

Knowledge, Attitude, and Practice of Primary health care Workers regarding Tuberculosis disease in Minna municipal council area, Niger State, Nigeria.

Chindo Ibrahim Bisallah^{1,4} Abubakar Muhammad Amali² Yahaya Mohammed Katagum³, Mohammed B Usman⁴ Abubakar Mohammad Ramadan⁵

^{1,4}Ministry of Health, Minna, Niger State, Nigeria, ^{2,5}Department of Pharmacology and Toxicology, Faculty of Pharmaceutical Sciences, Usmanu Danfodiyo University, P.M.B. 2346, Sokoto, Nigeria, ^{1,3}Department of community health, faculty of medicine and health sciences, University Putra Malaysia 43400 Serdang, Selangor. Malaysia

Corresponding author: Chindo Ibrahim Bisallah

Abstract

Introduction: Despite tremendous efforts to control tuberculosis (TB), it is still a major public health problem in Nigeria. Nigeria is among the six countries that contributed 60% of all new TB cases in 2015 and remains among the 22 high burden countries. National Tuberculosis Control Programme has continued to work towards controlling TB epidemic by expanding DOTS treatment and microscopic centers across the country. Data about knowledge and attitude of healthcare workers especially at the primary health care level where the majority of TB patients resides is scarce in Nigeria. Thus, a detailed understanding of the factors associated with the knowledge of and attitude towards TB among primary healthcare (PHC) workers is needed to support case detection and reduce TB-related morbidity in Nigeria. **Objective:** To assess the knowledge, attitude, and practice of primary health care workers regarding tuberculosis disease in Minna municipal council area, Niger State, Nigeria. **Methods:** A cross-sectional descriptive study to assess knowledge, attitude, and practice of 163 primary health care workers regarding tuberculosis disease in Minna municipal area council was carried out from June to August 2015. A self-administered structured questionnaire was used to collect data. Data were analyzed using SPSS version 22.

Results: The response rate was 126 (77.3%). Overall, 63 (50.0%) of the respondents had satisfactory knowledge, 55 (43.7%) had positive attitude and 65 (51.6%) had good practices regarding tuberculosis. Ages of the respondents were significantly associated with knowledge ($p = 0.048$), while years of service was associated with attitude ($p = 0.049$) and practice ($p = 0.003$).

Conclusion: There is significant gap in knowledge and practices on tuberculosis prevention and control among primary health care workers in centers providing DOTS services in Minna Municipal council area. Therefore, training and retraining of all PHC workers involved in the care of TB patients should be strengthened.

Keywords: Tuberculosis, knowledge, attitude, practice, PHC workers.

Date of Submission: 23-01-2018

Date of acceptance: 13-02-2018

I. Introduction

Tuberculosis (TB) remains one of the world's deadliest communicable diseases. In 2013, an estimated 9.0 million people developed TB and 1.5 million died from the disease [1]. Even though, TB is slowly declining each year with an estimated 37 million lives saved between 2000 and 2013 through effective diagnosis and treatment [1]. However, given that most deaths from TB are preventable, the death toll from the disease is still unacceptably high and efforts to combat it must be accelerated if 2015 global targets, set within the context of the Millennium Development Goals (MDGs), are to be met [1]. According to World Health Organization (WHO) report, 8.6 million tuberculosis cases and 1.3 million deaths were estimated in 2012 globally [2]. Furthermore, the estimated 9 million people who developed TB in 2013, more than half (56%) were in South-East Asia and Western Pacific Regions. An additional one quarter was in the African Region, which also had the highest rates of cases and deaths relative to population. India and China alone accounted for 24% and 11% of total cases, respectively [1]. Tuberculosis (TB) is the leading cause of mortality among infectious diseases in the world [3]. According to the global tuberculosis report, WHO in 2015 estimated that there were 586,000 cases of all forms of tuberculosis in Nigeria, representing an annual incidence rate of 322/100,000 population. Nigeria is among the six countries that contributed 60% of all new TB cases in 2015 and remains among the 22 high

burden countries[4]. With HIV prevalence of 3.4% (2012), having a generalized epidemic, Nigeria faces a sustained transmission of tuberculosis until the HIV epidemic is brought under control[5].

