Original Research Article

Improving Tuberculosis Active Case Finding Through the Engagement of Traditional Medicine Practitioners in Lagos State, Nigeria

Onyema Maduakolam[1], Afe Joseph Abayomi[2], Ayomide Jimoh N[3], Ebiekuraju Elizabeth T[4], Olatayo Faleye[1], Ganiyu Agboola[5]

[1]Department of Strategic Knowledge Management, Equitable Health Access Initiative, Lagos, Nigeria
[2]Adjunct Faculty, Health Sciences Graduate Programs, Purdue University Global, Indiana, USA
[3]Department of Public Health, Babcock University, Ilisan, Nigeria
[4]Department of Monitoring and Evaluation, Diadem Consult Ltd
[5]Department of Clinical Laboratory and Community Services, Equitable Health Access Initiative, Lagos, Nigeria

Corresponding Author: Abayomi Joseph Afe

ABSTRACT

Background: Tuberculosis (TB) remains a significant global health challenge, particularly in high-burden countries like Nigeria. Despite efforts to combat TB, a substantial number of cases remain undiagnosed and untreated, contributing to the continued spread of the disease. In response to this public health crisis, the USAID/Nigeria Tuberculosis Local Organization (USAID/Nigeria TB LON) project, implemented by the Equitable Health Access Initiative (EHAI) in Lagos State, initiated a novel approach to TB case finding. This journal article provides an overview of the strategies, activities, challenges, and achievements of the Program within the USAID TB LON 3 project in Lagos State, with a focus on the period from March to September 2021

Methods: This approach involves collaboration with Traditional Medicine Practitioners (TMPs) to identify and link presumptive TB cases to testing and treatment services.

Result: From March to September 2021, only 30 out of the 94 TMPs trained reported a total of 8,333 clients screened for Tuberculosis infections across 7 LGAs in Lagos State. 715 presumptive TB cases were identified (representing 0.09% of screened cases) and 628 samples were further evaluated for TB (88% of identified presumptive cases) with 12 confirmed TB positive cases reported (2% of presumptive cases), 11 linked to treatment, and 1 death reported.

Conclusion: This research offers compelling evidence supporting the efficacy of engaging Traditional Medicine Practitioners (TMPs) in enhancing active Tuberculosis (TB) case finding in Lagos State. The substantial and positive impact observed underscores the potential of this approach to play a pivotal role in TB control initiatives, fortifying the healthcare system's resilience in addressing TB within community outside hospital facility.

Keywords: Tuberculosis (TB), Traditional Medicine Practitioners (TMP),

INTRODUCTION

Despite the potential role of TMPs, very little is known about their knowledge of tuberculosis (TB) management and referral practices in Nigeria.

Traditional medicine has, for many centuries, been an integral part of our health culture, deeply rooted in the traditions and beliefs of communities. For instance, it is estimated that approximately 62% of births occur outside health facilities [1]. It is a well-known fact that a large percentage still seek solutions to their health problems by consulting Traditional Medicine Practitioners (TMPs). These TMPs

encompass a diverse group within the private health sector, including General Practitioners, Faith Healers, Traditional Birth Attendants (TBA) who often serve as primary caregivers for women during childbirth, Herbal Product Sellers (Herbal Healers), and Bone Setters [2]. Despite the high patronage and the essential role they play in addressing the healthcare needs of the population, the current Public Private Mix (PPM) for TB service provision often excludes Traditional Medicine Practitioners and their clients from the formal healthcare system [3]. This exclusion highlights a critical gap in the effort to combat tuberculosis (TB) in Nigeria.

