Short Communication

Frontline Worker Perspectives on Adult BCG Vaccination in a Tribal District of Jharkhand, India

Sudharsan Vasudevan[1*], Mohan Mundu[2]

[1]World Health Organization NTEP Consultant, Jharkhand, India. [2]District Program Coordinator, NTEP, Khunti, Jharkand, India.

Abstract

Background: The Bacillus Calmett Guérin vaccine (BCG), which was traditionally given to infants, is being increasingly considered for administration to adults in areas where tuberculosis is a significant concern. There is a lack of information regarding feasibility and acceptability studies of this vaccine especially in rural and tribal areas and this study tries to bridge the understanding to improve the uptake and efficiency of adult BCG vaccination campaign.

Materials and Methods: Focus group discussions (FGDs) were held with personnel from the following groups: Accredited Social Health Activists (ASHAs), Auxiliary Nurse Midwives (ANMs), Medical Officers (MOs), and National TB Elimination Programme (NTEP) staff. An inductive analysis was done to extract perceptions of difficulties and working-related aspects of adult BCG vaccination.

Results: Themes identified were lack of awareness about BCG in adults, stigma of TB and hesitancy towards immunization, operational and human resource constraints, including poor line listing and mapping of beneficiaries, and short expiry of the provided vaccines. Comparisons were identified between cadres in terms of priorities for overcoming barriers. Barriers were identified to be within individual, community, and healthcare system.

Conclusion: BCG vaccination of adults in the tribal regions was felt to be socially and operationally challenging, but the acceptance grew as awareness though community campaigns and one on one interactions improved.

Key Words: bacillus calmett guérin vaccine, frontline worker, adult, tribal district, perceptions, India

Article Summary: **Submitted:** 11-October-2025 **Revised:** 20-October-2025 **Accepted:** 28-November-2025 **Published:** 31-December-2025

Quick Response Code:

Web Site
http://ijmsnr.com/

DOI
10.55349/ijmsnr.2025541316

Corresponding Author: Dr. Sudharsan Vasudevan, World Health Organization NTEP Consultant, Jharkhand, India.
Email ID: thisisme0Vs0@gmail.com

Introduction

Tribal and socio-economically marginalised populations in India have a disproportionately larger incidence rate of, and poorer outcomes from, tuberculosis (TB) infections, when compared to the rest of the country's population, with India having the highest global incidence rate of this disease [1–2]. Structural vulnerabilities related to poverty, malnutrition, lack of health service access, and delayed care-seeking contribute to TB risks in these populations, despite advancements through the National TB Elimination Programme (NTEP) having improved testing and treatment rates available, though prevention efforts still remain problematic among the tribal regions.

The BCG vaccine has remained an essential component of childhood immunization schedules for close to a century. The role of BCG in preventing severe forms of TB in children is proven [4]. In recent times, there has also been significant interest in the possible role of BCG in adults, including the prevention of TB infection or disease progression as well as the non-specific immune stimulant effects [5, 6, 7]. Several studies have investigated the role of BCG revaccination in adults in settings where the burden of TB is high [6]. The adult BCG vaccination implementation study in India was conducted as a large-scale BCG revaccination effort among adults, given the country's high infant BCG coverage. Under programme conditions, eligible adults over 18 years across multiple districts were given a 0.1 ml intradermal

How to cite this article: Vasudevan S, Mundu M. Frontline Worker Perspectives on Adult BCG Vaccination in a Tribal District of Jharkhand, India. Int J Med Sci and Nurs Res 2025;5(4):13–16. **DOI:** 10.55349/ijmsnr.2025541316

BCG dose, and participants were enrolled in a follow-up system to assess safety and impact on tuberculosis outcomes. The 2024 India TB Report described this as the "Adult BCG Vaccination Study" and linked participant management to the TB-WIN digital platform [8]. The adult BCG vaccination was rolled out in 12 districts of Jharkhand among identified Vulnerable individuals [2, 8].

Previous experiences in the country of India, including the COVID-19 vaccine, have shown the acceptability, trust, and communication methods to be just as important as scientific basis during adult vaccine programs [9–11]. The tribes may have their own sociocultural practices, decision-making processes, and experiences with State institutions, which may influence acceptances of health interventions [12]. The health workers, ASHA, ANM, Medical Officer, and TB Programme personnel work as intermediaries between policies and communities and play an influential role through their attitudes, concerns, and acceptances of interventions [13]. Though there has been increasing interest in the adoption of TB prevention strategies among adults, there are no qualitative findings on the perceptions of frontline workers involved in BCG immunization in tribes. This research paper focuses on the implementation perspectives expressed by frontline health staff in the Khunti district of Jharkhand, in order find ways to improve the uptake and efficiency of the Adult BCG vaccination implementation in the subsequent phases if NTEP decides to do so.

Materials and Methods

Study setting

Khunti district, in Jharkhand, an intervention district for adult BCG vaccination in the state and a predominantly tribal area with higher populations of Mundas and Orras.

