Tuberculosis management and referral practices among traditional medicine practitioners in Lagos, Nigeria

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Abstract

Introduction: Despite the potential role of Traditional Birth Attendants (TBAs) and Traditional Healers (THs), little is known about their knowledge of tuberculosis (TB) management and referral practices in Nigeria.

Objective: To determine knowledge and self-reported practices of traditional birth attendants and traditional healers in managing TB in Lagos, Nigeria.

Methods: A cross-sectional study of 120 THs and TBAs in three high TB burden Local Government Areas (LGAs) in Lagos, Nigeria. Data were collected between April 2018 to September 2018 through interviewer-administered questionnaires. We used Statistical Package for Social Sciences software for data analyses. Independent predictors of being TBA or TH were determined using logistic regression at the statistical significance of $P < 0.05$ and 95% confidence interval.

Results: TB knowledge increased from 52.7% pre-test to 61.7% post-test and did not differ between TBAs and THs. Of the 120 Traditional Medical Practitioners studied, 70% (84) never treated TB; 57.3 % (69) ever referred chronic cough patients to a health facility; 90% (108) were willing to collaborate with National Tuberculosis, Leprosy and Buruli Ulcer Control Programme (NTBLCP), 85% (102) attached monetary and token incentive as a condition for the collaboration. THs had decreased odds of ever referring TB patient to the hospital (AOR: 0.3, 95% CI:0.14-0.64, P=0.002); currently referring TB patients (AOR: 0.06, 95% CI:0.02-0.17, P<0.0001) and consulting <40 patients in a year (AOR: 0.22,95% CI:0.09-0.53, P<0.0001).

Conclusion: Majority of the THs and TBAs were willing to collaborate with NTBLCP in the identification and referral of Presumptive TB patients. We suggest that NTBLCP empowers the TBAs and THs to help with an early referral of TB patients.

Introduction

Nigeria accounts for 11% of tuberculosis (TB) cases missed globally in 2019, notifying only 120,159 of the estimated 440,000 TB cases in the same year.[1,2] About 60% of Nigerians patronize the private sector as the first point of call when sick and engaging these private sector providers (private hospitals, pharmacy shops and traditional medical practitioners, *etc*) is crucial to find missing TB cases in Nigeria.[3] Globally, there are increasing variations in the prevalence and volume of people seeking care from Traditional Medicine Practitioners (TMP) which consist of traditional birth attendants (TBAs) and traditional healers (THs). In some countries, TBA and TH play an important role in the community health

system and as part of the initial responses to infectious diseases that are rooted in traditional medical practice and belief.[4,5] It serves as the first point of call for many patients in several African countries. Studies have shown that about 2% of people in Nigeria first sought care from religious houses and traditional healers[4] and as much as 62% in rural Mozambique.[5] Specifically, for TB, a review of the literature indicated that 10 to 58% of TB patients used traditional practitioners for TB-related symptoms before the diagnosis.[6,7] THs and TBAs could also be the preferred choice, particularly in Africa where there are spiritual explanations for many diseases often attributed to sorcery, spiritual attacks, among others.[8-11] The availability of TBAs and THs, especially in many rural communities, make them an alternative to the scarce and inadequate contemporary medicine. Besides, healers and TBAs are experts in a range of herbal and spiritual treatments.

Sadly, the choice of providers is limited, given the low health literacy and this could have contributed to the delay. For instance, in Gabon and rural Mozambique respectively, 5% and 62% of patients had first consulted with THs leading to 3 months diagnostic delay of HIV before visiting medical services.[5,12] It appears from the literature that THs and TBAs who lacked training often failed to recognize alert signs and symptoms that would necessitate patient referral.[13,14] When adequately trained and equipped with the right knowledge of symptoms, prevention and treatment of diseases, THs and TBAs could be useful collaborators with health systems. In South Africa, Gambia and Lesotho, there was evidence of successful engagement of traditional healers in the identification and prompt referrals of infectious diseases like tuberculosis and HIV.[13,15,16] A feasibility study by India National TB Program on the acceptability of THs as DOTS providers found that 84% of patients preferred THs to their current providers.[7] Despite the role of TBAs and THs in Nigeria healthcare service delivery, little is known about their knowledge and practices regarding tuberculosis management and referral practices. Our study assessed the knowledge and practices of TH and TBAs. The objectives of the current study include: i) to determine the knowledge and practices of tuberculosis among traditional medicine practitioners and how it differs between the two groups; ii) to highlight the willingness of TBAs and THs to collaborate with National Tuberculosis, Leprosy and Buruli Ulcer Control Programme (NTBLCP) and incentives needed to do so. It is expected is expected that the outcome of the study will help to design how best to engage THs and TBA in the identification, referral and treatment services and other roles towards accelerating TB case detection and notification in Nigeria.