The World Health Organization (WHO) reports that TB is a communicable disease that continues to be a major cause of ill health and mortality globally, ranking among the top 10 causes of death worldwide [4]. In Nigeria, TB poses a significant public health challenge, with an estimated annual incidence of 460,000 TB cases and high incidence and mortality rates [5]. Nigeria ranks 7th among the 30 high-TB-burden countries worldwide and 2nd in Africa [6]. However, in 2018, only 25% of TB cases were diagnosed and placed on treatment, leaving a substantial gap of 75% of undiagnosed TB cases in the country [7]. TB Disease is often more severe in children <15 years, with higher mortality amongst those <5 years. The notification of children with active disease and latent TB has remained abysmally low, accounting for just 6% (out of the country's total of 450,000) of all forms of notified TB cases in 2021[8].

In response to the urgent need to address this gap, the USAID/Nigeria Tuberculosis Local Organization (USAID/Nigeria TB LON) project undertook an innovative approach. This project, implemented by the Equitable Health Access Initiative (EHAI) in Lagos State, aims to rapidly identify and treat individuals infected with TB through the engagement of of Traditional Medicine Practitioners in TB active case finding. The project seeks to address the challenges posed by the underutilization of TMPs and their exclusion from the formal TB service provision framework despite their availability especially in many rural communities [9].

Studies have shown that when adequately trained and equipped with the right knowledge of symptoms, prevention, and treatment of diseases TMPs could be useful collaborators with health systems in the control infectious diseases especially outside the hospital settings [10-12].

This research embarks on an unprecedented journey of pioneering the establishment of collaboration on Tuberculosis (TB) case detection among TMP clients in Nigeria. Thus, pioneering the establishment of baseline data and offering a comprehensive understanding of the landscape needed for similar interventions in the future.

Study Objectives:

The primary objective of this research was to evaluate the effectiveness and impact of training Traditional Medical Practitioners (TMPs) in enhancing active Tuberculosis (TB) case finding among their clients in Lagos State, Nigeria.

Program Intervention Activities:

The TMP program in Lagos State followed a multi-step approach including the identification and selection of TMPs, training, intensified case finding, linking presumptive cases to testing sites, and promoting community outreaches. Data collection was from thirty (30) TMPs reporting routine TB screening conducted at their clinics daily for 6 months. Each TMP used the TB symptom screening tool to record service provision. Data collation was done every week by Linkage Coordinators assigned to cover each Local Government Area. The TMPs provided health education with focus on TB prevention, control, management, and treatment. Each client at these clinics was screened using a symptom screening tool and in the case of children, the use of chest x-ray. For the symptom screening, each client was asked if they had a cough (for up to two weeks), if they had a

fever, night sweats, or loss of weight, and in children, a failure to thrive was an indicator. The TMPs were selected in collaboration with the Lagos State Traditional Medicine Board (LSTMB). The selection process considered factors such as coverage area, client load, and affiliation with orthodox medical systems to facilitate seamless referrals. A dedicated staff member from each of the 94 chosen TMPs underwent intensive training focused on Tuberculosis prevention, control, and management within the selected Local Government Areas (LGAs).

Each trained TMP was strategically linked to health facilities hosting functional TB GeneXpert laboratories with a 2-week turnaround time for result delivery. Transportation of presumptive samples was streamlined through health riders or accredited dispatch services, ensuring swift and secure delivery to the laboratories. Special attention was given to children under 5 years, with X-rays incorporated into the TB screening process. However, after the initial training, within three months, a refresher orientation was conducted for the TMPs. This ongoing support was aimed at strengthening the entire process, encompassing active case finding (ACF), promoting community outreaches, TB screening, sputum collection, result pick-up, documentation, and reporting. The TMPs were provided with financial incentives based on the number of identified presumptive and TB cases who were all made to undergo further evaluation.

Program Scope: The program aimed at the engagement of TMPs in active case finding of TB in Lagos State. The goal was to enable communities served by the TMPs to access TB services.

Research Question:
"Does the engagement of Traditional Medicine Practitioners in active case finding of Tuberculosis (TB) lead to detection improvement in TB case finding in Lagos State, Nigeria?"

