

PERCEIVED OBSTACLES TO OPTIMAL DETECTION OF TUBERCULOSIS CASES AMONG PHC WORKERS IN OSUN AND OYO STATE, SOUTHWESTERN NIGERIA

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ABSTRACT

Background: TB cases detected in Nigeria are still far below WHO target of 70% despite adoption of DOTS strategy since 1994 with subsequent expansion of treatment to primary health centers where diagnosis and treatment is done mainly by general health care workers. However, the extent of adherence to standard guideline by such cadre is unknown.

Aims & Objective: This study aimed at assessing the knowledge on TB diagnosis and treatment by PHC workers in Osun and Oyo States.

Material and Methods: A cross-sectional descriptive study was conducted among 280 general health care workers in 23 health care facilities selected using multistage sampling technique. Interviewed was done with a pre-tested self-administered questionnaire in November, 2007.

Results: Majority of the respondents (41%) are Community health extension workers i.e 115 (41.1%) while 76 (27.1%) are nurses and 37 (13.2%) pharmacists. Knowledge on TB causation and mode of transmission was found to be relatively high as about 200 (71.4%) correctly describe TB as a microbial infection and about 216 (77.1%) knew airborne route as mode of transmission. When asked to define DOTS, 62.5% of the health workers gave a correct definition with only 109 (38.9%) able to list the 4 main drugs given during intensive phase of treatment. In addition, about half of the respondents (52.5%) knew that treatment last for 8 months.

Conclusion: The findings in this study several knowledge gaps on directly observed treatment short course therapy among healthcare providers. Multiple strategies are required to improve health care workers' knowledge and practice of Tuberculosis control.

KEY-WORDS: Directly Observed Treatment Short Course Strategy (DOTS); Obstacles; World Health Organization (WHO)

Introduction

Tuberculosis has been a global disease of Public health importance for over a decade. It has been a scourge of humanity and a major source of mortality and morbidity worldwide, despite availability of drugs for treatments.^[1] The WHO recommended DOTS strategy and advocated early case detection to ensure reduction in transmission and deaths from this disease.^[2] Because of the high risk of transmission from all forms of TB hence the need for early diagnosis and detection.^[3]

Despite the scale up of quality assurance TB services in line with the Stop TB strategy^[4], and the international standard for TB care^[5], TB case detection is low or incomplete and the global TB burden remain high.^[6-8] This is particularly in the developing world, where this poses a major challenge.^[9] Cough is the most common symptoms of PTB, however chronic cough is not always present even among people with sputum positive TB, and even the classical symptom.^[10,11] It is interesting to find that 10-25% of bacteriologically confirmed cases do not report any symptoms early in the course of the disease.^[10,11]

In Nigeria, Tuberculosis case detection rate (% all forms) in Nigeria was 40.00 as of 2010. Its highest value over the past 20 years was 44.00 in 2009, while its lowest value was 5.80 in 1994.^[12] By definition, this is the percentage of newly notified tuberculosis cases (including relapses) to estimated incident cases (case detection, all forms). Some of the factors identified to bring about appropriate case detection rates include effective awareness program, active cough identification, associated cost factor for treatment of identified cases, stepping up screening exercises and conducting routine tests at regular intervals especially in high population density areas.^[13]

Damien foundation of Belgium was allotted to assist Osun and Oyo States in terms of logistics, human resources development, drug and laboratory reagent supply, trainings monitoring and supervision in line with the 5 cardinal components of Stop TB strategy i.e. political commitment with commensurate financial support, diagnosis by sputum smear microscopy, standardized drug supply, treatment of patient with directly observed treatment short course therapy, uninterrupted drug supply, proper standardized reporting and recording system. However, with this support, directly observed short course therapy treatment was expanded from 35 centers in 29 LGAs to 67 centers in 49 LGAs between 1993 and 2006 in Oyo and Osun states. Likewise, the number of diagnostic centers also increased from 21 to 44 during the same period. Despite these efforts, the case detection rate was 26% which is too low comparative to the adopted National target of detecting 70% smear positive cases and expected cure rate of 85% of the detected cases. In order to have an evidence based information and possible causes of low case findings despite expansion of DOT facilities, this study was conducted to determine perceived barriers to effective tuberculosis case findings among primary health care workers in Osun and Oyo State, South Western Nigeria and make appropriate recommendations to relevant authorities on appropriate intervention strategies to improve case findings.

