WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Evaluating the Effectiveness of Tuberculosis Awareness Programs in Addressing Stigma: A case study of rural communities in Noida

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Abstract

Tuberculosis (TB) remains to be one of the largest public health problems for India with high stigma and misinformation standing in the way of early detection and adequate treatment. This study identified the extent of Tuberculosis awareness programs coverage and their impactalong with the opinions of rural communities on Tuberculosis awareness programs*(Courtwright et.al, 2010).* This quantitative study invited 50 respondents of varying ages, genders, and educational grounds, from which a structured questionnaire was developed and distributed to collect data. Results identify respondents were aware of the disease and its symptoms.However, there are still misconceptions about it's causes, modes of transmissionand curability.The majority of respondents have never attended a TB awareness program, but all showed a willingness to attend and volunteer for subsequentawareness campaigns. While stigma and social discrimination with respect to TB was observed, there was a decrease in stigma and social discrimination observed in communities with TB awareness campaigns. The study concludes with recommendations for awareness campaigns to be more biodegradable, frequent and community-driven when combating stigma and promoting health literacy.

Keywords: *Tuberculosis, Awareness, Stigma, Rural,PublicHealth, Discrimination, Community, Curability*

Introduction

Tuberculosis (TB) remains a considerable public health threat in India, with stigma standing in the way for prompt diagnosis and treatment *(World Health Organization, 2023).* Despite numerous awareness programs aimed at improving misconceptions and facilitating early care-seeking, many prevailing rural communities are still experiencing ignorance, fear, and stigma related to tuberculosis *(Courtwright & Turner, 2010).* This case study aims to assess the impact of tuberculosis awareness programs on the stigma in three rural communities of Noida: Gejha Village, Raipur and Gijhor Village (Noida Sector 35). The stigma associated with tuberculosis often stems from a deficient understanding of its transmission and treatment. Understandingof tuberculosis as a disease of poverty, something that people have to pay for in the past, or as an incurable illness inevitably separate infected persons from society *(Baral et.al, 2007).* Because of the stigma, many hesitate to seek treatment, thus worsening their health and increasing transmission risk intent on the community. Government interventions, such as the National Tuberculosis Elimination Program (NTEP), have targeted improving tuberculosis awareness, reducing stigma and ensuring access to diagnostic and treatment services. Similarly, non-governmental organisations (NGOs) and clinicians have initiated community-based programs with a focus towards rural communities, where stigma tends to be greater. However, the effectiveness of such programs in changing perceptions and eliminating stigma is uncertain, particularly in semi-urban and rural areas like Noida.Government endeavored, non-governmental organizations, and public health administrators have conducted awareness programs that look to educate, improve healthcare access, and reduce stigma regarding tuberculosis *(Reid & Shah, 2010).* The effectiveness of tuberculosis awareness programs is variable and dependent on local understandings, literacy, and local engagement. Gejha Village, a hamlet within Noida, portrays a population whose health-seeking behaviour is heavily governed by culture and socio-economic factors *(Banu et.al, 2015),* where most of the population is employed on a daily wage basis and access is limited to health services. Health campaigns on tuberculosis in this region have relied on door-to-door visits, community meetings, and poster campaigns *(Shewade et.al, 2019).* It is difficult to ascertain whether these interventions have reduced stigma and motivated affected individuals to seek treatment earlier. In the same vein, Raipur, another region in Noida faces challenges of stigma related to TB. The population within Raipur is composed of a mixture of residents and migrants, which leads to various levels of various levels of understanding of tuberculosis. TB awareness has utilized various levels of approaches such as education in schools, a scripted booklet, and collaboration with local authorities to mitigate inaccurate information. Although awareness has resulted in some improvements in people's knowledge, pre-existing stigma remains that can prevent some people from being open about their perceived problem or seeking medical help because they do not want to be ostracized by their community *(Rao et.al, 2018).*

