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Original Articles

KNOWLEDGE AND USE OF TUBERCULOSIS TREATMENT GUIDELINES IN ENDEMIC SETTINGS: A CROSS-SECTIONAL STUDY AMONG PRIMARY HEALTH CARE WORKERS IN OGBOMOSO, OYO STATE, NIGERIA

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ABSTRACT

BACKGROUND: Many countries including Nigeria adopted WHO guidelines on effective case management of tuberculosis among workers at different levels. The aim of this study is to determine familiarity with Standard Treatment Guideline among Primary Health Care Workers in Ogbomoso, Oyo-State

METHOD: Descriptive cross sectional study conducted among 233 respondents recruited through multistage sampling technique. Data collected using semi-structured interviewer administered pre-tested questionnaires were analyzed using SPSS version 22 soft ware. Level of significance was pre-determined at P-value less than 0.05 at 95% confidence interval.

RESULT: The mean age of respondents was 39.4+3.5 years. Ninety four (40%) inadequate knowledge while 139 (60%) had adequate knowledge score of TB and treatment monitoring Guidelines. Also, 163(70%) and 188 (81%) had favourable attitude and good practices towards using national treatment guideline respectively. Respondents with adequate knowledge were more than twice (2.8) likely to be involved in good practices (P=0.001, OR= 2.82 CI= 1.86- 4.28) while those with favourable attitude were 3 and a half times more likely to be involved in good practices (P=0.001, OR= 3.53 CI= 6.91-1.79)

CONCLUSION: Significant knowledge gaps and unfavourable attitude to TB exist among primary health care workers, stressing the need for more training.

KEYWORDS: Tuberculosis, Community Health Extension Workers.

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INTRODUCTION

Tuberculosis (TB) remains a serious public health threat to men, women and children in Nigeria. According to 2017 World Health Organization (WHO) Global Tuberculosis Report, Nigeria is among the 7 countries that accounted for 67% of global Tuberculosis burden.[1]

The National Tuberculosis and Leprosy Control Programme (NTBLCP) under the Department of Public Health of the Federal Ministry of Health (FMOH) has made great strides in addressing TB since it began implementing the internationally recommended Directly Observed Short Course (DOTS) strategy for TB control in all States and the Federal Capital Territory (FCT) in 2004.

As of 2014, 1,602 health facilities were providing Acid Fast Bacilli (AFB) sputum smear microscopy services and 5389 health facilities provide treatment services for TB DOTs centers. TB case notification to NTBLCP has increased steadily from 31,164 in 2002 to 100,401 in 2013. Treatment success reached 86% in 2013, surpassing the national target of 85% for 2015.[2]

While the gains are impressive, the prevalence survey was a wake-up call to Nigeriawithresults showinga burden of TB by virtue of a high prevalence far higher than had been predicted, to doubling the previous WHO estimates for TB prevalence to 323/100,000 and tripling the estimates of incidence to 338/100,000.[3] While the progress

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towards the achievement of these global targets remains low. In addition, the TB situation has been worsened by the pandemic of HIV/AIDS. TB is responsible for a significant proportion of death among people living with HIV.[4]

Apart from HIV/AIDS situation, the emergence of drug resistance tuberculosis (DR TB) and the inappropriate TB treatment i.e regimens not in accordance with WHO treatment guidelines has been found out as some of the most common causes of multi-drug resistant tuberculosis.[5]

Many countries including Nigeria have considered and included WHO recommendations in their own national TB guidelines to provide general health worker with evidence based, practical guidance on effective case management of tuberculosis. Studying PHC workers who were usually not prioritized in such research and training will be helpful to identify and address gaps responsible for low TB case detention despite DOTS expansion. This research therefore aims in identifying familiarity of primary health care workers in Ogbomoso, South Western Nigeria on current tuberculosis management using the standard guideline

MATERIALS AND METHOD

Study Setting: The study was carried out in Ogbomosho, Oyo State, Ogbomoso is a city in Oyo State, South-Western Nigeria located along A1 highway founded in the mid 17th Century. Majority of the people are Yorubas with approximately 645, 000 based on 2006 population census. There are three degree awarding institution of higher learning mainly Ladoke Akintola University, Nigerian Baptise Theological Seminary and Bowen University Teaching Hospital- BUTH. In terms of tuberculosis control, there are 36 DOTS centers and 10 Acid Fast Baccilli Diagnostic site. Clients load varies according to the location of the site

Study Design: Descriptive cross-sectional study.