Definition of terms

Traditional medicine practitioners
For this study, TMP include both traditional healers (TH) and traditional birth attendants (TBA).

Traditional birth attendants
TBA is defined as an individual who helps the mother during childbirth and has prior skills acquisition through self-learning or via apprenticeship to other traditional birth attendants.[17]

Traditional healer
TH is a person who has no formal medical training, but is recognized by the community in which he/she lives as being experienced to provide health care by using plant, animal and mineral substances and certain other methods.[16]

Materials and Methods

Research quality and ethics statement
The authors of this manuscript declare that this scientific work complies with reporting quality, formatting and reproducibility guidelines set forth by the EQUATOR Network. The study was approved by the National Health Research Ethics Committee of Nigeria (NHREC/01/01/2007). We also certify that we have not plagiarized the contents in this submission and have done a Plagiarism Check.

Study design
The study is cross-sectional and uses self-administered questionnaires aimed at assessing tuberculosis knowledge and practices of THs and TBAs across 3 Local Government Areas (LGAs) in Lagos, Nigeria.

Study setting
The study was conducted in Lagos, Nigeria. Lagos state has a population of over 20 million and is divided into 20 LGAs.[18] Lagos harbors 11% of the Nigerian population and has the highest burden of tuberculosis. The state is divided into 20 LGAs, and each LGA is supervised by an LGA TB supervisor. Healthcare service in Lagos is provided at 3 levels: primary, secondary and tertiary. Lagos State TB and Leprosy control program was inaugurated in 2003 and expanded to engage the private sector in 2008. Facilities are often engaged under four service schemes, *i.e.,* referral of presumptive TB only, provision of Directly Observed Therapy Short Course (DOTS) only, provision of microscopy service only or provision of both microscopy and DOTS.[19]

As part of the private sector, traditional medicine in Lagos is classified into four categories: i) faith healers; ii) traditional healers; iii) traditional birth attendants; iv) traditional bonesetters. The Lagos State Traditional Medicine Board was established in 1980, and the Board has registered and licensed over 5,000 traditional practitioners from inception to date.[18] The board was established to standardize and regulate the code of conduct and practice of traditional medicine through accreditation, inspection, monitoring and licensing all TMP. Usually, members pass through a 6-week competency-based practical rotation in a secondary hospital under the tutelage of an experienced matron, where they are taken through the basics of anatomy, physiology, *etc*. as part of the capacity-building packages of the government. The Board has state executive and leadership at LGA levels. In this study, three high burden LGAs were purposively selected from 20 LGAs in Lagos. Participants were selected randomly and recruited through the LGA leadership of the traditional practitioners. The study leveraged quarterly association meetings to organize a Tuberculosis sensitization workshop for the members. Pre-test and post-test were administered prior to and after the training to assess TB knowledge, practices and willingness of the participants to collaborate with NTBLCP in the identification and referral of TB cases.

Sample size
Sample size determination was done using the formula for sample size calculation for prevalence studies given by $n = a^2 b/d^2$, where n = sample size, a = Z statistic for a level of confidence, b = prevalence and d = precision or confidence interval. The level of confidence of 95% is conventional at which the value for *a* is 1.96 and d is 0.05. Based on a previous estimation by John and colleagues of 6.2% prevalence of knowledge and practice among TBAs in Nigeria, the value of 0.062 was used for *b*.[20] We assumed a non-respondent rate of 20%. An approximate sample size of 120 (95/0.8) participants were enrolled in the study.

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Participants enrollment and training

Participants were traditional healers, and traditional birth attendants enrolled and trained (Figure 1) in three LGAs Alimosho namely, Ojo and Ajeromi. These sites have been purposively selected because of the high TB burden and incident cases reported in recent years. The three LGAs are made up of both urban and semi-urban populations. All participants self-identified as either practicing as TBA or TH. Participants were provided with transport and lunch since the workshop lasted more than 2 hours. The engagement took place between April and September 2018 in batches and at different meeting points and meeting dates in the LGAs. After the pre-test, TBAs and THs were educated about symptoms suggestive of TB (coughing for more than two weeks, hemoptysis, weight loss, fever, night sweat or chest pain), the necessity and procedure of early referral to the health care facility, documentation in referral slips and register, LGA referral directory for DOTS services, the availability of free TB treatment and the importance of adherence to treatment to avoid drug resistance and early cure of the disease.