Gijhor Village is a relatively different population with high levels of education.However, tuberculosis-related social stigma still poses a problem. Although access to health service is better than Gejha Village and Raipur, many patients diagnosed with tuberculosis are still hesitant to disclose or inform that they are diagnosed for fear of discrimination *(Kipp et al., 2019).* Here, awareness strategies have primarily been executed through school programs, workplace sensitisation workshops and advertisement through social media. The reach of these strategies to reduce stigma and shift cultural norms still needs comprehensive evaluation. The aim of this study is to determine the effects of tuberculosis awareness efforts in these three areas and

the potential to reduce stigma and create opportunities for early diagnosis and treatment. The goal of the study is to support tuberculosis awareness by investigating community perceptions, reach of program components, and behaviour change. Understanding the factors affecting stigma reduction would be important to developing more successful and community-based approaches to tackle TB in rural Noida *(Datta et al., 2020).*

Objectives

The primary goals of this study are to explore the effectiveness of TB awareness programmes on knowledge on TB factors influencing knowledge, attitudes towards TB, stigma reduction and how stigma can be reduced, and social acceptance/acceptance of TB patients in rural areas. These objectives will consider how awareness programmes plan and structure their awareness intervention, identifying specific factors contributing toward awareness and community engagement or stigma reduction. The study will evaluate the implications of awareness programmes on TB patients; particularly considering social acceptance and/or access to health services. The study aims to assess the effectiveness of awareness campaigns beyond the mere provision of information, but where awareness of TB can create an environment of inclusion and community for those suffering from TB.

- To understand how TB programmes influence knowledge, attitudes and stigma reduction in rural areas
- To assess the role of awareness programmes in constructing TB awareness initiatives and their methods of stigma reduction
- To assess the impact of awareness programmes on TB patient's social acceptance and access to healthcare services.

Review of Literature

Public health strategies, which have advanced significantly in TB management, are undermined by widespread stigma, impacting results. The aim of this systematic literature review is to determine which interventions are most successful in reducing tuberculosis (TB) stigma among patients, health-care providers, and community members. Only seven studies reported effectiveness in reducing tuberculosis stigma, four were quantitative studies and three were qualitative studies. There was no quality assessment in the studies. *(Sommerland 2017).* Stakeholders viewed actions taken at the policy level as important and actions were lacking Policy-level correction to stigma in TB was not mentioned. Other barriers to interventions included lack of integration of mental health services and not having access to sufficient quantity and quality of training. Future research should aim to address three key gaps: developing clear definitions of stigma, consistent stigma assessments that can be validated, and evaluating the impacts associated with implementation. *(Anthony, et.al, 2022)*

Data regarding stigma reduction strategies is limited however, we know that stigma presents a significant barrier to tuberculosis treatment delivery. This study utilized an implementation analysis, and the Health Disability and Stigma framework, to map the literature surrounding TB stigma reduction interventions. Following sorting the results according to socio-ecological level, the results were further divided according to the specific expression or cause of the stigma which was being studied. *(Foster, et.al, 2022).*The analysis used a total of nine articles out of the eighteen. Three studies on Tuberculosis clubs and interpersonal support, addressed both internal and expected stigma that tuberculosis patients experience on an individual and interpersonal level. The review found that counselling and support group therapies had the potential to mitigate the internal and expected tuberculosis stigma. Coordination between mental health services and delivering training to improve stigma reduction outcomes was indicative of areas for implementation that may have presented a barrier. Future research should address three major gaps: developing common definitions of stigma, developing a standardised tool for stigma assessmentand assessing implementation outcomes. *(Dowdy et.al, 2022).*

To effectively meet the tuberculosis elimination goal set by the World Health Organization's End TBStrategy, it is important to curtail the stigma against tuberculosis. However, there is a scarcity of process and effect evaluations for the studies/treatment programs on reducing tuberculosis stigma. This literature review was performed to construct a new theoretical model for TB-stigma reduction by reviewing the literature about stigma, drawing conclusions about the studies in terms of approaches, quality, design, implementation barriers and outcomes. *(Nuttall et. Al, 2022)*

