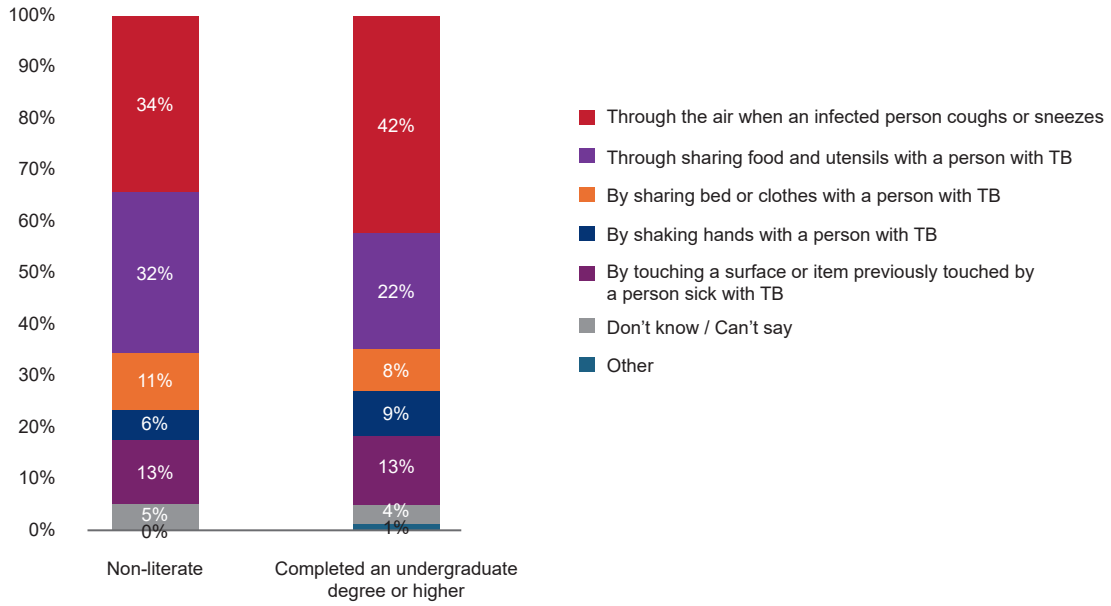


Less educated respondents are more likely to avoid doctors (~2x for non-literate vs. graduates); more likely to believe that TB spreads through utensils.

Do you ever avoid going to a doctor, health centre or hospital when you are sick? (n = 4,101)



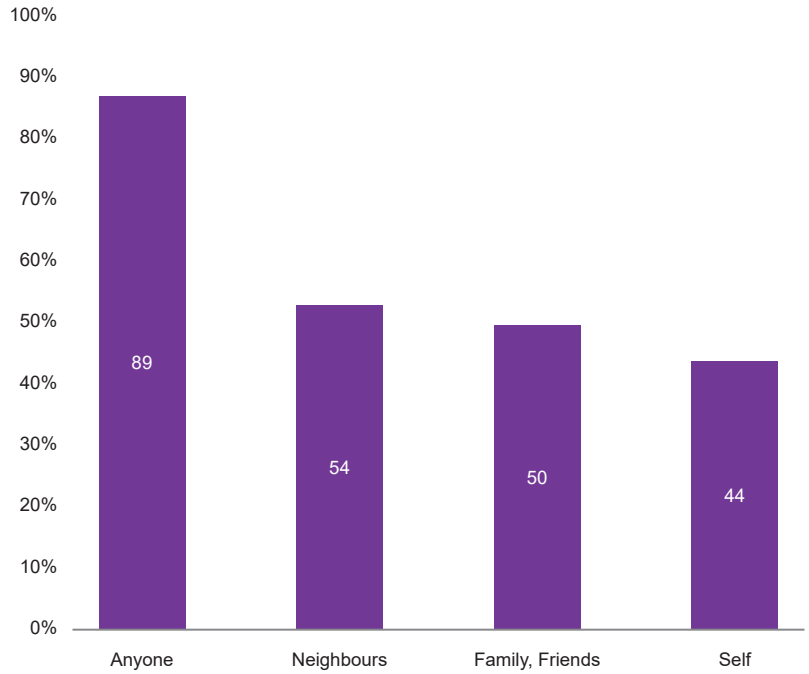
How is TB transmitted? (n = 4,101 respondents, 6,940 responses*)
% figures reported are out of total responses



