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AWARENESS OF THE PREVALENCE OF TUBERCULOSIS IN ANAMBRA WEST LOCAL GOVERNMENT AREA, ANAMBRA STATE, NIGERIA.

Medicine

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ABSTRACT

Awareness is a very important parameter to be assessed in order to provide baseline data to assist the decision makers to plan for and deliver an effective TB control programme. The study evaluated public awareness of the prevalence of TB in Anambra West LGA, Anambra State, South Eastern Nigeria. Using a descriptive cross-sectional survey method, ten communities were randomly chosen from the LGA in which twenty respondents each were also randomly selected. Altogether, twenty respondents were used in the study. The result revealed that majority of the participants were conversant with the causes (105), mode of transmission (120), major signs and symptoms (170) of TB infection and barriers to treatment and prevention of the TB disease. Majority of the respondents were also aware of the barriers associated with TB control/treatment which included language barrier (180), reduced number of DOTs, Means of transportation (183) and stigmatization (120). This extent of awareness was facilitated by mass media. However, the result showed that most of the respondents (110 and 105) perceived traditional medicine to be a TB preventive measure and cure respectively with no significant association. Therefore, the investigation of this study revealed intermediate level of TB awareness among the studied population.

KEYWORDS

Tuberculosis, Awareness, Anambra West, Nigeria.

Introduction

Tuberculosis (TB) is an infectious disease whose scourge has been with humans throughout known history (Daniel, 2006). TB is a disease caused by mycobacterium that mainly affects the lungs spreading to other organs such as brain, skin and other viscera. The causative organisms as outlined by Nathan *et al*. (2003) are *Mycobacterium tuberculosis* and *Mycobacterium bovis*. Tuberculosis (TB) remains a major global public health problem and is second to human immunodeficiency virus (HIV) as the leading cause of death due to a single infectious agent in the world and loss of healthy life years in the productive age group (Vidhani and Vadgama, 2012; Baveja and Dalal, 2012). TB affects all the predicted fields of quality of life, such as general health perceptions, corporal sense, psychological health, mental peace and functionality of physical and social roles (Unalan *et al*., 2008).

In 2009, U.S. Global Health policy in Global Tuberculosis Epidemic declared that about one-third of the world's population or two billion people carried the TB bacteria, and more than 9 million of who become sick each year with "active" TB which could be spread to others (WHO, 2009 & 2010). In low and middle-income countries (LMICs), TB stands third among the leading cause of adult mortality after HIV and ischaemic heart disease (Sreeramareddy, 2013). Despite the downward trend in the incidence and prevalence of TB, every continent still reports new cases, especially Africa and south-east Asia (WHO, 2008). The highest rates of TB cases are found in countries where poverty, crowding and insufficient health care programs are common problems (Farmer, 2005). Nigeria is one of the countries in sub-Saharan Africa noted to be saddled with a high prevalence of the disease (Egah and Okoli, 2004). In year 2007, Nigeria ranked fourth in the world and first in Africa with respect to the WHO estimated number of TB cases. Unfortunately, a 2008 report estimated the total TB cases in Nigeria as 922,575, and was ranked 3rd (behind India and China) on the list of high-burden countries (Kaiser Family Foundation, 2010). Furthermore, as at 2007, the WHO estimated that Nigeria had 460,000 cases of all forms of TB, a TB prevalence of 521/100,000 population, 195,000 new smear positive cases, incidence rate (all cases) of 311/100,000 per year, and incidence rate (new smear positive) of 131/100,000 per year. Further estimates include the prevalence of all forms of TB in HIV of 42/100,000, and a death rate of 93/100,000

population per year (138,000 deaths/year) (WHO, 2009).

Without the implementation of proper control measures, WHO estimates that between 2000 and 2020, nearly one billion people will be newly affected, 200 million will get sick and 35 million will die from TB (WHO, 2008). Health seeking behavior and the perceived knowledge on causes of TB among community members is very critical and may reduce or increase the transmission of the disease. Certain local practices, beliefs, such as illness representations of the illness character and shame related to it, and failure to recognize symptoms early may delay diagnosis hence increasing the spread of the disease in the community (Woith and Larson, 2008). Therefore, public awareness is essential for the reduction of both mortality and morbidity of TB (Gijs *et al*., 2004). It is well established that good public awareness correlates well with the early detection of disease. Knowledge plays a vital role in influencing the behavior and practices of the individuals. Early detection and diagnosis of TB can cause a decrease in TB mortalities and occurrence (Suárez *et al*., 2001).