In Nigeria, the National Tuberculosis and Leprosy Control Programme (NTLCP) was launched 1991. The goal of which is to reduce, significantly, the burden of TB by 2015 in line with the Millennium Development Goals (MDGs). The programme operates at all three tiers of government, with each level having a well-trained officer in charge of coordination in all the 774 Local Government Areas in the 36 states of the Federation and Federal capital territory. The WHO/IUATLD global DOTS strategy for effective TB services was adopted since 1993 as an integral part of PHC. Data about knowledge and attitude of healthcare workers especially at primary health care level where the majority of TB patients resides is very scarce in Nigeria and thus, a more detailed understanding of the factors associated with the knowledge and attitude towards TB is needed to support case detection and reduce TB-related morbidity in Nigeria [6]. Therefore, the aim of the present study was to assess the knowledge, attitude and practice of primary health care workers regarding tuberculosis disease in Minna municipal council area, Niger State, Nigeria.

II. Methodology

Study location

This study was conducted in Minna municipal council area (Chanchaga local government area) which is one of the 25 LGAs in Niger state, Nigeria. The local government has a total of 25 primary health care (PHC) facilities out of which 18 offer comprehensive TB services under the directly observed treatment short course (DOTS) strategy. The workforce in this LGA is 633 staff, 415 (65.5%) of them are trained healthcare workers.

Study design.

A cross-sectional descriptive study on knowledge, attitude, and practice of primary health care workers regarding tuberculosis disease in Minna municipal council area (Chanchaga LGA) was carried out from June to August 2015.

Study population.

The study population consists of trained primary health care workers including community health extension workers, nurses, laboratory technicians and medical records technicians serving in the local government public primary health care facilities.

Inclusion criteria

Primary health care workers working in the public primary health care facilities

Exclusion criteria

Primary health care workers working in private primary healthcare facilities and those outside the study.

Sample size

The sampling unit for this study was a trained primary health care worker. The formula for calculating sample for one proportion [7] was used to estimate the sample size and was based on a prevalence of 89.2% of satisfactory knowledge regarding tuberculosis among healthcare workers from a similar study carried out in Lesotho[8]. The estimated sample size was 148 but was increased to 163 to account for approximately 10% attrition rate.

Sampling method

A multistage probability sampling method was used for this study. In stage one, ten primary health care centers were randomly selected out of the total of 18 PHCs that offer directly observed treatment short course (DOTS) therapy through simple lottery random sampling method. In stage two, a simple random sampling of the primary health care workers in each of the selected PHC centers was carried out based on the number allocated to it considering the population of trained healthcare workers in each of the facility.

Data collection method

A self-administered structured questionnaire was used to collect data from respondents for this study. The questionnaire was an adopted and modified version of the WHO 2008 validated Advocacy Communication and Social Mobilization strategy for TB control (a guide to developing knowledge, attitude and practice surveys)[9]. Section A had eight statements on socio-demographic variables. Section B was on TB knowledge and had 10 statements with 'Yes' or 'No' options. Section C had 5 questions relating to the attitude of participants towards tuberculosis. The responses were on a 4-point Likert scale with the options: strongly agree, agree, disagree and strongly disagree. Section D had statements on the practice of respondents relating to tuberculosis prevention with 'Yes' or 'No' options.