Study population: This comprise general health workers of different cadres who are actively involved in the care of Tuberculosis care over the past 6 months before the commencement of the study.

Exclusion criteria: Health attendants and those in administrative section of these centres.

Sample Size Determination: The sample size was determined using the Leslie Fischer's formula for the calculation of sample size for population less than 10,000. The z = constant (1.96), p = practices from a previous study (18.7%)[6] and d = degree of accuracy desired (0.05). A calculated sample size of 233 was obtained.

Sampling Technique: The lists of all Primary health facilities together with number of staffs were obtained from the State Ministry of Health. The facilities were listed by their types to make up the sample frame; each facility in each group was assigned serial numbers. Using the number from the predetermined weighted sample size calculation 25 facilities were selected using simple random sampling method from the listed 40 facilities. Health care workers were chosen from selected facilities based on proportionate allocation

Instruments for data collection: Data was collected using interviewer-administered semi-structured questionnaires to collect information on demographic variables, training received on TB control, knowledge, attitude and use of standard TB treatment guideline. Questionnaire was developed based on review of different literatures, adapted based on study objectives, In addition, it was validated by pre-testing among health care workers in Ilesha, Osun State, outside the study area.

Ethical Considerations: Ethical clearance for the study was obtained from the Ethical Review Committee of Ladoke AKintola University Teaching Hospital, Ogbomoso.

Data Collection Method: Eligible respondents were recruited from the selected facilities. Such respondents received information on the objectives, scope and purpose of the study. Following this, a written consent was obtained. The questionnaires were administered to the respondents by the researcher and other trained research assistants. The research assistants were final year medical students rotating through the Department of Community Medicine, LAUTECH Teaching Hospital, Ogbomoso.

Data management and Analysis
The question about knowledge, attitude and Practices were scored accordingly. For questions whose responses were either yes or no (or correct or incorrect) a correct answer was scored 1 and a wrong answer was scored 0. For questions with three responses, (Yes, No and I don't know), correct response was scored 2, don't know or no idea scored 1 while wrong response scored 0. For questions on attitude that had agree, disagree and not sure options, the response was scored 3,2,1 in that order for positive attitude and 1,2,3 for negative attitude respectively.

The sum of the scores for individual respondents was then calculated and this ranges from 8-30 in terms of knowledge and 12-28 regarding attitude respectively. Individuals having score ranging from 15-30 were regarded as having good knowledge while those with 8-28 were regarded as having poor knowledge. In terms of attitude, those with scores 14-28 were regarded as having good (Favorable) attitude while 8-13 were classified as poor (Unfavorable) attitude.

Data were analyzed using statistical package IBM SPSS version 20. Univariate analysis was conducted to describe all variables while bivariate analyses was performed with chi-square. The independent variable i.e knowledge and attitude were cross tabulated with adherence to using National guideline as dependent variable. A binary logistic regression was done to identify predictors of dependent variable. Level of significance was pre-determined at P-value less than 0.05 at 95% confidence interval.

RESULT
Table 1 showed that out of 233 respondents, 68 (29.2%) were males while 165(20.8%) were females. In terms of cadre, 2(0.9%), 66(28.3%), 165(70.8%) were medical doctors, Nurses and Community Health workers respectively. About 69 (29.6%), 135(57.9%) and 29(12.9%) are within 20-34 years, 34-49 years and more than 50 years respectively, with a mean age of39.4+3.5 years. Seventy one (30.5%) had worked for less than 10 years, 140 (60.1%) had worked between 10-24 years while 22 (9.4%) had worked for more than 25 years.