The need for population based studies in order to design appropriate tuberculosis education, should not therefore be understated if the global targets for case detection and treatment outcome are to be achieved (Kochi, 1991). Therefore, the present study evaluated the awareness of tuberculosis prevalence in Anambra West Local Government Area, Anambra State, Southeastern Nigeria. It was hypothesized that there is no significant difference on the awareness level of tuberculosis prevalence in Anambra West Local Government Area, Anambra State, Southeastern Nigeria. The research was strictly limited to respondents in ten randomly selected communities within Anambra West Local Government Area, Anambra State, Southeastern Nigeria

The following research questions guided this study:
1 What is the prevalence of tuberculosis in Anambra West Local Government Area, Anambra State, Southeastern Nigeria?
2 What is the knowledge of the respondents on prevalence of tuberculosis?
3 What are the modes of tuberculosis transmission?
4 What are the Signs and Symptoms of tuberculosis?

5   What are the tuberculosis treatment barriers in the study area?

Research methods
Area of study
The study area is Anambra West Local Government Area which has a population of 167,838 (NPC 2006) inhabitants. The people of Anambra West Local Government are of two tribes namely Igalla and Igbo tribe. They are riverine dwellers that share boundary with Delta State on the West, Kogi State on the North, Anambra East Local Government Area on the East and on the South River Niger. It occupies about 3.100km^2 of Anambra State.

Study technique
The study employed a descriptive cross-sectional study in order to obtain a quantitative and qualitative data on the status of awareness of tuberculosis prevalence in Anambra West Local Government Area of Anambra State, Nigeria. An interview schedule consisting of a pre-tested structured interviewer-administered questionnaire was administered to the respondents. The essence of the questionnaire is to ascertain the respondents' level of awareness, knowledge and attitude to tuberculosis and TB patients in the area, their readiness to go for laboratory tests and follow up on medication, together with their perceptions on the stigmatization of TB patients. The questionnaire and interviews/discussions were administered by health care workers who are experts in questionnaire administration techniques.

Target Population of the study
Out of the population consisting of all the seventeen (17) communities of Anambra West Local Government Area, ten (10) communities were randomly selected from which twenty (20) respondents were randomly selected.. Data was collected on demographical characteristics, monthly income, knowledge and awareness about TB in the community, mode of TB transmission, signs and symptoms of TB, etc.

Sampling technique and sample size
Random sampling technique was used in selecting sample size of 200 participants for the study. Ten communities were selected from the Local Government Area by simple random sampling, employing simple balloting. Twenty (20) respondents were randomly selected from each of the chosen ten communities. Communication with the respondents was facilitated using complete explanations with the aid of local interpreters for easier assessment. This technique was employed to select a sample representative population from each village, ensuring that there was no bias. Quantitative data were mostly information on demographic characteristics of the respondents

Data collection
Quantitative and qualitative data pertinent to the study were collected from the respondents using well structured questionnaires. Quantitative data collected are on mostly demographic characteristics of the participants while qualitative data included the knowledge and awareness about TB in the community, mode of TB transmission, signs and symptoms of TB, TB/HIV co-infection, beliefs, Treatment, Adequacy in TB health workers and Tuberculosis treatment barriers, etc. Questionnaire was administered to each of the selected respondent. Prior to the study, the questionnaire was pre-tested in the ten communities of the LGA. This was to help in the necessary modification of the questionnaire to ensure accurate data collection and facilitate data analysis procedure.

Ethical consideration
Prior to the administration of the questionnaire on the respondents, their permission was sought after due explanation of the purpose of the exercise and permission received from research subjects.

Data presentation and statistical analysis
Data generated from the study were presented in frequency tables and percentage. Chi-square analysis was used to ascertain the level of significance among the variables of the questionnaire using Genstat statistical software (Payne et al., 2007).