Study design and participants

The research design involved Focus Group Discussions (FGDs). Four FGDs were done between August and September, 2024,

Table–1 Thematic analysis of challenges and facilitators related to adult BCG vaccination

Theme	Codes (illustrative)	Exemplar quotations (FGDs)
Lack of awareness and conceptual unfamiliarity	• BCG perceived as a childhood-only vaccine • Limited understanding of adult vaccination benefits • Adults not used to preventive vaccination • Technical–community knowledge gap	*"People know BCG only as a baby injection. When we say adults should take it, they get confused."* (ASHA) *"For years vaccination meant children. Adults ask why they need it now."* (ANM)
TB stigma and vaccine reluctance	• Fear of being labelled as TB patient • Anticipated discrimination • Reluctance to disclose vaccination • COVID-19 vaccination comparisons	*"If someone sees me taking this injection, they will think I have TB."* (ASHA) *"Like COVID time, people were scared of being isolated or talked about."* (ANM)
Operational and manpower limitations	• Staff shortages • Multiple program responsibilities • Difficult terrain and logistics • Cold chain issues • Short vaccine expiry • Poor line listing	*"We already handle many programs. Adding adult BCG without extra staff is difficult."* (MO) *"By the time we completed line listing, some vials were nearing expiry."* (NTEP staff)
Deficit of trust and community opposition	• Adult immunisation perceived as sensitive • Decision-making by community elders • Resistance to new interventions • Gradual trust-building over time	*"In tribal villages, elders decide. Without their approval, people won't take it."* (ANM) *"Initially there was resistance, but later people accepted since BCG is not new."* (STS)
Recommendations for implementation	• Phased rollout • Enhanced training • Community sensitisation • Engagement of leaders • Peer influence and social proof	*"If we start slowly and explain properly, people will follow once they see others taking it."* (ASHA) *"Meetings with village leaders before rollout will reduce resistance."* (MO)

involving purposive sampling of participants drawn from various cadres of personnel involved in TB prevention and service delivery:

ASHA: Accredited Social Health Activist
Auxiliary Nurse Midwives (ANMs)
Medical Officers
NTEP personnel such as Senior TB Treatment Supervisors (STS), Senior TB Laboratory Supervisors (STLS), and District Programme Coordinators (DPC)

Data collection

The Interviews were conducted in Hindi by professional facilitators with FGD guides. The topic discussed were on adult BCG immunisation related community response, operational viability, and recommendations for implementation, all recorded with consent, and transcripts were developed by interpreting the data in English.

Data analysis

The study used an inductive approach based on thematic analysis. Two researchers coded the transcripts independently, and the codes were discussed and grouped into themes through consensus.

Results

Five key themes were developed. The codes and themes are provided in the **Table 1**.

Lack of awareness and conceptual unfamiliarity

In all FGDs combined, the front-line worker believed that the vaccine was already well known as it has been a part of routine immunization for decades. Yet, concept of BCG was viewed mainly in the as something provided to children. While the staff working in the NTEP, were well aware about the aim, efficacy, and benefits of the vaccine especially to the target groups. They proclaimed that lack of poor understanding among the beneficiaries about how this vaccine would benefit the adults, who are never really part of any major vaccination campaigns.

TB stigma and vaccine reluctance

ASHAs and ANMs were strong on the aspect of stigma. Participants were afraid of getting stigmatised because of the vaccination related to TB, as they believed talking the vaccine might make neighbours believe they might have TB. This would consequently lead to discrimination. Examples were drawn in vaccination during the COVID-19.

Operational and manpower limitations

Medical Officers and NTEP staff pointed out the limitations of the health system. Lack of personnel, difficult terrains, issues related to cold chain, and other competing priorities of various programs emerged to be significant constraints. The short expiry of the vaccines that were provided to them, and poor planning and incomplete line listing were the major implementation hurdles that they had to face during the implementation process.

Deficit of trust and community opposition

The issue of trust within communities was another area of concern. The participants considered adult immunization to be a very sensitive process, especially within tribal villages where the key decision are taken by elders in the community. Unsolicited introduction of a new vaccine they thought maybe trigger a negative reaction. Although over time during the process the trust towards this vaccine did improve, because this vaccine was not new and also because the beneficiaries of the vaccine were vulnerable populations who already accessed the health system for one or the other chronic ailment.

Recommendations for Implementation

Although there were apprehensions, the suggestions offered were practical and included suggestions to roll-out in phases, improve training, and conducting outreach programs, interactions with key opinion leaders and community members. They also suggested that once more and more of the communities start taking the vaccine the others would be more forth coming.

Discussion

In the current study, qualitative data confirms the social sensitivity and complexity of adult BCG vaccination from the perspective of the frontline workers. Indeed, the data confirms the arguments in the literature indicating the strong reliance of successful adult immunization on trust, communication, and system readiness, apart from scientific evidence in the biomedical field [9-11].

The findings of cadre-specific variations (shown in Table 1) relate to the fact that ASHAs and ANMs operate within the community and stressed stigma and consequences, whereas Medical Officer and NTEP representatives focused on feasibility and governance, they focussed on operational issues due to poor mapping and line listing of vulnerable population and short expiry of the vaccine provided to them, leading to waste of large percentage of the stocks. Some variations have been noticed earlier in the context of implementation of vaccination among adults and TB preventive therapy [13, 14].