Table 1: Socio demographic status of respondents (n=233)

Variable	Frequency	Percentage
Sex		
Male	68	29.2
Female	165	70.8
Religion		
Christian	179	76.8
Moslem	54	23.2
Cadre		
Medical Doctor	2	0.9
Nurse	66	28.3
CHEW	165	70.8
Age in Categories		
20-34	69	29.6
35-49	135	57.9
> 50 years	29	12.9
Years of working		
Less than 10 years	71	30.5
10-24 years	140	60.1
Greater than 25 years	22	9.4

Table 2 showed that the Knowledge on TB Causes, Mode of Transmission, Symptoms and Risk Factors and Diagnosis according to National Guideline. The table 2 showed that 158(67.8%) knew correct causative organism

while 75(32.2%) did not know. Regarding mode of transmission, 198 (85.0%) mentioned correctly mode of transmission while 35(15%) mentioned wrong means.. In terms of risk factors 205 (88.0%), 156 (67.0, 148 (63.5%) while 166 (71.2%) knew overcrowding, inadequate nutrition, reduced immunity, HIV/AIDS and reduced immunity as risk factors of Tuberculosis. When respondents were asked about symptoms of TB 224(96.1%), 218 (93.6%) identified chronic cough, weight loss and night sweat respectively. Concerning mode of diagnosis according to National Guideline, 97(41.6%) knew correct ways while 133(54.4%) got it wrongly. In terms of number of sputum specimen used in diagnosing tuberculosis, 121(51.9%) got it rightly while 112 (48.0%) did not know.

Table 2: Knowledge on TB causes, mode of transmission, symptoms and risk factors and diagnosis according to national guideline

Variable	Frequency	Percentage
Cause of Tuberculosis		
Virus	74	31.8
Bacteria	158	67.8
Protozoa	1	0.4
Total	233	100
Mode of transmission		
Ingestion	32	13.7
Inhalation	198	85
Inoculation	3	1.3
Total	233	100
Risk factors		
Overcrowding	205	88
Inadequate nutrition	156	67
HIV/AIDS	148	63.5
Reduced immunity	166	71.2
Symptoms of TB		
Prolonged cough	224	96.1
weight loss	218	93.6
Night sweat	205	88
Diagnosis of TB		
symptoms alone	15	6.4
X Ray	118	50.6
Sputum microscopy	97	41.6
Number of sputum specimen		
One	39	16.7
Two	73	31.3
Three	121	51.9

Table 3 showed the Knowledge on TB Classification, Treatment and Treatment monitoring according to Guidelines. When respondents were asked on duration of treatment according to standard of treatment, 160(69.7%) got it correctly while 73(31.3%) did not know it..

Concerning names of drugs used in the management of tuberculosis, 199 (85.4%) knew correct drugs combination while 34(14.6%) mentioned wrong drug combination. Regarding duration of intensive phase of treatment, 129 (55.4%) mentioned correct duration while 104 (44.6%) had a wrong duration.

In terms of duration during commencement of patient treatment when patient becomes less infectious, only 85(36.5%) identify correctly the duration while 148 (63.5%) were incorrect in their responses. Concerning way to monitor tuberculosis clients while on treatment, only 94 (40.3%) identified correctly the three ways which are weight, drug intake and sputum examination on follow up visitation while 139(59.7%) did not.

Also, when respondents were asked about TB classification, 93 (39.9%), 54(23.2%) and 54(23.2%) mentioned correctly relapse, treatment failure and cured cases respectively.