In terms of stigma assessment, no qualitative studies utilized best practice methodologies. We used these findings to inform our development of a conceptual framework, which identifies the target audience, the treatments, and means through which they are intended to alleviate the stigma faced by patients and healthcare providers. *(Mansyur,2022)* Stigma treatments were health education and counselling, psychological support therapies,club mutual self-support and club mutual self-support have all been defined in the six papers as stigma treatments that improved TB treatment outcomes. The optimal strategies to address stigma may be contextual, based on resource availability, and related to the local tuberculosisepidemic. *(Gupta et.al, 2024)*

Regarding attitudes toward tuberculosis patients, almost half of the surveyed healthcare providers (49.1%) had an attitude of minimal perceived stigma. The majority (88.9%) recognized limited levels of perceived stigma. The vast majority of provider (87.0%) recognized the need for community involvement in tuberculosis control efforts. Furthermore, most health care providers (60.2%) willingly considered collaborating with traditional healers (TH) to address tuberculosis (TB)(Abebe,2019). Even with a large corpus of literature discussing stigma and solutions or elimination, little attention has been paid to the efficacy of strategies or interventions, to eliminate stigma. For stigma related to tuberculosis, the crucial or the best approaches, were found at the individual or communal levels. While targeting only one level or group of individuals will not immediately erode health-related stigma and discrimination, there must be a patient-centered approach, through the start of building programs to eliminate stigma to empower afflicted individuals to help plan and implement strategies to stop stigma conservation at other levels. Programs should begin with addressing the intrapersonal level. (Van Der Meij, 2006)

Methodology

The purpose of this study was to assess the effectiveness of TB public awareness programs to lower stigma and misinformation in rural communities Noida. This study has a mixed-methods research design since it employed qualitative and quantitative methodologies to assess the effectiveness of

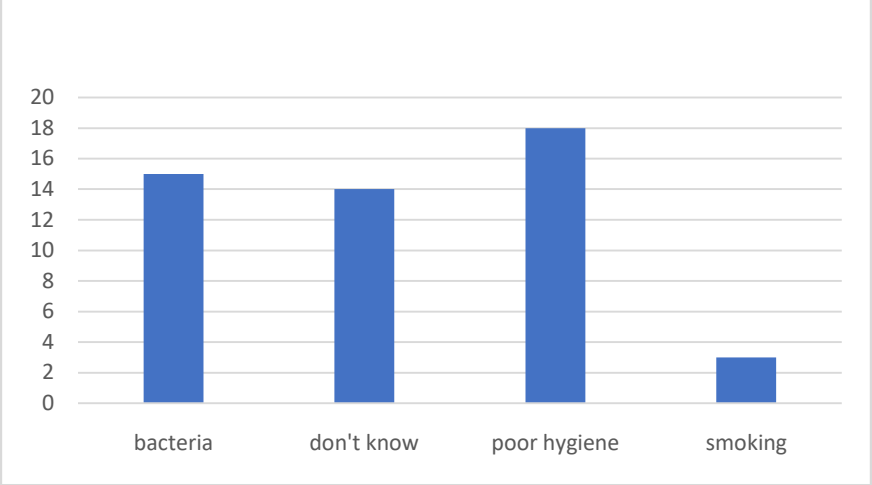
awareness programs to lessen stigma in rural communities in Noida. In large part the mixed-methods approach offered strengths from both approaches: quantitative methods provided measurable results about levels of awareness; while qualitative methods offered fuller descriptions of lived experiences and attitudes about TB stigma. The research study was conducted in three rural Noida villages: Gijhor, Gejha, and Raipur. The target villages for the research study were selected because they were exposure villages in which TB awareness and prevention campaign had a moderate intensity and generally profile the rural candidate*(District Health Report. (2023).*The participants for this qualitative study were adult residents (18 years and older) of the target villages, with various socio-economic backgrounds. One randomly-generated sampling approach was employed to recruit various participants who would provide rich and relevant information about the focus of the study. Additional 50 survey participants were interviewed, fairly evenly split by age, gender, occupation, and education level including 26 males and 24 females since it was not prohibitive, it was also informative. The sample size felt sufficiently large enough to reach data saturation for qualitative levels, and register general patterns on quantitative indicators. Microsoft Excel's basic data analysis is based on formulas representing basic calculations and its more recent features are in the tables and graphics that have subsequently been presented. The data was good for presentation in terms of analysis. For the year charts, pie graphs are far easier to analyze, and visualization/analysis is far more accessible than excel's table data.