Results
Demographic Information
The demographic characteristics of the respondents are displayed in Table 1. Female gender (60%) dominated the participants. Age ranged from 18 to 50 years with most (46.5%) of the participants belonging to 26-35 years age group. Greater number of the respondents was also

married. There was preponderance 40% (80) of post primary school education level among the respondents and most 35% (70) of them engaged in other occupations different from trading, farming, civil service and unskilled labour. The result further showed that greater proportion 40% (80) of the respondents earn between #30001- #40000 (Table 1).

Table 1: Demographic information

Item	Frequency	Percentage (%)
Female	120	60
Male	80	40
Total	200	
Age		
18-25	30	15
26-35	93	46.5
36-50	52	26.0
51 and above	25	12.5
Total	200	
Marital status		
Single	10	5.0
Married	170	85.5
Divorced	5	2.5
Widowed	15	7.5
Total	200	
Education level		
Pre-primary	40	20
Primary	60	30
Post primary	80	40
Tertiary institution	20	10
Total	200	
Occupation		
Trader	15	7.5
Farmer	25	12.5
Civil servant	60	30.0
Unskilled labourer	30	15.0
Others	70	35.0
Total	200	
Level of income (#)		
< 10,000	20	10
10,000-20,000	20	10
20,001-30,000	16	4
30,001-40,000	80	40
40,001-50,000	32	16
>60,000	32	16
Total	200	

Knowledge and Awareness about Tuberculosis in Anambra West
Result of the extent of knowledge and awareness about tuberculosis in the study area displayed in Table 2a showed that majority (88) of the respondents heard about tuberculosis more than five (5) years ago with very significant association (p<0.001). Meanwhile, greater (107) proportion of them find out about tuberculosis from media with very high significant association (p<0.001). The result additionally showed that most (68) of the respondents were told that tuberculosis is caused by HIV, it is contagious (58), equal number of the respondents (22) were told that tuberculosis (TB) is caused by poverty and it is incurable whereas, 15 out of the 200 respondents were told that TB is caused by witchcraft while only 3 were told other things with very high significant association (p<0.001).

Furthermore, Table 2b showed that majority (160) of the respondents perceived that people are living with TB in Anambra West LGA, Anambra State. There was no significant association (p=0.396) among the respondents that have attended a conference/seminar/meeting where education on TB was given though the result showed that greater (106) number of the participants have not attended such gathering where education on TB was given. However, most (135) of the respondents believed that early detection of tuberculosis help in controlling its spread. It was also shown that most of the respondents (130) were of the opinion that women rather than men suffer

tuberculosis. Considering the age bracket, significant (135) (p<0.001) higher proportion of the participants perceived that adolescent and children suffer TB more than the aged.

Table 2a: Knowledge and awareness about tuberculosis in the communities

Item	Options	Frequency
How many years have passed since you first found out about tuberculosis?	<1 years	12
	1 year – 3 years	20
	3 years – 5 years	68
	>5 years	88
	Unknown n=200, X2 = 126.40, (p < 0.001)***	12
How did you first find out about tuberculosis?	Family	65
	Relatives	20
	Media	107
	Others n=200, X2 = 122.76, (p < 0.001)***	8
What were you told about TB?	It is caused by witchcraft	12
	It is highly contagious	58
	It is incurable	22
	It is caused by HIV	68
	It is caused by poverty	22
	It is caused by malnutrition	15
	Other options n=200, X2 =126.69, (p < 0.001)***malnutrition	3

Table 2b: Knowledge and awareness about tuberculosis in the communities

Item	Frequency	
	Yes	No
People are living with tuberculosis in Anambra West Local Government Area, Anambra State n=200, X2 = 98.0, (p<0.001) ***	160	40
You have attended a conference/seminar/meeting where education on TB was given? n=200, X2 = 0.72, (p = 0.396)ns	94	106
Early detection of tuberculosis helps in controlling the spread of tuberculosis n=200, X2 = 24.5, (p<0.001) ***	135	65
Women suffer tuberculosis more than men. n=200, X2 = 24.5, (p<0.001) ***	130	70
Adolescent and children suffer tuberculosis more than the aged: n=200, X2 = 60.5, (p<0.001) ***	135	45

Mode of Transmission

Table 3 shows the perception of the communities on the mode of tuberculosis transmission. Most (105) of them perceived that TB is caused by bacteria while 95 rejected that opinion with no significant association (P=0.480). Moreover, most (120) of them perceived TB to be transmitted whenever a patient with active TB comes in contact with a healthy person with a significant difference (p<0.005). However, majority (142) of the respondents believed that overcrowded housing accelerates TB transmission whereas, most (132) of them debunked that TB is as a result of breaking cultural rules with very high significant association (p<0.001).