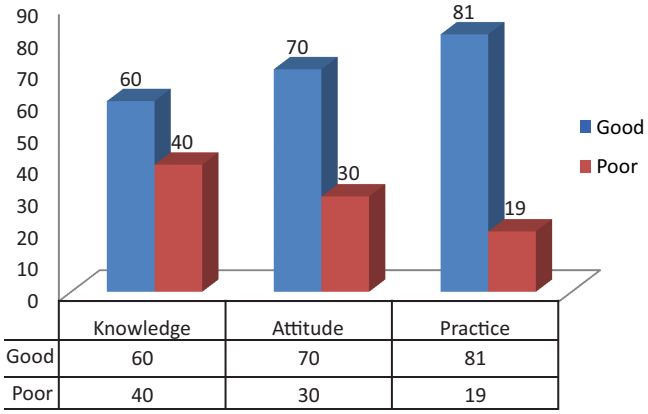
Regarding TB treatment regimen, only 33 (14.2%) identified correctly TB treatment regimen while 200 (85.8%) were incorrect. In terms of mode of prevention, 186 (79.8%), 110 (47.2%) and 60(25.8%) identified immunization, living in well ventilated environment, chemoprophylaxis and good nutrition respectively.

Table 3: Knowledge on TB classification, treatment and treatment monitoring according to guidelines.

Duration of Treatment		
6 months	75	32.3
8 months	85	36.5
Wrong answer	73	31.3
Names of drugs		
RIPE	199	85.4
incorrect answer	34	14.6
Duration of intensive Phase		
Correct answer	129	55.4
Wrong answer	104	44.6
How soon after treatment commencement patient become less infectious		
Correct answer	85	36.5
Incorrect answer	148	63.5
Monitoring of TB patient		
Weight only	41	17.6
weight and sputum smear	98	42.1
Weight, sputum and drug	94	40.3
TB case classification		
Relapse TB Case	93	39.9
Failure	54	23.2
Cured	54	23.2
TB Treatment Regimen		
Correct answer	33	14.2
Incorrect answer	200	85.5
Mode of TB Prevention		
Immunization	186	79.6
Living in well ventilated room	110	47.2
Chemoprophylaxis	24	10.3
Good Nutrition	60	25.8

Figure 1 showed the Summary score on general knowledge score of TB and treatment monitoring according to Guidelines among respondents, with 94 (40%) having inadequate or poor knowledge while 139 (60%) had adequate or good knowledge.After pooling together the seven questions on attitude towards using the national treatment TB guidelines, 163(70%) had good or favourable attitude score while 70(30%) had poor or unfavourable attitude scores. Likewise for the seven questions on adhrence to usage of national TB treatment guidelines pooled together, 188 (81%) recorded adherence to using guidelines while 45 (19%) did not.

figure 1: Summary score on knowledge of TB and treatment guidelines; and attitude and practice towards using national TB guidelines among respondents



In Table 4, there was a significant association between knowledge and attitude, and Practices of using standard TB guideline. (P< 0.05). Respondents with adequate knowledge were more than twice (2.8) likely to be involved in good practices (P=0.00, OR= 2.82 CI= 1.86- 4.28) while those with favourable attitude were 3 and a half times more likely to be involved in good practices (P=0.00, OR= 3.53 CI= 6.91-1.79)

Table 4: Association between knowledge, attitude and Practices towards using National TB treatment guideline using bi-variate and logistics regression analysis

Bi-variate					
N=233	Frequency	Percentage	Statistics		
Variable	Good Practice	Bad Practice	X^2	df	P value
Knowledge			25.2	1	0.00
Adequate	127 (91.4%)	12 (8.6%)			
Inadequate	61(64.9%)	33(35.1%)			
Attitude			14.1	1	0.00
Favourable	142 (87.1%)	21(12.9%)			
Unfavourable	46(65.7%)	24(34.3%)			

Logistic regression				
			Confidence interval	
Variable	Statistical significance	Odds ratio	Upper level	Lower level
Knowledge (Ref. Cat= inadequate knowledge	0.001	2.82	4.28	1.86
Attitude (Reference Category = unfavourable attitude	0.001	3.53	6.91	1.79

DISCUSSION

Diagnosis of tuberculosis rely primarily on passive identification of presumptive cases by general health workers whose responsibilities according to National Guideline entails identification of TB suspects, ensuring TB diagnosis through sputum examination, classification, administering and monitoring TB patients while on treatment as well as carry out examination of household contacts of confirmed smear positive TB cases therefore knowledge of health workers in key to detecting more TB cases as well as successful treatment among those detected. Knowledge of health worker regarding the standard guideline will determine quality and type of information which on the long run will enhances detection of more TB cases and as well correct negative perceptions.