Data Analysis

This section presents the analysis of data conducted as part of the study, "Evaluating the Effectiveness of Awareness Programs on the Stigma of TB: A Case Study of Rural Communities in Noida." The aim of the study was to evaluate 50 participant's understanding of tuberculosis, their ideas on the efficacy of awareness campaigns, and the level of stigmatization of the disease. Frequencies have been used to present and analyze the data to identify trends, knowledge gaps, and areas that require more focus. The aim of this study is to assess the community's readiness for increased participation and to measure the effectiveness of current tuberculosis awareness campaigns.

Table 1: Perceived Causes of TB

Perceived Cause	Frequency	Male	Female
Bacteria	15	9	6
Don't Know	14	6	7
Poor Hygiene	18	9	8
Smoking	3	2	3



1: Perceived Causes of TB

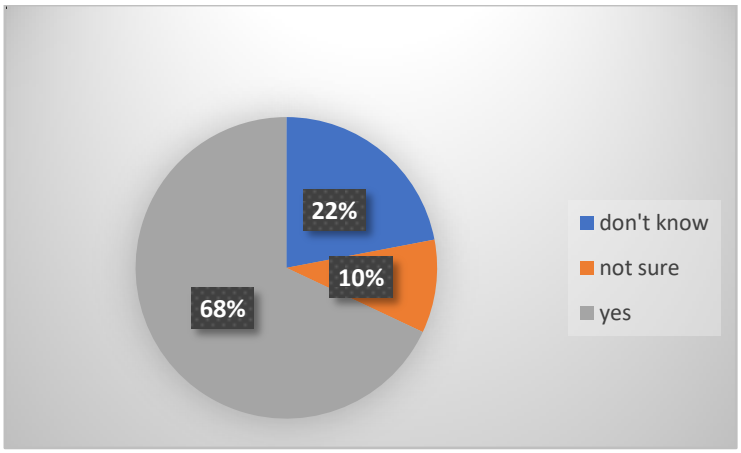
Figure 1

Of the participants, 36% assumed TB was a result of poor hygiene, not bacteria as identified by 30% of responses. Almost 28% of the participants didn't know what caused Tuberculosis. This indicates that there are still misunderstandings which could lead to proper understanding of prevention.

Although poor hygiene and smoking are tied to a number of health problems, TB is caused by Mycobacterium tuberculosis. This also indicates there is a need for education programs, to include explicit and scientific sources to establish awareness about the causes in relatable language and terminology.

Table 2: Belief in TB Curability with Proper Treatment

Response	Frequency	Male	Female
Yes	34	18	20
Don't Know	11	5	3
Not Sure	5	3	1



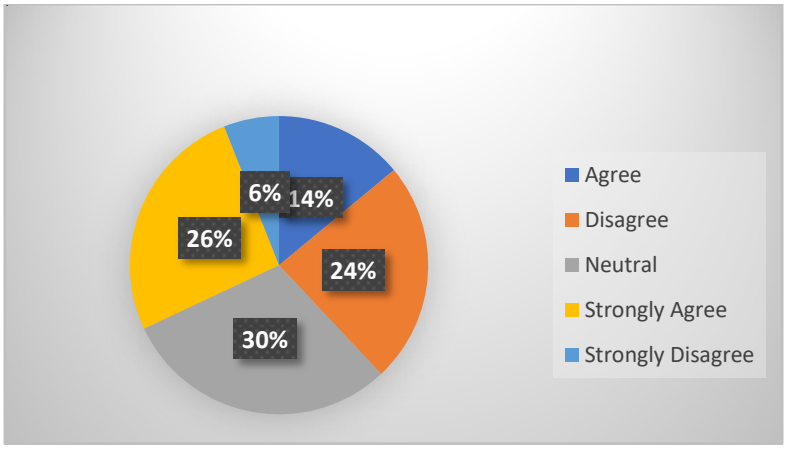
2: Belief in TB Curability with Proper Treatment

Figure 2

On the positive side, 68% of survey respondents believe that the disease is potentially treatable with effective treatment. The downside is that 32% are unsure or did not know TB was treatable which may lead to disregard or reduced treatment completion among those that are impacted. This uncertainty may provide more stigma and fright in the community. Awareness programs need to be more than just aired to impart awareness of treatment options.However, they also need to reinforce that TB is preventable and treatable when dealt with quickly.