III. Data analysis

Data were analyzed using SPSS version 22 and the significance level was set at $p < 0.05$. Frequencies, percentages, measures of central tendency and Chi-Square (χ^2) were considered for the analysis. There were a total of 10 questions for knowledge related statements, correct responses were assigned one and incorrect assigned zero scores. The scores were summed up to obtain an overall score for each respondent, with a range of 0 to 10. Practice had a total of 5 questions, correct responses were assigned one and wrong responses assigned zero, with a total summed up scores ranging from 0-5. Attitude responses were on a 4-point Likert scale. The scores were summed up to get an overall score for each respondent ranging from 5 – 20 points. Knowledge and attitude were further categorized using mean as the cut-off point [10]. Mean was used as a cut-off point because the data for knowledge and attitude were normally distributed among the respondents. This was done in order to assess and grade respondent's knowledge (satisfactory or unsatisfactory knowledge), attitude (positive and negative attitude) regarding tuberculosis. Satisfactory knowledge was defined as those respondents that scored equal or above the mean and unsatisfactory knowledge as those that scored below the mean. Positive attitude defined as respondents that had scores equal or above the mean and those that scored below the mean as having negative attitude. The practice data was not normally distributed, as such the median was used as the cut-off point [11]. Those scoring less than the median were classified as having poor practice and above the median as good practice.

Ethical consideration

Approval was sought to carry out this study from the Directorate of primary health care of Minna Municipal council area. Verbal consent was also obtained from the respondents before administration of the questionnaire.

IV. Results

The response rate was 126 (77.3%), out of 163 health workers that received the questionnaire.

Table 1 shows that majority 61 (48.4%) of the respondents were below the age of 30 years. There were 78 (61.9%) females and 48 (38.1%) males, 107 (84.9%) were community health extension workers (CHEW), 8 (6.3%) nurses and other categories constituted 11 (8.8%). Majority of the respondents 102 (81.0%) possessed diploma certificates while 20 (15.9%) had degrees and 4 (3.1%) postgraduate certificates. Majority 94 (74.6%) had up to 5 years working experience. Over half 72 (51.7%) of the respondents have not attended any workshop related to tuberculosis for one year. Seventy-seven percent of the respondents were married and most 78 (77.8%) belonged to the Islamic faith while 28 (22.2%) were Christians.

Table 1. Socio-demographic characteristics of respondents

characteristics	Frequency (n)	Percentage (%)
Age		
<30	61	48.4
30-39	31	24.6
40-49	31	24.6
50 and above	3	2.4
Gender		
Male	48	38.1
Female	78	61.9
Educational level		
Diploma	102	81.0
Degree	20	15.9
Postgraduate	4	3.1
Religion		
Islam	98	77.8
Christian	28	22.2
Marital status		
Single	22	17.4
Married	97	76.9
Divorced	3	2.4
widowed	4	3.3
Categories of health workers		
Community health extension workers	107	84.9
Nurses	8	6.3
Laboratory technicians	3	2.4
Medical records technician	4	3.2
Environmental health officers	4	3.2
Years of service		
Less than 5 years	32	25.4
5- 10 years	44	34.9
Above 10 years	50	39.7
Attended workshop in the last one year		
Yes	54	42.9

No	72	57.1
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Table 2 shows that out of 126 respondents, 63 (50.0%) of the respondents had satisfactory knowledge regarding tuberculosis, 55 (43.7%) had positive attitude toward TB and 65(51.6%) had good practices regarding tuberculosis.

Table 2. Knowledge, attitude and practice scores of respondent's categories

SNO.	Variables	Frequency (n)	Percentage (%)
1	Knowledge		
	Satisfactory knowledge (scores of 7 and above)	63	50
	Not satisfactory knowledge (scores of 6 and below)	63	50
	Mean = 7.15 ± 1.51		
2	Attitude		
	Positive attitude (scores of 13 and above)	55	43.7
	Negative attitude (scores of 12 and below)	71	56.3
	Mean = 13.10 ± 2.12		
3	Practice		
	Good practice (scores of 5 and above)	65	51.6
	Poor practice (scores of 4 and below)	61	48.4
	Mean = 4.06 ± 1.36, median = 5		

Table 3 shows the distribution of responses to individual items on knowledge of the respondents regarding tuberculosis. Regarding the transmission and symptoms of tuberculosis 111 (88.1%) of the respondents correctly mentioned that TB can be transmitted when a person with active TB disease coughs or sneezes while only 69 (54.8%) knew that prolonged cough lasting 2-3 weeks is a symptom of tuberculosis. As high as 54(42.9%) of the respondents were unaware of the duration of treatment of a newly diagnosed case of TB and up to 26(20.6) were not aware that TB is curable using the DOTS strategy. Though 121(96.0%) believe that TB is curable, but 59(54.8%) are not aware that everybody is at risk of being infected with the disease.