This reflects a framework of barriers that has been used in individual, community, and system levels of intervention implementation in public health (Table 2) [15]. In a tribal setting, lack of engagement with state services due to past discrimination increases susceptibility to new interventions [12].

Notably, the participants did not dismiss BCG in adulthood. Rather, they stated the terms on which it could be effectively implemented, such as with guidelines, staff training, community engagement. These findings are consistent with international guidelines that advocate co-creation in TB prevention strategies [2, 7].

Failure to include these views threatens a repetition of the difficulties realized in the rollout programs for vaccination against SARS-CoV-2, in which a lack of trust and misinformation hindered initial efforts in vulnerable groups [10,11]. Policy makers and Program managers must, therefore, consider adult BCG vaccination not merely an extension of child vaccination but a unique intervention in its own right.

Conclusion

Frontline health care workers in Khunti consider adult BCG as a known vaccine, yet challenging because of the beneficiaries being adults. The activity was system demanding in their operational zones, at least in the initial few months of the implementation process. Remedying gaps in knowledge, social and systemic challenges, and involving communities as active participants would play critical roles in improving the uptake. Better planning at the ground level and having vaccines with longer shelf life would ensure more efficient implementation.

Conflict of Interest: None

Source of Funding: This study did not receive any external funding.

Acknowledgement: They would like to thank the ASHAs, ANMs, Medical Officers, and NTEP staff of Khunti district.

Authors' Contributions

SV: Manuscript writing and analysis. **SV and MM:** Revising critically for important intellectual content. All authors approved the final version to be submitted and to publish the article.

Here, **SV:** Sudharsan Vasudevan; **MM:** Mohan Mundu

References

1. World Health Organization. (2023). Global tuberculosis report 2023. World Health Organization. https://www.who.int/teams/global-programme-on-tuberculosis-and-lung-health/tb-reports/global-tuberculosis-report-2023
2. Ministry of Health and Family Welfare. (2020). National TB Elimination Programme: Strategic Plan 2020–2025. Government of India. https://tbcindia.mohfw.gov.in/national-strategic-plan-to-end-tb-in-india-2020-25/
3. Lönnroth K, Castro KG, Chakaya JM, Chauhan LS, Floyd K, Glaziou P, et.al (2010). Tuberculosis control and elimination 2010–50: Cure, care, and social development. The Lancet, 375(9728):1814–1829. https://doi.org/10.1016/S0140-6736(10)60483-7
4. Mangtani P, Abubakar I, Ariti C, Beynon R, Pimpin L, Fine P. EM et al, (2014). Protection by BCG vaccine against tuberculosis: A systematic review of randomized controlled trials. Clinical Infectious Diseases, 58(4):470–480. https://doi.org/10.1093/cid/cit790
5. Netea, MG, Joosten LAB., Latz, E, Mills, KHG, Natoli G, Stunnenberg HG, et al, (2016). Trained immunity: A program of innate immune memory in health and disease. Science, 352(6284):aaf1098. https://doi.org/10.1126/science.aaf1098
6. Nemes E, Geldenhuys H, Rozot V, Rutkowski KT, Ratangee F, Bilek N. et al. (2018). Prevention of *Mycobacterium tuberculosis* infection with H4:IC31 vaccine or BCG revaccination. The New England Journal of Medicine, 379 (2):138–149. https://doi.org/10.1056/NEJMoa1714021
7. Dockrell HM, & Smith SG. (2017). What have we learnt about BCG vaccination in the last 20 years? Frontiers in Immunology, 8:1134. https://doi.org/10.3389/fimmu.2017.01134
8. India TB Report 2024 - Central Tuberculosis Division https://tbcindia.mohfw.gov.in/wp-content/uploads/2024/10/TB-Report_for-Web_08_10-2024-1.pdf
9. MacDonald NE. (2015). Vaccine hesitancy: Definition, scope and determinants. Vaccine, 33(34):4161–4164. https://doi.org/10.1016/j.vaccine.2015.04.036
10. Lazarus JV, Ratzan SC, Palayew, A, Gostin LO, Larson HJ, Rabin K, et al, (2021). A global survey of potential acceptance of a COVID-19 vaccine. Nature Medicine, 27 (2):225–228. https://doi.org/10.1038/s41591-020-1124-9
11. Kumar S, et al. (2022). Barriers to COVID-19 vaccination in rural India. BMC Public Health, 22:189. https://doi.org/10.1186/s12889-021-12485-5
12. Xaxa, V. (2019). Tribes and social exclusion in India. Oxford University Press.
13. Kielmann K, Datta S, & Varatharajan D. (2018). Understanding TB prevention and care through qualitative research. Health Policy and Planning, 33(Suppl 1):i1–i4. https://doi.org/10.1093/heapol/czx163
14. Alsdurf H, Hill PC, Matteelli A, Getahun H, & Menzies D. (2016). The cascade of care in diagnosis and treatment of latent tuberculosis infection: A systematic review and meta-analysis. The Lancet Infectious Diseases, 16(11):1269–1278. https://doi.org/10.1016/S1473-3099(16)30216-X