Table 3: TB Patients Should Be Allowed to Work and Participate in Social Activities

Response	Frequency	Male	Female
Strongly Agree	13	10	5
Agree	7	3	2
Neutral	15	6	9
Disagree	12	5	7
Strongly Disagree	3	2	1



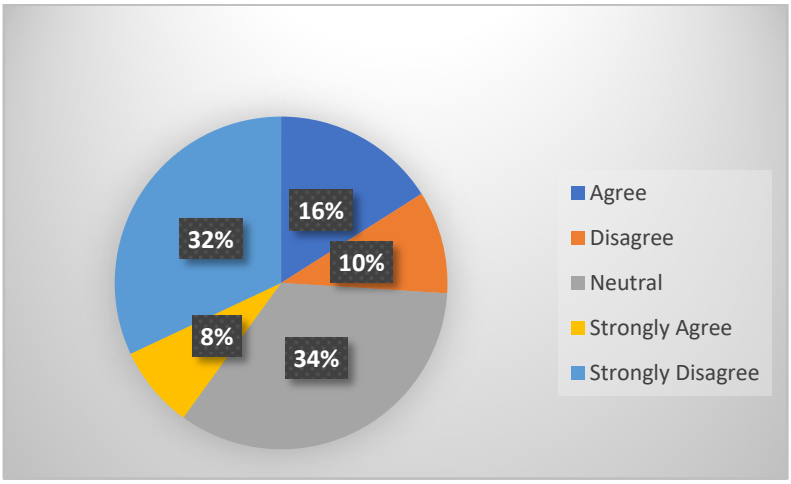
3: TB Patients Should Be Allowed to Work and Participate in Social Activities

Figure 3

While participants mostly supported the social inclusion of patients (40%), there were still 30% opposed to the social inclusion of the patients and 30% were neutral. The fact that participants were opposed to the social inclusion of patients coupled with the number of those who were neutral suggests that stigma and misinformation remain in relation to the patients and although an increasing segment of the population is supportive of TB patients rights to work and participate socially, there is still some work to be done. It is also likely that neutral responses may not be apathy, but simply an uncertain view of TB patients. Awareness campaigns need to focus on not only attention to treatment, but also to rehabilitation, rights, and dignity for TB patients to reintegrate and normalize their inclusion in society.

Table 4: Belief That TB is a Disease of Poor and Unhygienic People

Response	Frequency	Male	Female
Strongly Agree	4	2	2
Agree	8	4	4
Neutral	17	8	9
Disagree	5	5	0
Strongly Disagree	16	7	9



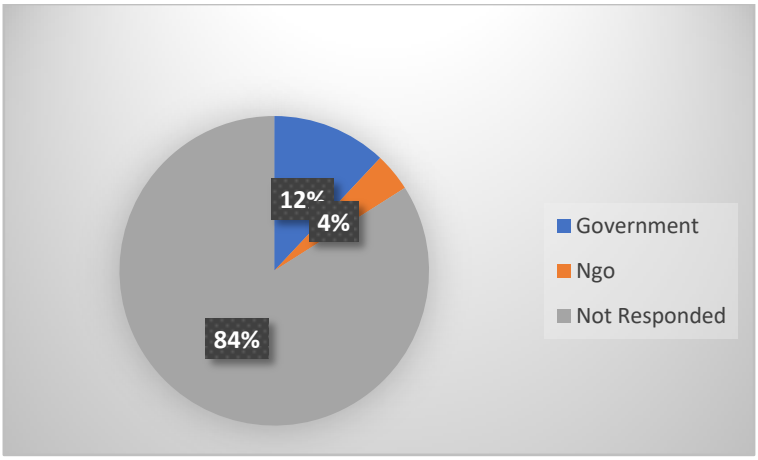
4: Belief That TB is a Disease of Poor and Unhygienic People

Figure 4

Only 26% of the respondents thought TB is a 'disease of the poor' or 'caused by poor hygiene' while 42% actively disagreed with this stereotype. However, 34% of participants were neutral and the authors believe that it is an indication that some people might be unsure or have limited information. The answers demonstrate that the stereotype is still in some member's minds. TB awareness intervention will need to explain that TB can occur in everybody from any socioeconomic background and focus on debunking these unhealthy assumptions that promote discerning, alienating, and a lack of inclusion, empathy, compassion, or people first approaches toward TB.