5. Anyone (but me) can get TB

General pattern is consistent across all subgroups

Is it difficult to treat TB? (n = 4,101)



- Risk perception drops significantly for those closer.
- More than half believe they themselves are not at risk.

Q. Can anyone get TB?

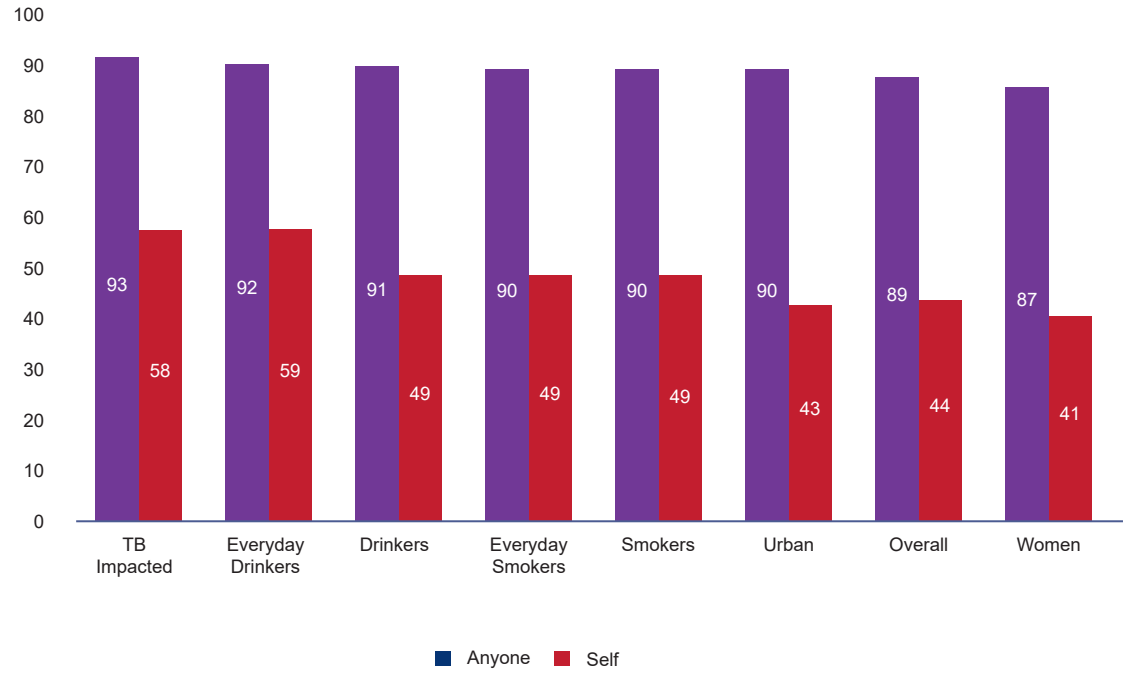
Q. Do you think your neighbours could ever get TB?

Q. Do you think your family and friends could ever get TB?

Q. Now think of yourself. Do you think you could ever get TB?

- More respondents believe "anyone can get TB" than see themselves at risk.
- ***Higher self-perceived risk:*** TB-impacted households; everyday drinkers.
- ***Lower self-risk awareness:*** smokers; urban respondents; women.
- Overall, personal vulnerability is underestimated compared to general awareness across groups.