According to our study, more than two third of health workers demonstrated high knowledge on cause, mode of transmission , symptoms and risk factors of having tuberculosis This is in support with study by Sumanee et al.[7] having it in mind that having knowledge may not necessarily translate into good attitude and practice.

While exploring knowledge of health workers on classification and treatment regimen according to National Guideline, about one quarter correctly identified various categorization while a little above one tenth (14.2%) identified correctly treatment regimen. Knowledge of disease process was higher than knowledge of treatment according to standard guideline. This was in disagreement with studies done in Russia by Wendy et al where there were numerous misconceived ideas about the causes of TB, transmission and prevention.[6]

Overall close to two-thirds had adequate knowledge. This knowledge level was similar to a study in Pakistan among health workers by Javaid et al in 2012.[9] However, higher percentages were recorded in a similar study Iran and Pakistan.[9,10]

The discrepancy here might be due to differences in sampled health facilities used for the survey. The low knowledge score observed in this study in terms of management might also be been due to lack of adequate trainings for these health care workers on the subject matter. Although a little less than two-thirds had worked in the facilities between 10-24 years but less than half (39.9%) claimed to have been trained on tuberculosis management. Knowledge has a significant relationship with training received on TB control services. Therefore knowledge not just on the diseases, its management and control strategies has a bearing on the ability to educate, counsel and communicate well with the patients most especially by health care workers who are in contact with the patient from diagnosis to the end of treatment. Furthermore, health care workers with paucity of knowledge on the control services will not be able to counsel patient properly particularly those with erroneous belief about their disease and treatment. The situation suggests that a lot needs to be done in terms of conduct of step down training to other members of staffs among those trained by the control program in order to achieve set National target for detection and success rates.

Attitude of health workers can either facilitate the demand for medical health care or discourage patients from seeking health care. Patient feel threatened, unloved and disrespected and will lose confidence in health worker due to negative attitude. According to this study, most respondents agreed that TB patients should be supported to take their drugs while about two-thirds were willing to care for TB patients. Overall, using the mean score, one third of respondent had unfavourable attitude. Previous studies

have shown that patients are likely to drop out of treatment if stigmatized by health care providers.[11]

The end result of such drop out by the patient will be TB treatment failure, increasingly MDR TB and consequently extensively drug resistance (XDR) TB, an emerging danger and a serious problem in the management of TB in the world today. Therefore knowledge and attitudes are considered to be the key to any effective programme efforts in the area of TB management. Moreover, the issue of misconception particularly by health care workers is an important one that needs to be addressed by TB program managers as it can also be a barrier to uptake of detecting additional TB cases and it also engenders discriminating and stigmatizing behaviours.
In terms of practice, about one fifth were not following the NTBLCP guidelines. Similar findings were reported in Pakistan by Ahmed et al among private practitioners and Vandan et al in India among while comparing public and private practitioners.[12]

Our study has the following limitations; first a qualitative method such as focus group discussion would have been more appropriate to explore attitudes relating to TB among Health care instead of using questionnaires as done in this study. Also, other factors such as work environment, tools and remuneration which would have influence attitude and performance at work were not explored in this study.

CONCLUSION

The study shows lack of required knowledge in diagnosis and treatment of tuberculosis using standard guideline by workers in the primary level. Many display negative attitude towards TB patients while some did not follow NTBLCP guideline. Respondents with inadequate knowledge and unfavourable attitude are more likely to indulge in poor practices, stressing the need for training and awareness creation most especially among primary health care service providers.

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Conflict of interest: None to declare.

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