Table 3: Mode of transmission

Item	Frequency	
	Yes	No
Tuberculosis is transmitted by bacteria n=200, X2 = 0.50, (p = 0.480)ns	105	95
Tuberculosis is transmitted when a patient with active tuberculosis comes in contact with a healthy person.n=200, X2 = 56.80, (p<0.005) **	120	80
Living in overcrowded housing accelerates transmission of tuberculosis n=200, X2 = 32.0, (p<0.001) ***	140	60
Tuberculosis is as a result of breaking cultural rules n=200, X2 = 20.48, (p < 0.001) ***	68	132

Signs and Symptoms of Tuberculosis

Table 4 displayed the level of the respondents' perception of signs and symptoms of TB. It was shown that greater (170 and 120) proportion of the respondents are aware that persistent cough for more than 4 weeks and coughing up blood, respectively are major signs and symptoms of TB. Additionally, majority (190) of them perceived that most of the people of Anambra West LGA do not know much about the signs and symptoms of TB with very high significant association (p<0.001).

Table 4: Signs and Symptoms of tuberculosis

Item	Frequency	
	Yes	No
Persistent cough for more than four weeks. n=200, X2 = 98.0, (p<0.001) ***	170	30
Coughing up blood n=200, X2 = 8.0, (p<0.005) **	120	80
People of Anambra West L.G.A do not know much about the signs and symptoms. n=200, X2 = 0.50, (p = 0.480)ns	105	95

TB/HIV co-infection, Treatment, Adequacy in TB health workers and Tuberculosis treatment barriers.

It was shown in Table 5 that most (150) of the respondents believed that TB patients are likely to have HIV/AIDS with very high significant association (p<0.001). Also, significant number (125) of them is of the opinion that a patient with active TB should be screened of HIV/AIDS infection. However, greater (120) proportion of the participants are of the opinion that the cure of TB in Anambra West LGA does not meet WHO target goal. In the diagnosis and treatment of tuberculosis, majority of the respondents (180) stated that language is a barrier with very high significant association (p<0.001). Out of the 200 respondents, significantly (p<0.001) higher proportion of the respondents (190) perceived that the number of Directly Observed Treatment Short course (DOTS) in Anambra West LGA is not adequate for the treatment of TB in the area. In addition, most (120) of the respondents perceived that people do not want to go for sputum smear because of stigmatization whereas minority (80) of them disagree with this. However, majority (110) of the respondents believed that African traditional medicine can protect someone from TB with no significant association (p=0.157) furthermore, most (105) of them believed that such African traditional medicine must be able to cure TB with no significant difference (p=0.480). Moreover, significantly greater proportion (183) of the participants are of the view that means of transportation was a barrier in the treatment of TB with very high significant association (p<0.001) (Table 5).

Table 5: Beliefs, treatment, adequacy in TB health workers and tuberculosis treatment barriers

Item	Frequency	
	Yes	No
TB patients are likely to have HIV/AIDS n=200, X2 = 50, (p<0.001) ***	150 (75%)	50 (25%)
A patient with active TB should be screened of HIV/AIDS infection. n=200, X2 = 12.5 (p<0.001) ***	125 (62.5%)	75 (37.5%)
The cure of tuberculosis in Anambra West L.GA meets WHO Target goal. n=200, X2 = 128, (p<0.001) ***	80 (40%)	120 (60%)
Language is a barrier in the treatment of TB. n=200, X2 = 128, (p<0.001) ***	180 (90%)	20 (10%)
Numbers of DOTs in Anambra West LGA are not adequate for the treatment of TB. n=200, X2 = 162, (p<0.001) ***	190 (95%)	10 (5%)
TB drugs are not easily accessible to every patient. n=200, X2 = 118, p<0.001***	175 (87.5%)	25 (12.5%)
People do not want to go for sputum smear because of stigmatization. n=200, X2 = 8.0, (p<0.005) **	120 (60%)	80 (40%)