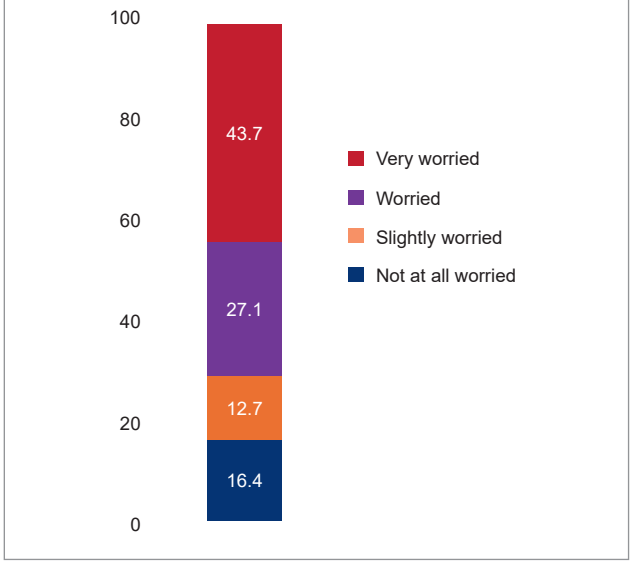
TB Risk Perception Gap by Group: "Anyone" vs. "Me" (pp, n = 4,101)



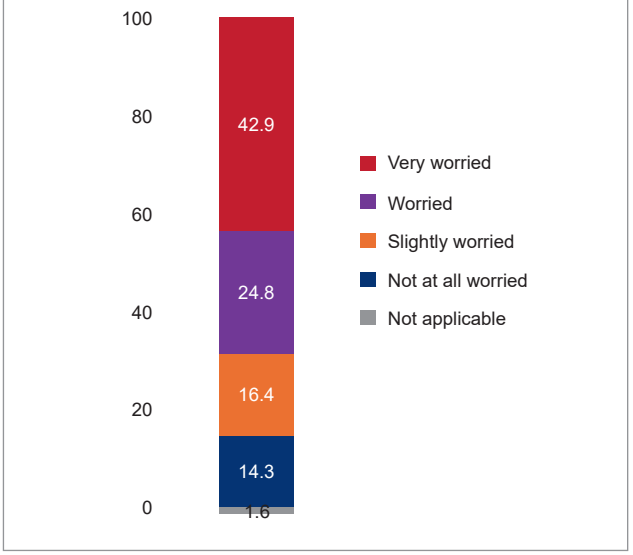
6. High stigma…

Majority Fear Disclosure of TB Diagnosis, View It as Bad Luck, and Attribute Blame to Patients

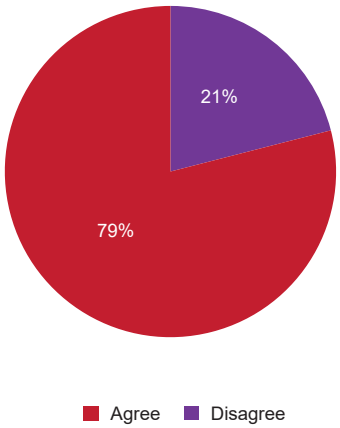
If the doctor asks you to get tested for TB, how worried would you be about your **neighbours or friends finding out** you went for a test? (n = 4,101)



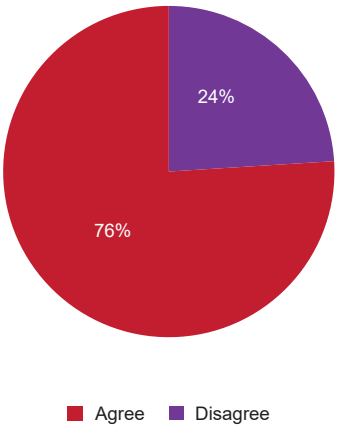
If the doctor asks you to get tested for TB, how worried would you be about your **colleagues or employer finding out** you went for a test? (n = 4,101)