Hypothesis:
"We hypothesize that the active engagement of Traditional Medicine Practitioners (TMPs) in the identification and referral of presumptive TB cases will lead to a substantial increase in TB case detection rates in Lagos State. Specifically, we expect that the collaborative involvement of TMPs in TB active case finding will significantly contribute to reducing the gap in diagnosing and treating TB cases, thus positively impacting TB control efforts in the region."

MATERIALS & METHODS
Study Design: This was implementation research followed by retrospective cohort analysis of the program data.

Study location: TMPs reporting were engaged across 7 LGAs in Lagos State in an urban and peri-urban mix, namely Ajeromi/Ifelodun, Alimosho, Ikorodu, Kosofe, Mushin, Oshodi Isolo, and Somolu,

Study Duration: This pilot study spanned 6 months for data collection, commencing in March and concluding in September 2021. Data collation was performed every week by Linkage Coordinators, ensuring comprehensive coverage of each LGA's activities.

Study Population: The study population was a cohort of TMPs engaged during this specified timeframe. A cohort of 94 TMPs were selected across the 7LGAs and were subsequently trained.

Data Collection Process: Only 30 TMPs out of the 94 trained had TB related data to report. Data collection process was conducted weekly, employing Microsoft Excel 2013 for analysis. This software facilitated data visualization and interpretation.

Reporting Tools: Each TMP utilized the TB symptom screening tool and TMP Community TB screening summary from to record and report service provision. These

reports were compiled by Linkage Coordinators assigned to cover each Local Government Area (LGA) in the State

STATISTICAL ANALYSIS
Indicators:
The following is the list of outcome indicators collected to evaluate and monitor the impact of the TMPs engagement.
• Number of clients visiting the TMPs.
• Number of clients screened for TB.
• Number of Presumptive TB cases identified (DS-TB)
• Number of Presumptive TB cases evaluated both bacteriologically and clinically.
• Total number of presumptive cases with results within the reporting timeline(2weeks)

• Number of diagnosed TB cases confirmed both bacteriologically and clinically with X-rays.
• Number of Childhood TB cases diagnosed.
• Total number of TB cases that initiated treatment.

Secondary program data was analyzed with frequencies generated, and univariate associations determined.

RESULT
TMP TB services (Table 1): A total of 94 traditional medicine practitioners were trained to provide Tuberculosis prevention and referral services. 82(87%) of the trained TMPs commenced and continued to provide TB services, but between 10 and 30 TMPs submitted monthly reports of their activities.

No. of TMPs Trained	No. of TMPs who provided service	No. of TMPs who submitted monthly reports						
		March	April	May	June	July	August	September
94	82	10	13	13	21	22	30	30

Table 1: Monthly TB yield reports from TMPs.

Demography of TMP Clients (Table 2): Individuals within the age range of 25-34yrs had the highest number (n=3061) and females consisted 68% of the population (n=5,689) while male was 32% (n=2,644).

Demography of persons <15 and >15 Years Screened									
AGE	0 - 4	5 - 14	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	≥ 65	Total
MALE	14	78	526	933	625	253	164	51	2644
%	1%	3%	20%	35%	24%	10%	6%	2%	
FEMALE	4	151	1281	2128	1167	595	317	46	5689
%	0%	3%	23%	37%	21%	10%	6%	1%	
Total	18	229	1807	3061	1792	848	481	97	8333

Table 2: Demographic Characteristics of clients of TMPs

Screening of Clients visiting the TMPs ((Table. 3): A total of 8,333 clients visited the 30 TMPs over the 6 months period of data collection. All the 8,333(100%) individuals who visited the TMPs were screened for TB. The screening done with symptomatic checklists yielded a total of 716 presumptive TB cases making up approximately 9% of the total number of screened individuals. All the 716 presumptive cases were referred for further evaluation with Chest Xray and GeneXpert. 553 (88%) underwent further evaluation

with chest x-ray while 87(12%) of the identified presumptive were handed sputum cups for GeneXpert but never returned with their samples. Many in this category held beliefs that their sputum samples may be used for other things and never bothered to return.
This yielded 12 (2%) cases confirmed as TB positive cases. 11 of these clients were linked to treatment, and 1 died, highlighting the improved ability of TMPs to recognize potential TB symptoms. These numbers of diagnosed TB cases illustrate the crucial

role of TMPs in early detection and referral, a pivotal factor in curbing the spread of the disease.