Materials and Methods

Study Area

The study was carried out in Osun and Oyo states, South Western Nigeria. Both states were bounded in the North by Kwara State, in the South by Ogun State, in the East by Ekiti State and in the West by Republic of Benin and Ogun State respectively. Historically, both states were one until 1991 with identical socio-cultural, political and seasonal variation. Osun state has a population of about 3.5m and Oyo state 4.5m at the last head count.^[14] The inhabitants are predominantly Yoruba. In terms of education and health, there are 1,277 primary health care facilities, 105 secondary health care facilities and 4 tertiary health centers and more than 2,000 private health care facilities belonging to different professional cadres. Two NGOs are also offering TB care in the state. Some of these ward level PHCs have TB treatment centers.

Study Design

Descriptive, cross sectional study on perceived barriers to case detection of TB among PHC workers in Osun and Oyo state.

Study Population

The target population constitutes PHC workers who have been in service for a minimum of 2 years and who are resident in the areas where they were seen.

Sampling Method

A multistage sampling method was adopted. In stage 1, two out of six senatorial district were selected by simple random sampling employing simple balloting. In stage 2, six LGAs (3 rural and 3 urban) out of ten in a senatorial district were selected by simple random sampling employing simple balloting. In a stage 3, six Primary Health Care centres were selected by simple random sampling from a list of PHCs from the list of registered facilities obtained from Oyo and Osun State Ministry of Health.

The main study population consisted of all health care personnel who provide health care services

in the selected health facilities. These included community health extension workers (CHEWs), Nurses, Pharmacists and medical doctors.

Research Instrument for Data Collection

Research instrument was semi structured self-administered pre tested questionnaires. Study variables include socio-demographic characteristics of respondents, knowledge about epidemiology and control of TB as well as perceived barriers to case detection of TB at the PHC level.

Ethical Consideration

Ethical clearance was obtained from LAUTECH Teaching Hospital ethical review committee. Permission was also obtained from the State and Local Government Director of Primary Health Care.

Data Management

The SPSS Version 10.0 statistical package was used for data entry and analysis. Validity of data collected was ensured by double entry and random checks for errors. Relevant frequency distributions and summary measures were done. The Chi-square test was used to demonstrate relationships between categorical variables, and two independent sample T test analysis was used to compare mean differences between quantitative variables. A binary logistics regression analysis for some selected variables was also done. Level of significance was set at P-values ≤0.05 for all inferential analysis.

Results

Two hundred and eighty health workers completed the questionnaire. Health workers who were interviewed were mainly resident in urban areas (60.7%), mostly female (60.7%), married (80%) and majority (42.5%) within 26-35 years age group. Close to 90% had post-secondary education. There were 115 (41.1%) Community health extension workers, 76 (27.1%) nurses, only 2 (0.7%) doctors, 37 (13.2%) pharmacists while other health workers were 50 (17.9%). (Table 1)

Table-1: Demographical Characteristics of Respondents (n = 280)

Characteristics		Frequency	%
Residence	Rural	110	39.3
	Urban	170	60.7
Sex	Male	110	39.3
	Female	170	60.7
Age	< 26 yr	25	8.9
	26-35 yr	118	42.1
	36-45 yr	80	28.5
	46-55 yr	53	18.9
	>55 yr	4	1.4
Marital Status	Single	57	20.4
	Married	222	79.3
	Separated	1	0.4
Educational Status	No Education	6	2.1
	Primary Education	12	4.3
	Secondary Education	17	6.1
	Post-Secondary Education	245	87.5
Categories of Health Care Workers	Community Health Workers	115	41.1
	Nurse	76	27.1
	Doctors	2	0.7
	Pharmacist	37	13.2
	Others	50	17.9