Table 3. Responses to tuberculosis knowledge statements

SNO.	statements	Yes (%)	No (%)
1	TB is transmitted through the air when a person with active TB disease coughs or sneezes	111(88.1)	15(11.9)
2	Cough lasting more than 2-3 weeks is a symptom of TB	69(54.8)	57(45.2)
3	Someone can be infected with TB more than once in a lifetime	106(84.1)	20(15.9)
4	The diagnostic test to confirm a case of pulmonary TB is sputum smear microscopy or culture	104(82.5)	22(17.5)
5	The duration of treatment of a newly diagnosed case of TB is 6 months	72(57.1)	54(42.9)
6	Tuberculosis is curable	121(96.0)	5(4.0)
7	TB is curable using medicines under the directly observed treatment short-course therapy (DOTS)	100(79.4)	26(20.6)
8	Everybody is at risk of getting infected with TB	57(45.2)	59(54.8)
9	A defaulter is a patient who interrupted TB treatment for 2 or more consecutive months	53(42.1)	73(57.9)
10	BCG is the only TB vaccine currently available	107(84.9)	19 (15.1)

Table 4 shows that 107 (85.0%) were aware that TB is a serious disease. Ninety-two percentage have compassion and desire to help a TB infected persons. However, 46 (35.5%) and 65(51.6%) said they cannot eat from the same plate with a TB infected person or marry a TB patient.

Table 4. Responses to attitude towards TB and TB patients

SNO.	statements	Strongly disagree	Disagree	Agree	Strongly agree
1	TB is a serious disease	8(6.3)	11(8.7)	55(43.7)	52(41.3)
2	I feel compassion and desire to help TB infected persons	16(12.7)	18(14.3)	70(55.6)	22(17.5)
3	I will be embarrassed if I'm told I have TB	17(13.5)	50(39.8)	34(27.0)	25(19.8)
4	I can eat from the same plate with a TB patient	45(35.7)	35(27.8)	31(24.6)	15(11.9)
5	I can marry a TB patient	24(19.0)	51(29.4)	47(37.3)	18(14.3)

Table 5 shows the responses to TB related practices. Majority 113 (89.7%) of the respondents mentioned that they cover their mouth and nose while coughing or sneezing. Over forty-four (44.4%) percentage do not use face mask while attending to patients in the clinic.

Table 5. Responses to TB related practices statements

SNO.	Statements	Yes (%)	No (%)
1	I usually cover my mouth and nose when coughing or sneezing	113(89.7)	13(10.3)
2	I use face mask while in the clinic attending to patients	70(55.6)	56(44.4)
3	I do give health education to TB patients about tuberculosis	115(91.3)	11(8.7)
4	I usually counsel my patients on adherence to prescribed anti-TB medication	111(88.1)	15(11.9)
5	I usually carry out contact tracing of my patients that default from treatment	103(81.7)	23(18.3)

Table 6 shows that age of the respondents was associated with knowledge such that the younger the respondents the better the knowledge of tuberculosis ($\chi^2 = 7.917 (3), P = 0.048$). There was no association between sex ($p = 0.463$), educational level ($p = 0.710$), religion ($p = 0.668$), Marital status ($p = 0.480$), workshop attendance ($p = 0.072$) and years of service ($p = 0.069$) with knowledge of tuberculosis. Regarding attitude of respondents, there was a statistically significant association between years of service ($\chi^2 = 6.034 (2), p = 0.049$) and attitude of the respondents regarding TB. There was no association between attitude of respondents with sex ($p = 0.986$), educational level ($p = 0.732$), religion ($p = 0.924$), Marital status ($p = 0.319$), workshop attendance ($p = 0.108$) and age ($p = 0.33$). The table also shows that years of service was associated with practice of the respondents ($\chi^2 = 11.896 (2) p = 0.003$). Sex ($p = 0.930$), educational level ($p = 0.459$), religion ($p = 0.849$), marital status ($p = 0.298$), workshop attendance ($p = 0.440$) and age ($p = 0.410$) were not associated with practice of the respondents regarding tuberculosis.