Table 5: Organizers of the TB Awareness Program (Among Those Who Attended)

Response	Frequency	Male	Female
Government	6	4	2
NGO	2	2	0
Private	0	0	0
Not Responded	42	20	22



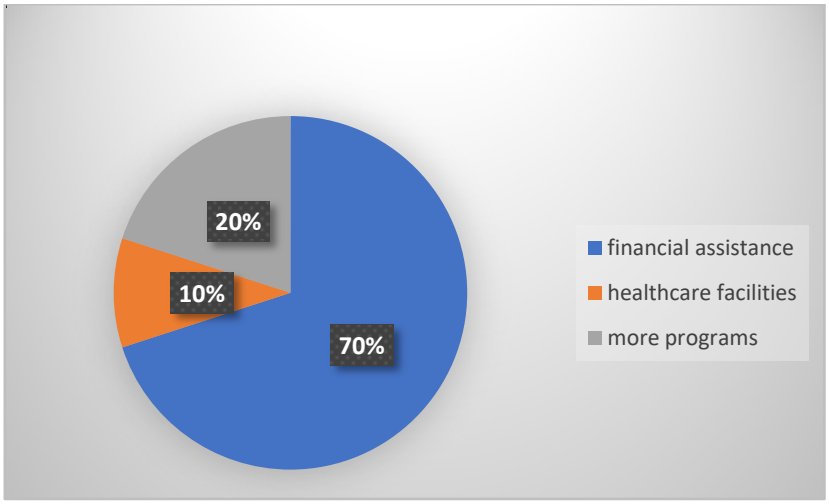
5: Organizers of the TB Awareness Program (Among Those Who Attended)

Figure 5

Out of the eight people in the TB awareness event, 75% said the program was organized by a government initiative while only 25% said it was organized by an NGO. The other forty-two respondents did not reply likely because they had not participated in the program of inquiry. These responses suggest that, of the TB awareness that happens in the community, much is conducted through the public health authority and there is only a small role by the NGO sector. We believe partnerships by the local health department and NGOs can increase the conduits of awareness in the community, and also increase the amount of awareness campaigns through additional methods of awareness, community based and catered to networks.

Table 6: Additional Support TB Patients Need in the Community

Response	Frequency	Male	Female
Financial Assistance	35	19	16
More Programs	10	4	6
Healthcare Facilities	5	3	2



6: Additional Support TB Patients Need in the Community

Figure 6

Most of the informants (70%) reported financial support as the most needed assistance for TB patients in their local context. This indicates the financial burden of the disease, particularly in low-resource rural contexts. 20% identified better awareness initiatives, and only 10% identified the health facilities as a gap. We believe these responses emphasize the opportunities for establishing holistic support frameworks for TB patients that include both financial support and educational interventions to improve care in a TB-free, stigma-free environment.