A total of 11 (92%) confirmed TB cases initiated anti-TB treatment while just one diagnosed case (8%) active TB who did not start treatment was due to death.

Among the 12 confirmed TB cases, only 1 childhood TB case was diagnosed.

Table 3: Number of Clients visiting the TMPs

Month	No. of TMPs Reporting	No. Clients Screened	Identified Presumptive cases	% Presumptive cases yield	Presumptive cases evaluated for TB	Confirmed TB positive Cases	% TB positive Yield	TB Patients started Treatment	% Case notification
March	10	159	28	18%	28	0	0%	0	0%
April	13	304	36	12%	28	1	4%	0	0%
May	13	321	42	13%	26	0	0%	0	0%
June	22	592	40	7%	19	3	16%	3	100%
July	21	875	101	12%	90	1	1%	1	100%
August	30	2513	209	8%	178	3	2%	3	100%
September	30	3569	260	7%	259	4	2%	4	100%
Total	**30 (average)**	**8333**	**716**	**11% (average)**	**628**	**12**	**2% (average)**	**11**	**100%**

Figure 1: Evaluation of Presumptive TB cases

12%
88%
■ Presumptive TB cases evaluated for TB (including clinical with Chest Xray)
■ Presumptive TB cases not evaluated

Figure 2: Anti-TB treatment Distribution.

Diagnosed TB cases on Treatment VS Diagnosed TB cases not on treatment
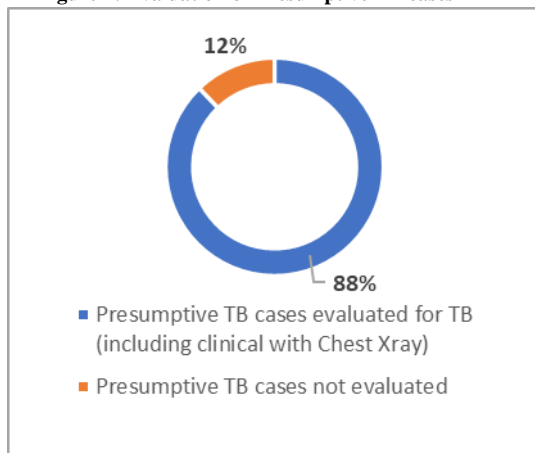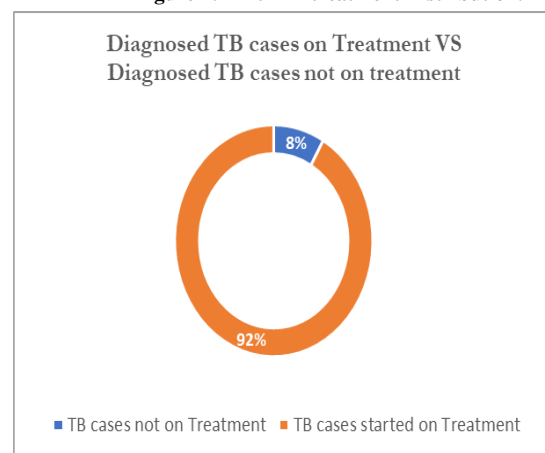8%
92%
■ TB cases not on Treatment ■ TB cases started on Treatment

Timely Reporting of TB Evaluation Tests:

A total of 528 (84%) of the Presumptive TB cases evaluated had their results within the reporting timeline of 2weeks of sample shipment leaving a gap of 100(16%).

Timely reporting of results showcases the efficiency of the screening process, ensuring swift action for confirmed cases and preventing potential transmission.