Table 6. Factors that are associated with knowledge, attitude, and practice regarding Tuberculosis

1.	Knowledge			
Variable	Knowledge level		Total	
Age	unsatisfactory knowledge	Satisfactory knowledge		
<30	26(42.6)	35(57.4)	61(100)	
30-39	13(41.9)	18(58.1)	31(100)	
40-49	22(71.0)	9(29.0)	31(100)	
50 and above	2(66.7)	1(33.3)	3(100)	
Total	63(50)	63(50)	126(100)	
Chi square (χ^2) = 7.917, degree of freedom (3), p = 0.048				
2	Attitude			
Variable	Attitude		Total	
Years of service	Negative attitude	Positive attitude		
Less than 5 years	13 (40.6)	19 (59.4)	32 (100)	
5 – 10 years	24 (54.5)	20 (45.5)	44 (100)	
Above 10 years	34 (68.0)	16 (32.0)	50 (100)	
Total	71(56.3)	55(43.7)	126(100)	
Chi square (χ^2) = 6.034, degree of freedom (2), p = 0.049				
3	Practice			
Variable	Practice		Total	
Years of service	Poor practice	Good practice		
Less than 5 years	8 (25.0)	24 (75.0)	32 (100)	
5- 10 years	21 (47.7)	23 (52.3)	44 (100)	
Above 10 years	32(64.0)	18 (36.0)	50 (100)	
Total	61(48.4)	65(51.6)	126(100)	
Chi square (χ^2) = 11.896, degree of freedom (2), p = 0.003				

V. Discussion

Although TB treatment is free in Nigeria and TB services are available at designated centers across the country, the incidence of TB in Nigeria is still high occurring in about 133 per 100,000 population [12]. According to WHO global TB report, the incidence of TB in Nigeria has increased to 338/100,000 population in 2016 [4].

The National Tuberculosis Control Programme has continued to work towards intensifying and sustaining its efforts to bring the TB epidemic under control by expanding DOTS treatment and microscopic centers across the country [5]. However, active task shifting of more roles to the peripheral health facilities and communities require enhancement of TB knowledge to primary health care workers to maintain quality TB control activities that meet international standards [13].

Since primary health care is the entry point into the healthcare system and first source of care for most health needs [14], PHC workers are, therefore, the first contact to most TB patients and have a significant role to play in the prevention and control of tuberculosis. Generally, delay in detecting infectious TB patients presents a

threat to the immediate community and to healthcare workers. It means that PHC workers are expected to have adequate knowledge, high level of awareness and good practices regarding tuberculosis, its prevention, and control. It is expected that with adequate knowledge, they can assist in the control of TB through early identification of cases, referral for further investigation and treatment, and participate actively in the implementation of directly observed treatment short course (DOTS). Knowledge of TB, its prevention, and control among PHC workers is paramount for effective TB management at the primary health care level.

Overall, our study revealed that 50% of PHC workers have satisfactory knowledge regarding tuberculosis. This is consistent with the study from Mozambique which reported a 57.3% of respondents having satisfactory knowledge of TB [15]. The finding of our study is contrary to the report of a study on knowledge regarding TB among health workers conducted in Iraq with 95.5% of the respondents having good knowledge about the disease [16]. However, there was similarity in respect of factors associated with knowledge. Both studies reported an association between ages of the respondents with knowledge. However, the high level of knowledge of respondents in the Iraq study was associated with their high level of education [16]. Despite, the high level of education among participants in our study, there was no association between level of education and knowledge of the respondents. It is therefore important for periodic training of PHC workers on TB irrespective of their level of education. Additionally, a study among health care workers on tuberculosis knowledge in Lesotho reported that 89.2% of respondents had good knowledge related to tuberculosis [8], which is in contrast to the finding of this study. The overall comparably low level of knowledge recorded in this study of 50% could be attributed to inadequate continuous health education, training and limited supervision of health care workers by the TB control programme. This is evident as more than half 72 (57.1%) of the respondents reported that they have not attended any workshop either in form of continuing medical education, training or sensitization related to TB for a year.