Data collection and analysis

The questionnaire was divided into three sections (demographics, knowledge of tuberculosis and tuberculosis management practices). These questions were asked before the training session, and the same questions were administered at the end of the training on the same day to check for changes in the knowledge of the participants. The questions were pilot tested before the beginning of the study. Participants were pre-instructed and provided additional clarifications about the questions where needed.

Section one contained open-ended questions on age, sex and LGA of practice of the participants. Section two contained 6 closed-ended TB knowledge questions including: i) symptom of Tuberculosis; ii) causes of tuberculosis; iii) how tuberculosis spread; iv) duration of treatment of tuberculosis; v) prevention of tuberculosis; vi) the preferred test used to diagnose TB. The correct response to each question was given a score of 1, showing a positive response, while incorrect response was given a score of 0, showing a negative response. The maximum score was six, and the minimum was zero. Participants who achieved the median score of 3 and below in the pre-test were classified as having poor knowledge and a score of 4-6 in the pre-test was classified as good knowledge. Similarly, scores less than the median score of 5 in the post-test were classified as poor knowledge of TB, while scores 5-6 were categorized as good knowledge. Poor and good knowledge scores were recorded as 0 and 1 respectively. The proportion of the correct responses in each section was described and discussed.

Section three contained seven questions which were both closed-ended and open-ended including type/category of traditional practice (TH or TBA), annual average patient consultations (open-ended), prior experience managing TB (chronic cough) cases (Yes/No), approach/choices to managing tuberculosis, history of referral of chronic cough (Yes/No) and willingness of the participants to collaborate with NTBLCP.

Responses were entered into Microsoft Excel and later categorized, coded and cleaned before being imported into Statistical Software for Social Science version 22 for additional statistical analyses. In addressing research objective one, we applied descriptive statistics to summarize the socio-demographic status, described the knowledge (poor and good) and current practices of the practitioners. Numbers and the proportion of total respondents in each section were reported. In answering study objective two, we used descriptive statistics to present the proportion of traditional practitioners willing to collaborate with NTBLCP and required conditions in doing so. For objective three, the Chi-square test was used to determine the association between the dependent (TBA *versus* TH) variable and independent (demographic, knowledge and practices) variables with the view to highlighting how TBA and TH differ with respect to these independent variables.

Results

Participants characteristics

Table 1 shows the demographic characteristics, knowledge of TB and self-reported Tuberculosis practices of the study population. The majority of the study population, 61 (50.8%) were females. The mean age (±SD) of the study population was 49.4±10.5 years. Of the 120 TMPs enrolled in the study, the majority 65 (54.2%), were 45-59yr; from Ajeromi LGA 62 (51.7%); consulted <40 patients annually 89 (74.2%); never treated TB, 84 (70%); never referred chronic cough patient to a health facility, 69 (57.3%); willing to collaborate with NTBLCP,108 (90%) and most, 52 (85%) attached monetary-incentive as a condition for the

Table 1. Demographic characteristics of traditional medicine practitioners in Lagos, Nigeria.

Variable	Number (N)	Percentage (%)
Age		
15-29	3	2.5
30-44	32	26.7
45-59	65	54.2
>60	20	16.7
Sex		
Male	59	49.2
Female	61	50.8
LGA of practice		
Ajeromi	62	51.7
Alimosho	35	29.2
Ojo	23	19.2
Knowledge of tuberculosis (pre-test)		
Poor knowledge	56	47.5
Good knowledge	63	52.5
Knowledge of tuberculosis (post-test)		
Poor knowledge	46	38.3
Good knowledge	74	61.7
Ever referred prolonged chronic cough		
Yes	69	57.2
No	51	42.5
Annual general patient consultations		
<40	89	74.2
>40	31	25.8
Have treated tuberculosis before		
Yes	36	30
No	84	70
Means of treating tuberculosis		
Do not treat	84	70
Treat with leaves	36	30
Willingness to collaborate with NTBLCP		
Yes	108	90
No	12	10
Conditions for collaboration with NTBLCP(n=108)		
Money	50	46.3
Token	52	48.1
No condition	6	5.5

LGA, Local Government Areas; NTBLCP, National Tuberculosis, Leprosy and Buruli Ulcer Control Programme.

collaboration. The total number of participants was 120 (53 TH and 67 TBAs). Hospital referral of chronic cough cases was among 69 TMPs (57.3%) overall, but referral was significantly higher among TBAs, 47 (68.1%) *vs.* THs, 22 (31.9%).