Findings

The research investigated the need for TB awareness/narrative programs in rural areas of Noida while providing an opportunity for key insights regarding community knowledge, attitudes, and perceptions of TB. In terms of demographics, it appears that there are relatively balanced coverage concerning gender and age of respondents, with 58% of respondents 'in the age group of 18-35 years' and 42% 'in the age group of 35-60 years' The education level among respondents varied, with a considerable proportion only having secondary education while 22% had no education; these findings represent the need for strategies that ensure accessible and meaningful health communication that is inclusive at these education levels. While only 6% had personal or family experiences with TB, none reported any health care discrimination associated with TB. This result is somewhat encouraging because it implies there is less stigma around an individual having TB (direct experience). However, regarding community perspectives, the results were more nuanced. A majority (72%) had heard of TB before, and many accurately identified at least cough and fever as symptoms of TB. However, there were still multiple areas of misinformation: 28% thought TB came from poor hygiene or smoking, and 28% did not know what caused TB. When considering what caused TB transmission, 66% picked coughing and sneezing as the main cause while a lot of others reported inaccurate things like sharing food or touching someone, suggesting that misinformation may still exist. There were also many respondents that were aware of TB cases and treatments. For example, 68% knew TB is treatable, but 22% were unsure or did not know, which would suggest higher levels of general public health literacy programs are indicated. Regarding stigma-related perceptions, 28% of respondents agreed or strongly agreed that TB was a disease of the poor and unhygienic, and 16% believed that TB patients should be avoided because of the contagiousness of TB. The majority, however, (72%) disagreed or were neutral about these statements; this indicates a willingness to work towards more sympathetic perceptions. Importantly for the idea of stigma, 90% strongly disagreed that they would feel embarrassed if a family member was diagnosed with TB, and 100% said they would be willing to take care of a TB patient in their house. One of the most revealing findings was that only 16% of participants had been a part of any TB awareness program - of those that had participated, the majority said that the government program was the source of understanding. These people talked about symptoms transmitted, and treated; however, only a small proportion thought that the program made a big difference. Posters and pamphlets were the most valued mode of communication. However, there was a significant gap regarding follow-up and community engagement as 84% of respondents were not exposed to programs like these. The community's attitude and awareness regarding stigma after awareness programs was unclear: 86% of respondents were non-committal to whether stigma has decreased, or if people were speaking about TB more openly. This lack of engagement suggests that current awareness efforts may not be creating lasting behavioral change. Encouragingly, 100% of respondents expressed willingness to attend awareness programs in the future, and all showed interest in volunteering. When asked about additional support needed for TB patients, financial assistance emerged as the top priority (70%), followed by better healthcare access and more awareness programs. Respondents recommended more interactive methods, involvement of local leaders, and increased frequency of programs for better impact. Overall, while basic TB awareness exists, the findings highlight substantial room for improvement in outreach strategies, community involvement, and stigma reduction.

Way forward

The goal of this research was to examine the success of tuberculosis awareness campaigns implemented in rural areas of Noida in working to change misconceptions and myths about the disease. While most surveyed participants would show an adequate understanding around tuberculosis (TB) symptoms, transmission and medical treatments there were definitely stilla number of individuals who insufficiently recognize knowledge and the disease is still heavily stigmatized. Several of the surveyed participants showed a good understanding of tuberculosis symptoms and transmission methods, the vast majority of all surveyed (72%) were aware of tuberculosis as a disease. However, a significant minority of the individuals that answered the survey continued to hold beliefs disconnected with fact, such as associating TB with unclean living conditions or suggesting that people should stay away from patients suffering from tuberculosis because of the disease's contagiousness*(District Health Report, 2023).* Most surveyed individuals demonstrated a sense of compassion or responsibility through their beliefs that tuberculosis (TB) was curable with appropriate treatment and that they would be prepared to assist a family member who was suffering from the disease. Despite these encouraging indicators, the data also showed that just 8 out of 50 people had participated in tuberculosis awareness initiatives, and the majority of those surveyed had no idea where they might get TB treatment. In addition, there were few community-level talks about tuberculosis, and very fewer people said that their opinions had changed after participating in awareness campaigns. A further important result was that all participants were eager to participate for future TB awareness campaigns and agreed that there should be more regular events. They also recommended that non-governmental organisations (NGOs) hold medical camps, engage local leaders, and use more interactive ways to better understand and engage with communities. Finally, tuberculosis awareness campaigns in Noida are not reaching a sizable enough percentage of the rural population to be considered successful. If we want people to modify their behaviour, we need to reach out more, include local influencers strategically, and follow up often. The effective dissemination of correct information and the creation of safe spaces for conversation and empathy are essential components of any strategy to combat stigma. To strengthen the response to tuberculosis (TB) in a stigma-free manner, we should capitalize on the community's willingness to engage and support such activities.

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