Figure 3: Results received within reporting timeline

16%
84%
■ Presumptive with result as at time of reporting
■ Presumptive with NO result as at time of reporting
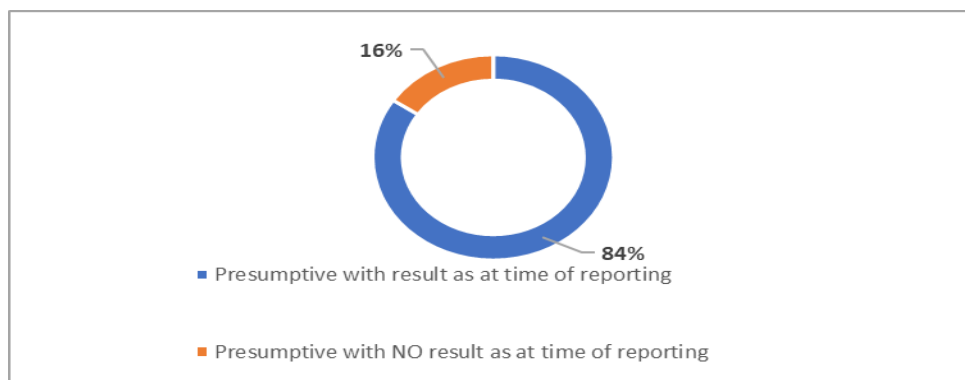
DISCUSSION

The result from this study underscores the success of engaging Traditional Medicine Practitioners (TMPs) in active TB case findings, as evidenced by the high TB screening rate and TB detection rates. With 8,333 clients screened for TB, the intervention proves effective in reaching a significant large number of the population. The age group 25-34years accounted for the highest proportion of the clients, and females constituted 67% of the population attended to during this period. The high number of females screened (n=5689) and the large participation of 8,333 individuals indicate increased community trust in TMP services. This finding is similar to high level of utilisation of TMP services (10 to 58%)by clients for TB-related symptoms before the diagnosis in Malawi and India.

The relatively low number of TMPs who submitted monthly reports compared to the total number trained (30 vs 90) suggests that trained TMPs may not have cases to report, failed to report activities or do not appreciate the importance of reporting. To address this, follow-up supportive supervision is recommended.

The identification of 715 presumptive TB cases and the subsequent diagnosis of 12 active TB cases indicate an improved ability of TMP recognise TB for early detection and referral. This gives a percentage incidence of 8.5% and 1.7% for presumptive TB and TB positive cases among those screened at the TMPs and presumptive cases respectively. The average TB incidence rate in Nigeria is about 219 in a 100,000 population with an estimated total of 467,000 persons who have active TB disease. In 2021, the National TB, Leprosy and Buruli Ulcer Control Program (NTBLCP) notified 207,785 having a gap of 56% of the estimated cases unidentified.

The 100% screening of TMP clients and timely reporting of results in 84% of presumptive cases suggest an efficient screening process. These findings have implications for scalability and the potential integration of TMPs into systematic disease screening programs.

An impressive 88% of presumptive TB cases underwent further evaluation, showcasing a commitment to thorough screening. The remaining 12% gap were not evaluated despite being referred for GeneXpert testing.

The 2week timely reporting of results was achieved in 84% of the presumptive TB cases evaluated, indicating an efficient screening process. The remaining 16% gap whose results did not arrive within acceptable period suggests areas for potential improvement. Additional measures to address challenges in sample transportation could further reduce the time for result retrieval leading to more efficient TB case identification.

A total of 12 diagnosed TB cases emerged, emphasizing the crucial role of TMPs in early detection and referral, a pivotal factor in curbing the spread of the disease. This outcome strongly aligns with the hypothesis. The identification of one childhood TB case underscores the comprehensive nature of the training, successfully addressing vulnerabilities across age groups as anticipated by the hypothesis.