Table-2: Knowledge of Respondents (n = 280)

Knowledge		N	%
What is tuberculosis	Correct response	200	71.4
	Incorrect response	80	28.6
List the signs and symptoms of tuberculosis	3 or more symptoms identified correctly	198	70.7
	1 or 2 symptoms identified correctly	53	18.9
	No correct answer	29	10.4
What is the most important symptom of tuberculosis?	Prolonged cough with bloody sputum	215	76.8
	Weight loss	64	22.9
	Other symptoms	1	0.4
What is the main mode of transmission of tuberculosis	Airborne	216	77.1
	Ingestion of infected milk	49	17.5
	Other incorrect answers	15	5.4
How may tuberculosis be diagnosed?	3 correct methods named	153	54.6
	2 correct methods named	90	32.1
	Others	37	13.2
What is the main diagnosis method recommended by national guidelines?	Sputum microscopy	176	62.9
	X-ray	94	33.6
	Others	10	3.6
Can you please define DOTS?	Correct definition given	175	62.5
	Incorrect definition given	105	37.5
Kindly list the drugs used for TB treatment under DOTS category 1	All 4 listed correctly	109	38.9
	Only 2-3 drugs listed correctly	108	38.6
	0 -1 drug listed correctly	63	22.5
How long should TB treatment last under DOTS?	8 months	146	52.1
	Others	134	47.9

Knowledge of respondents was explored as an obstacle to TB care. While only 71.4% could

correctly describe TB as a microbial infection, about 89.6% knew at least one or more symptoms of TB. Respondents were asked to state which symptom was the most important feature of tuberculosis. Prolonged cough with bloody sputum was correctly stated by 76.8% of respondents while weight loss was stated by 22.9% of respondents. The airborne route of transmission was stated as the main mode of transmission of by 216 (77.1%) of the health workers interviewed. While as high as 86.7% knew more than 2 methods of diagnosing TB, only 62.9% could correctly state that sputum microscopy was the main method recommended by the national guidelines. When asked to define DOTS, 62.5% of the health workers gave a correct definition. Only 38.9% of the health workers could list all four category one drugs for the treatment of tuberculosis and 52.1% knew that treatment was to last for 8 months. (Table 2)

As high as 80% of respondents knew DOTs centers in LGAs where TB treatment was available freely and about two-thirds of respondents thought that TB treatment should be by specially trained health workers.(63.6%). While 72.1% of respondents claimed they could treat TB in their facilities, only 13.1% of those who saw patients with symptoms suggestive of TB actually treated the patients in their facility. (Table 3)

Table-3: Service Availability and Provision (n = 280)

Service	N	%
Is there a DOTS Centre in your Local Government?	Yes	224 80.0
	No	56 20.0
Who is expected to take care of TB patients according to the programme?	General Health Worker	55 19.6
	Family members	36 12.9
	Specially Trained Workers	178 63.6
	Doctors	11 3.9
Can you treat a confirmed tuberculosis patient in your health facility?	Yes	202 72.1
	No	78 27.9
In the last 3 months, did any patient present in your centre having symptoms suggestive of TB?	Yes	122 43.6
	No	158 56.4
If yes, what was done? (n = 122)	Send to TB clinic	104 85.2
	Treated at Our clinic	16 13.1
	Others	2 1.6

About half of the health workers had training in management of TB. About 241 (86.1%) expressed

willingness to receive additional training. Inadequate training of health workers was stated by the highest number of respondents (42.5%) as the main obstacle to proper management of TB. (Table 4)

Table-4: Willingness to Receive Training and Other Self-Reported Obstacles (n = 280)