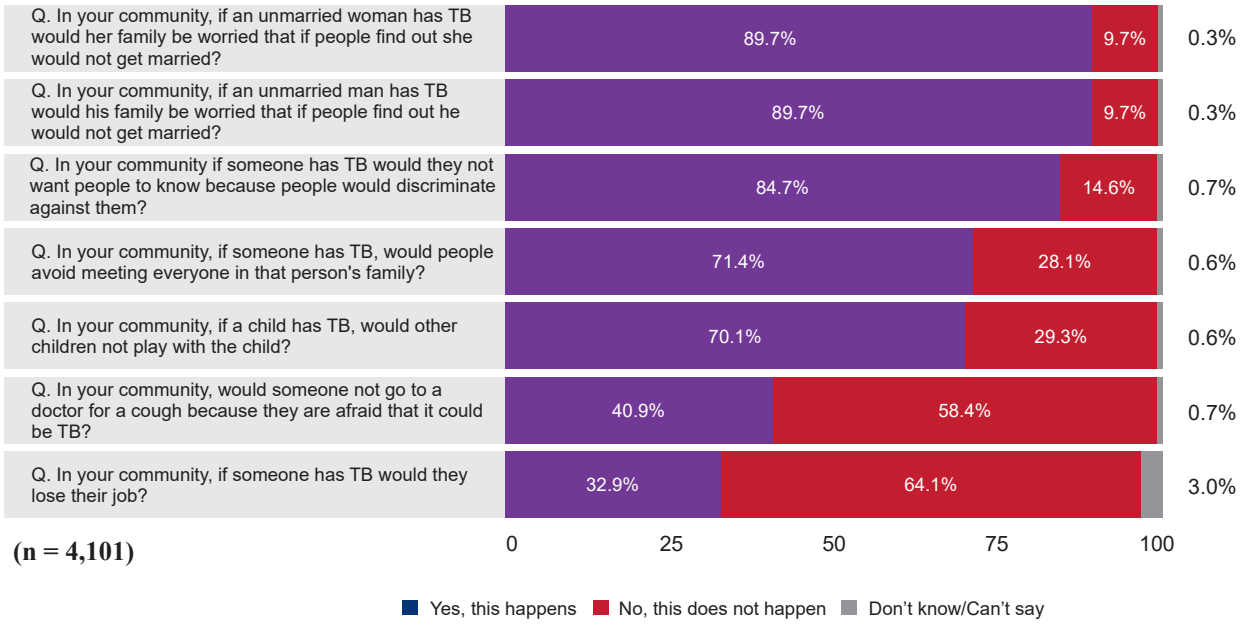
Do you agree that diseases like TB are a sign of **bad luck**? (n = 4,101)



Do you agree that if someone gets TB, it's their **fault?** (n = 4,101)



Perceived TB stigma is widespread

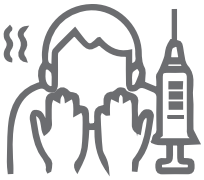


6. …but no meaningful association with care-seeking

Despite high levels of perceived stigma, actual care-seeking is not significantly hindered — people still seek help when TB is suspected.

Percentage of Respondents

41%
Believe fear of TB deters care
(n = 4,101)



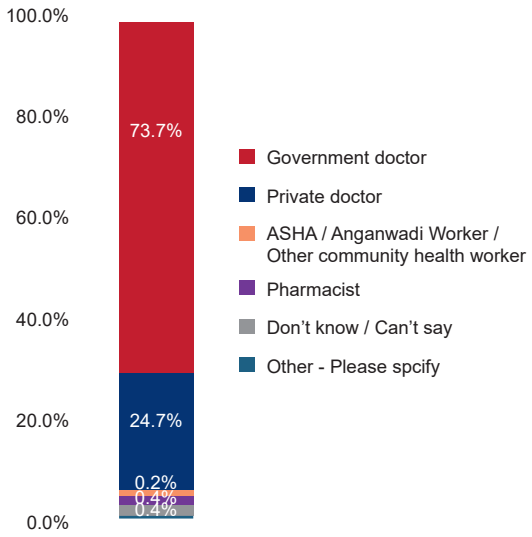
0.02%
Believe fear of TB deters care
(n = 4,101)

Overestimation of negative behaviours and availability heuristic: If people have witnessed or heard about others avoiding care due to fear of a TB diagnosis (or other stigmatised behaviors), they may overestimate how common this avoidance is.