Overall, only 63 (52.7%) of respondents had good knowledge of TB in the pre-test, but this increased to 74 (61.7%) in the post-test that was conducted the same day. The median pre-test score was 4 (IQR 0-6), and the median post-test score was 5 (IQR 2-6). There was no significant difference in the pre-test and post-test scores. Also, there was no significant difference in the median scores of TBAs *versus* THs in both the pre-test and post-test.

Knowledge of TB management and referral practices stratified by type of traditional medicine practitioners

Table 2 shows variations in demographic data, knowledge and practices among TBAs and THs. The outcome variable is the type/category TMP (TBAs *versus* THs) while the explanatory variables include age, sex, history of referral, *etc*. On bivariate analysis, significant associations exist between being a traditional birth attendant and gender, history of referral of TB (chronic cough), TB treatment practices and annual patient consultations. THs had decreased odds of ever referring TB patient to the hospital (AOR: 0.3, 95% CI:0.14-0.64, P=0.002); currently referring TB patients (AOR: 0.06, 95% CI:0.02-0.17, P<0.0001) and consulting <40 patients in a year (AOR: 0.22,95% CI:0.09-0.53, P<0.0001).

Discussion

The objective of the study is to describe the knowledge and reported TB referral and treatment practices among TMPs in Lagos, Nigeria. The pre-test knowledge in the study was 52.5%, and this increased to 61.7% in the post-test. This finding was higher than results from Southern Nigeria with reported pre-post-test knowledge increase from 6.2% to 23.1%,[20] but lower than findings among THs in Mozambique where knowledge increased from 67% in pre-test to 81% in the post-test.[13] The higher figure in Southern Nigeria could be due to differences in how samples were selected, prior intervention or engagement with TB programs or services, and how knowledge was measured with the exclusion of the fair knowledge category in our study. High baseline TB knowledge was also reported from Lesotho.[16]

Our study also shows that 57.5% of TMPs have a history of referral of patients with chronic cough which is lower than TH-reported referrals of 75% in the Vanuatu, Pacific,[21] 100% in Ethiopia[22] and 86% in South Africa[23] but higher than the 12% reported in Akwa-Ibom state, Nigeria.[20] The literature shows referral practices differ with the presence or absence of prior training of TMH and the population interviewed (patient-reported *versus* TMH-reported). Although not the focus of our study, a study from Nigeria and Mozambique demonstrated improved referral following a training session, but 70% of TMH refused to refer cases of Malaria and HIV following training as a result of TH's trust in prescribed herbs.[13,24]

TMP-reported referral practice was generally higher than patient-reported referral practices, which may be more objective.[6,21-23] A Malawian study directly interviewed 33 patients who first sought care at TH home before seeking medical services for TB and surprisingly, none admitted being referred by THs, further emphasizing the know-do gap in acclaimed knowledge and actual practice.[6] Mystery client study is recommended to ascertain the most accurate referral and treatment practices of TMP in the future.

Table 2. Bivariate analysis of tuberculosis knowledge and practices by type of traditional medicine practitioner (traditional birth attendants vs. traditional healers).

Variable	THs	TBAs	OR, 95% CI	P-value
Age				
0-49	25(44.6)	31(55.4)	1.4(0.50-2.14)	0.922
50>	28(43.8)	36(56.3)	1	
Sex				
Male	44(74.6)	15(25.4)	1	
Female	9(14.8)	52(85.2)	16.9(6.76-42.5)	<0.0001
History of referral of prolonged cough				
Yes	22(31.9)	47(68.1)	0.3(0-14-0.64)	0.002
No	31(60.8)	20(39.2)	1	
Tuberculosis treatment practice				
Do not treat	22(26.2)	62(73.8)	0.06(0.02-0.17)	<0.0001
Treat with leaves	31(86.1)	5(13.9)	1	
Willingness to collaborate with NTBLCP				
Yes	47(43.5)	62(73.8)	0.77(0.23-2.54)	0.688
No	6(50)	5(13.9)	1	
Conditions for NTBLCP collaboration				
Attached condition	27(54)	23(46)	1.99(0.95-4.16)	0.067
No condition attached	26(37.1)	44(62.9)	1	
Annual patient Consultations				
<40	31(34.8)	58(65.2)	0.22(0.09-0.53)	<0.0001
≥40	22(71)	9(29)	1	
Knowledge of TB (pre-test)				
Poor knowledge	27(47.4)	30(52.6)	1.28(0.62-2.64)	0.502
Good knowledge	26(41.3)	37(58.7)	1	
Knowledge of TB (post-test)				
Poor knowledge	22(47.8)	24(52.2)	1.27(0.61-2.67)	0.524
Good knowledge	31(41.9)	43(58.1)	1	