Willingness		N	%
Have you ever had any training on the management of tuberculosis?	Yes	144	51.4
	No	136	48.6
Do you wish to receive additional training on the management of tuberculosis?	Yes	241	86.1
	No	39	13.9
If yes, how soon? (n = 241)	< 6months	180	74.7
	> 6 months	61	25.3
What are the issues that affect TB management in your opinion?	Inadequate training of health workers	119	42.5
	Delayed payment of counterpart funds	67	23.9
	Inadequate number of DOTS centers	9	3.2
	Others	83	29.6
	No suggestion	2	0.8

Discussion

The present study showed that substantial numbers of health care workers at primary health centers still have inadequate knowledge regarding the signs and symptoms, method of diagnosis by the National Tuberculosis guidelines, lists of routinely used short course chemotherapy drugs as well as duration of treatment as recommended by World Health Organization. At the same time, however, there is reasonably good awareness about practical aspects such as mode of spread of the disease as well as prolonged cough of 2-3 weeks duration as the most important symptom of diagnosing the disease. Other symptoms often related to TB were not well known. Knowledge about the most important symptom for identification of TB suspects (cough > 2 weeks) was less in our study compared to knowledge of health workers in Vietnam (98% knew most common symptom of TB) and health staff in PHC in Iraq (93% mentioned cough >2 weeks).^[15,16]

The role of sputum examination as a simple, cheap, sensitive and specific test has been well proven. In the National TB program instead of X-ray, sputum examination is given utmost importance. The present study, however, showed that only 62.9% of general health care workers mentioned sputum microscopy as recommended by National guidelines lower than findings among

nurses working in a tuberculosis hospital and in a general hospital in Delhi, India where 96% said that sputum microscopy should be done routinely among suspected cases of pulmonary tuberculosis.^[17]

Also more than one quarter of health care workers (33.6%) mentioned x-ray as the main method of diagnosing TB which is in contrast with NTBLCP recommendations. Unless the general health care workers themselves are aware, they cannot be expected to teach patients about the importance of sputum examination as a cheap and reliable tool in diagnosis as well as monitoring patients on treatment. This indicates a need for training and updating knowledge about tuberculosis among general health care workers. This may be the reason for low TB case detection in both states (i.e. Oyo and Osun States) however other areas such as quality of the laboratory diagnosis needs to be explored by further studies.

A significant number of general health care workers do not know the duration of treatment of confirmed TB cases according to National guidelines: as only half (52.1%) knew it was 8 months. This was higher than findings from TB workers and nurses in India where only 23.2% of TB and 18.3% of GH nurses knew it was 6 months.^[17] Likewise, 20% of respondents did not know available Directly Observed Treatment Short Course centers in the LGAs where TB treatment was available at no cost.

Efforts should be made to bridge this gap among health care workers in primary health care settings otherwise this could have a negative impact on good case holding of patients leading to poor cure rates. Guidelines and Job aids where duration of treatment is written and specified should be distributed among health care workers in all facilities. Collaborative efforts on the part of the TB programme managers, Non-Governmental organizations involved in TB control and the hospitals, in which they work, are often necessary as discontinuation of medications after leaving the hospital probably often occurs because the patient fails to fully understand the necessity and importance of prolonged, uninterrupted drug therapy. Patients must be taught to take their medications, but they must also gain sufficient

understanding of the disease and the mechanism of chemotherapy, in order to become convinced that this is necessary.

Conclusion

The results of this study identified weakness regarding the detection and treatment of tuberculosis as recommended under the national tuberculosis programme among primary health care workers in Osun and Oyo State- South Western, Nigeria. Interventions should be developed based on the following approaches:

- Training on TB control of all general health care workers that have not received training as well as re-training among those initially trained.
- Distribution of SOPs and other job aids such as TB algorithms within primary health care facilities in the state.
- Distribution of Standard operating procedures for improving TB case detections placed in each facilities

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