The initiation of treatment among 92% of the identified TB cases reflects the success of the training program in linking traditional practices with modern healthcare protocols. While there is an 8% gap in individuals diagnosed with active TB awaiting treatment, the overall success supports our hypothesis.

The high referrals (100%) of clients by TMPs for evaluation and commencement of TB treatment is far higher than 75% referral rates reported in the Vanuatu, Pacific, 86% in South Africa or12% reported in Akwa-Ibom state, Nigeria [14-16].

The 12% gap in the evaluation of presumptive TB cases and an 8% gap in treatment initiation highlights areas for improvement. Addressing these gaps is crucial for refining training programs and ensuring a seamless continuum of care.

The result results showcase a capability of TMP in TB cases or presumptive detection following the intervention. This pioneering initiative not only contributes to understanding the efficacy of TMP involvement in TB control but also sets the stage for future comparative analyses, laying the foundation for evidence-based interventions.

Contributions to Public Health Knowledge:

The research contributes to the body of public health knowledge, providing empirical evidence of the effectiveness of engaging TMPs in TB control efforts. These findings have broader implications for shaping future public health interventions. Policymakers may consider incorporating TMPs into TB control strategies, given their demonstrated impact. The research results provide empirical support for policy decisions aimed at optimizing healthcare resources.

CONCLUSION

This research offers compelling evidence supporting the efficacy of engaging Traditional Medicine Practitioners (TMPs) in enhancing active Tuberculosis (TB) case finding in Lagos State. The substantial and positive impact observed underscores the potential of this approach to play a pivotal role in TB control initiatives, fortifying the healthcare system's resilience in addressing TB within community outside hospital facility.

The success of this innovative strategy in reducing disparities in TB detection and treatment highlights the need for sustained efforts to motivate and involve TMPs actively.

Essential to the continued success of Active Case Finding (ACF) goals are improvements in logistical support and the expansion of community outreach. The promising potential demonstrated by this program suggests a significant avenue for advancing TB control in Nigeria.

The absence of baseline data in Nigeria regarding TMPs' contribution to active TB case finding emphasizes the novelty and importance of this analysis. The positive impact of training TMPs in TB screening and referral is evident not only in heightened community participation but also in the substantial contribution to early TB detection and management.

To sustain these positive outcomes, ongoing support and collaboration between traditional and modern healthcare systems are essential. The demonstrated synergy between these approaches, as seen in this collaborative effort, is crucial for continued success in enhancing TB control efforts. This research provides valuable insights into innovative public health strategies, underlining the potential of traditional medicine practitioners as key allies in the battle against tuberculosis.

Recommendations:

1. Integrate TMPs into Formal Healthcare Systems: Policymakers should consider formalizing the collaboration between traditional and orthodox healthcare systems, developing inclusive Healthcare Policies that recognize and accommodate the role of TMPs in public health. Also developing guidelines for TMPs training, collaboration, and inclusion in community-based healthcare initiatives to optimize their contributions.

2. Future Research on Collaborative TMP Healthcare Models: Researchers are encouraged to explore and document the further research into the impact of collaborative healthcare models involving TMPs, Role of TMPs in addressing other public health challenges, its long-term sustainability, socioeconomic impacts of engaging TMPs.

3. Funding We advocate more resources to training programs that enhance the capabilities of TMPs in TB screening and referral. This will ensure the

continuous improvement of healthcare services provided by TMPs, maximizing the impact of their involvement.

4. Community Engagement: Community awareness programs that educate the public about the collaborative efforts involving TMPs in healthcare. This enhances community trust, participation, and overall support for such initiatives. This can be achieved through targeted education campaigns and accessible information dissemination.

5. Capacity Building of TMPs: We advocate for establishment of training centres to train TMPs. These centres can serve as hubs for continuous education, skill development, and knowledge exchange, ensuring a sustained and competent healthcare workforce. Peer-to-Peer learning platforms where TMPs can share experiences, best practices, and innovations is also recommended.

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