In reality, people might seek care despite stigma, but the perception of stigma leads to the **belief that others would avoid care.**

7. People recommend government doctors

Where would you suggest someone go to get treated with the least possible hassle? (n = 4,101)



- Government doctors remain the dominant recommendation for treatment for general illnesses.
- Endorsement is slightly lower among women and smokers.
- Endorsement is slightly higher among TB-impacted households and rural respondents.

8. Vulnerable groups are like everyone else

Vulnerable groups mirror overall patterns on 20+ variables, with only a few, small differences.

Group	Knowledge	Stigma	Days waiting for cough advice
Women	✕	↑	✕
Low education	✕*	✕*	✕
Rural	✕	✕	✕
Low income	✕	↑	✕
Smokers	↓	✕	↓
Drinkers	↓	✕	✕
Family History of TB	↑	↓	↑
Younger Adults	↓	↑	↓

Knowledge of TB is the same for women and men, only slightly lower for respondents with low education, significantly higher for those with a family history of TB and significantly lower for younger adults, smokers and drinkers

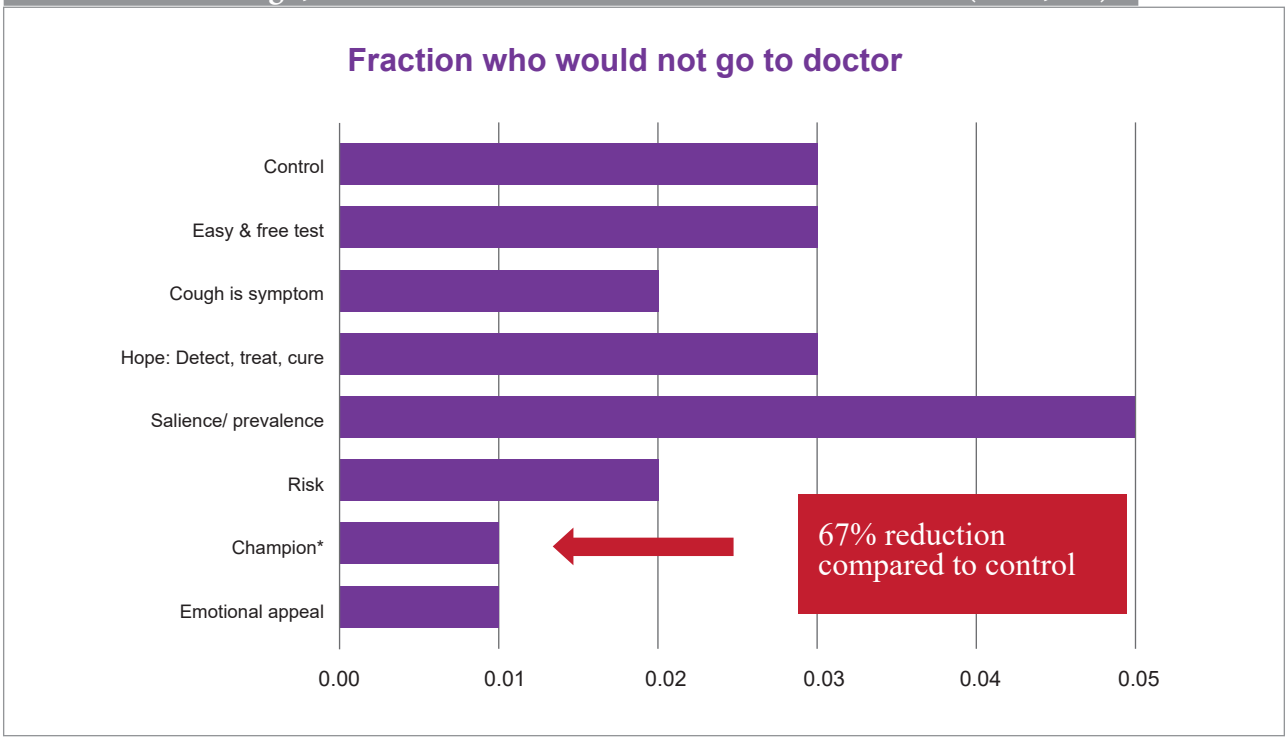
Only a few variations (≥2pp), and not large or consistent enough to indicate fundamentally different patterns between vulnerable groups and others

Red arrows: estimate is at least 2 percentage points (pp) higher (↑) or lower (↓) for vulnerable group and statistically significant.