The TB knowledge was further analyzed looking at the responses of the participants to individual items which provided a clearer picture of their knowledge. The present study demonstrated that TB is familiar and understood to some extent by the respondents (health care workers) in the current study area, as the majority (more than 80%) of the study participants had correct knowledge of the contagious nature, transmission, and form of diagnostic tests conducted for TB. This finding is similar to a study conducted in Addis Ababa, Ethiopia on the assessment of knowledge and practice of health workers towards tuberculosis infection control and associated factors in public health facilities that reported nearly two-thirds (63.9%) of the respondents had good overall knowledge about tuberculosis infection control [17]. However, some of the respondents 57 (45.2%) had limited knowledge concerning the main symptom of TB such as cough lasting for 2-3 weeks or more which is in contrast to the report of a study among health workers in South Africa that reported a response rate of 96.5% [18]. This is very alarming when one considers the vast experience and qualification of majority of the respondents. Poor knowledge of the respondents of symptoms may have negative impact on quick diagnosis and treatment of TB patients. It could also lead to inadequate infection control practices exposing both the health workers and the patients to increased risk of infection and nosocomial TB transmission.

This study revealed that the overall positive attitude of respondents regarding TB was 43.7%, this was low compared to the report of the study from Mozambique [15]. But the Mozambican involved all cadres of healthcare workers in TB control including Doctors, counselors, nurses, dentists, and technicians. The positive attitude of respondents was associated with the years of working experience in this study.

Results of the study also revealed overall good practices of 51.6%. The prevalence of good practice recorded in this study is slightly above 35.6% and 38.2% reported by Mozambique and Iraq study among PHC workers [15, 16]. Majority of the respondents (74.6%) in this study had more than five years working experience in health facilities, while only 25.4% had less than five years working experience. This observation was in contrast to the study among health workers in Mozambique where more than half of their respondents (52.1%) had less than five years working experience working in the health facilities, among which (14.2%) had less than one year experience.

VI. Limitations

Our study has some limitation due to the fact that we did not explore the supervisory role of the state and national TB control program which may have an effect on the knowledge, attitude, and practice of our respondents regarding tuberculosis. We did not explore other factors such as work environment, tools, and remuneration that can contribute to knowledge and attitude of health workers towards TB. Furthermore, we did not involve the private health sector who are contributing significantly to the health care delivery services where a reasonable percentage of patients access health care. Lastly, the study was limited to Minna Municipal council area of Niger state and the finding may not reflect other areas of the state or the country.

VII. Conclusion

There are significant gaps in knowledge and practices on tuberculosis prevention and control among primary health care workers in centers providing DOTS services in Minna Municipal council area, Niger state. The knowledge gaps could hinder early identification of TB patients and affect timely diagnosis and treatment of infectious cases with its attendant consequences. This can directly affect the implementation of directly observed treatment short course therapy, the mainstay of TB management. Adequate knowledge will enhance effective TB management and control. It is recommended that training and retraining related to TB for all PHC workers, directly and indirectly, involved in the care of TB patients in DOTS centers should be strengthened.

Acknowledgement

The authors sincerely acknowledge the support of the Director and staff directorate of PHC, Chanchaga LGA, Niger State. Special appreciation and thanks go to the Head of the PHC centers that participated in the research for their support. Other contributors that facilitated in ensuring data collection are highly appreciated and acknowledged.

Conflict of interest

The authors declare that there is no conflict of interest

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Chindo Ibrahim Bisallah "Knowledge, Attitude, and Practice of Primary health care Workers regarding Tuberculosis disease in Minna municipal council area, Niger State, Nigeria." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 17, no. 2, 2018, pp. 60-66.