THs, traditional healers; TBAs, traditional birth attendants; OR, odds ratio; CI, c. index; NTBLCP, National Tuberculosis, Leprosy and Buruli Ulcer Control Programme.; TB, tubercolosis.

Ninety percent of TMPs in our study were willing to be engaged by NTBLCP. This is higher than findings from Mozambique, where 81% were willing but lower than 100% reported as willing to be engaged from Vanuatu.[13,21] About 5 of the 7 (71%) respondents in the Vanuatu study requested a token, money or house, which is also lower than 85% in our study Incentives may be beneficial in offsetting reported barriers of reaching health facilities and resulting dropouts when TMPs referred the patient to the facility for further TB evaluation in Nigeria.[20]A successful engagement of TMPs by NTBLCP would need to factor in incentives such as money for the TMPs.

Our study reveals variations in the profile (characteristics) of TBAs and THs. TBAs were likely to be females, while THs were less likely to have ever referred or currently referring patients with chronic coughs. Gender dominance was reported earlier, with 67.9% of TBAs in South Africa being female[25] and 85% of THs in Sokoto and 90% in Cameroon being male respectively.[26,27] Until now, there has been little or no engagement between the NTBLCP and TBAs despite better referral practices of chronic coughers since they primarily provide maternal and child services. Therefore, engaging TBAs for referral of pregnant women with chronic cough for TB evaluation could be an excellent strategy to intensify TB case finding in this population.

Ninety percent of TMPs said they were willing to be engaged with NTBLCP, 85% of whom requested for token/money. Knowledge of TB was poor in each group, improved minimally after the training with no significant difference among the TBAs and THs before and after the training. Referral practices were better with TBAs compared with THs, although annual patient patronage was better with THs. Therefore, the risk of TB and yield in referred patients (TBAs *vs*. THs) and the long-term impact of the training on knowledge and referral practices need to be evaluated in the future. Although, knowledge did not improve significantly in the immediate post-training period, there is a need to integrate long-term continuous TB education as part of the in-service training and the association's periodic meetings. Our findings provide evidence that collaboration between the Federal Ministry of Health (FMOH), NTBLCP and Lagos State TB and Leprosy Control Program, traditional birth attendants and traditional healers is feasible.

There are some limitations in this study. The results of our study were based on self-reported practices rather than direct observation or simulation; hence adherence to standard TB practice guidelines might be overstated. The limitation is common with most surveys where knowledge or reported practices usually differ from actual practice. Also, the study is cross-sectional design and used questionnaires; hence responses are prone to information bias as some patients might feel obliged to respond in a way that would be socially acceptable and favorably viewed by the researcher. However, we informed the participants that the survey responses would not be used to judge their knowledge and performance to minimize the potential for influencing results or seeking external help. Lagos is a large cosmopolitan setting; however, the combination of both urban and rural LGAs in our study helps to generalize our findings. Nonetheless, the study provides useful information on strategies for the engagement of TBAs and THs for TB management in Nigeria. The identified knowledge gaps and practices can serve as baseline data to design effective interventions to address these weaknesses.

Conclusions

Findings from our study indicate that baseline TB knowledge

Figure 1. Traditional healers at Alimosho local government area, Lagos, Nigeria, sensitized on tuberculosis by the local government areas tuberculosis supervisor and one of the researchers after the pre-test.

of THs and TBAs was poor and did not increase significantly after TB workshop, as evidenced in the pre-test and post-test scores. The willingness expressed by the majority of TBAs and THs to collaborate with the National TB Program in the identification and referral of presumptive TB patients to TB facilities could be achieved with little monetary and token incentives requested by the participants. As part of the National task-shifting policy, NTPs should embrace TMPs as friends (rather than foes) that could help find the missing TB cases if well-trained and incentivized enough to at least compensate for the initial patient consultation prior to referral. Future studies should examine the actual amount of monetary incentives that will be enough to motivate and improve presumptive TB identification and referral practices among TBAs and THs in Nigeria.

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