*Differences between the vulnerable group and others is less than 2 percentage points (very small), but statistically significant.

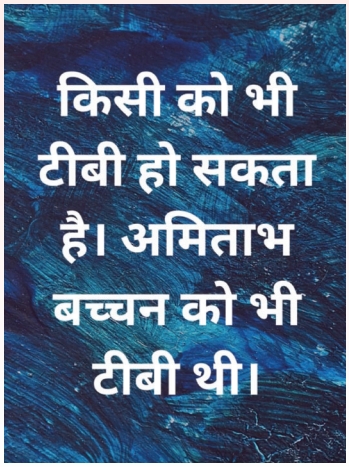
9. A simple message about a champion improved intentions to seek care intentions to seek care (survey-based experiment)

If You Had a Cough, Would You Go to the Doctor and Ask about TB? (n = 2,797)



*p<0.1; **p<0.05; ***p<0.01

Message 6:



"Anyone can get TB. Amitabh Bachchan too had TB."

Recommendations for behaviour change campaigns

01

Increase salience of cough being potentially serious

- People do associate cough with TB, but data show that not thinking a cough is "serious" is an important barrier to address.

02

For everyone, need to increase belief that they (or anyone) could get TB

- Awareness campaigns must address personal risk, not just community-level concern.

03

Address tendency to take a risk with a cough

- Highlight the risks and potential losses (health complications, high treatment costs, spreading the disease) of not acting upon early symptoms.
- Contrasts these with the gains of early action (easier treatment, safeguarding loved ones).
- Encouraging immediate scheduling of a check-up if cough persists.

04

Use clear, memorable messages from public figures who have recovered from TB.

- Appeals to responsibility and emotions may be more effective than increasing the salience of TB prevalence.

05

Since gaps are largely consistent across groups, focusing on core behavioral drivers is more effective than subgroup-specific strategies. Tailoring may be helpful only for low-literacy individuals, using platforms like community radio, community health workers, or jingles.

- Message: Not hard to treat TB.
- You can take control of your health (to build internality, which is lower among low-literacy individuals).

06

Don't focus on stigma to increase care seeking

- Stigma still exists - respondents expect it as a reason for others to delay seeking care.
- But those who are coughing don't share stigma as a reason to avoid medical care.
- Addressing stigma remains relevant for addressing other important goals like such as preserving livelihoods or promoting social justice. For instance, correct misconceptions about transmission : clarify that TB spreads through air, not through sharing food or utensils.

Appendix

Treatment messages used in the experiment

- ***Test info:*** TB tests are easy and free at all government hospitals, community health centres and primary health centres. There are designated private and NGO-run centres in the community where patients can easily get their medicines, without having to go to the government health centre.
- ***Cough as a symptom:*** A persistent cough could be a symptom of TB.
- ***Hope:*** If detected early, TB can be treated and cured in a short period of time
- ***Salience:*** One out of every four new TB cases in the world is from India. There are a lot of people around you who cough because they have TB.
- ***Risk:*** Don't gamble with your health! See a doctor if you have a persistent cough.
- ***Champion:*** Anyone can get TB. Amitabh Bachchan too had TB.
- ***Emotional:*** Imagine how your parents or children would feel if you died from a curable disease because you didn't see the doctor in time?
- ***Pure Control (No audio-visual)***

The Union
International Union Against
Tuberculosis and Lung Disease

ASHOKA UNIVERSITY

CSBC Centre for Social and Behaviour Change