African traditional medicine can protect from TB n=200, X^2 =2.00, (p = 0.157)[ns]	110 (55%)	90 (45%)
African traditional medicine must be able to cure TB n=200, X^2 =0.50, (p = 0.480)[ns]	95 (47.5%)	105 (52.5%)
Means of transportation is a barrier in the treatment of TB. n=200, X^2 = 137, (p<0.001) ***	183 (91.5%)	17 (8.5%)

Discussion

The World Health Organization has called for increase campaigns on awareness of tuberculosis (WHO, 2010). Previous studies from developing countries have shown that delayed care of TB is positively related to patients' demographic characteristics, knowledge of tuberculosis and traditional beliefs, and the uses of multiple alternative traditional care and fear of stigmatization (Mushtaq *et al*., 2011). Therefore, awareness is a very important parameter to be assessed in order to provide baseline data to assist the decision makers to plan for and deliver an effective TB control programme. The present study revealed some important reflections on TB awareness among Anambra West LGA population. The findings of this study with respect to education and monthly income showed that most of the participants had post primary education and make between #30001- #40000 monthly. This amount is low considering the present high cost of living in the country. Westaway (1989) reports that education is an important determinant of general knowledge on TB. In addition, Davey *et al*. (1996) noted that adult from higher socio economic group have wider knowledge of TB when compared to the low knowledge level of middle/ lower socio economic status.

Our study showed early awareness of TB since majority of the respondents found out about TB since 5 years ago. This could be as a result of their level of education which availed them the opportunity to read and understand information from mass media. TB messages from the mass media can play a major role on the way people understand the disease and the necessary measures they need to take in order to prevent contacting/spreading the disease (Sokol *et al*., 2003). Our finding was also supported by Mohammed *et al*. (2004) who reported that the knowledge of TB and its treatment significantly increased with increase in educational status.

Even though Maya and McAdam, (2007) stated that HIV infection is one of the most important risk factors associated with an increased risk of latent TB infection progressing to active TB disease, it was surprising to note that a large part of the respondents perceived TB to be caused by HIV. Moreover, moderate level of awareness of TB was revealed in the study since there was no significance difference among the proportion of the participants who have attended a conference/seminar/meeting where education on TB was given and those who have not. The sex specific distribution revealed that male are more prone to tuberculosis infections than female, this is probably because, as bread winners, male are more exposed to disease carriers in the society, since they interact with different kind of persons in different walks of life. Our finding was in disagreement with other reports (Idigbe and Onwujekwe, 1983; Ursalo *et al*., 1998). However, it was consistent with the findings of Dye (2006) who reported that TB cases occurs predominantly among young adults, whereas 6-8 million cases happen in the economically most productive age group. The study further revealed that the respondents have adequate knowledge and are aware of the mode of transmission, visible signs and symptoms of TB. Most of them were also aware of the poor TB prevention/treatment status in the study area. Directly Observed Treatment Short course (DOTs) adopted in Nigeria in 1993 and was implemented across the 36 states and FCT of the country. Despite countrywide implementation of DOTs, accessibility by patients still remains a very big challenge as most of the population live far distance from the established DOTs centres. Quality of DOTs services need also to be improved. All these put together has constrained the attainment of the national target of TB case detention and treatment success rates. It is expected that increasing awareness of TB and its treatment in communities while making DOTs services more accessible and acceptable with public health centres as the cornerstone of the health system, the attainment of national and global targets will be enhanced. Health education and health promotion as continuous process can maintain and further elevate the level of awareness (Weiss *et al*., 2008) and thus also motivate the patients to seek the treatment and adhere to it. It is therefore important to institute appropriate education programs on TB in this area. Accurate and pertinent information on TB among adults could discourage and reduce stigmatization and misconception

about TB disease. Reduced treatment cost and Free screening test will also go a long way in the prevention and the spread of tuberculosis disease (Anochie *et al*., 2012).

Conclusion

Although tuberculosis disease is a worldwide problem, Nigeria is among the five countries in the world with the highest prevalence rate. The level of TB awareness is known to have positive impact on the prevention of TB. The result of the study showed intermediate level of awareness of TB among the people of Anambra West since they understood the signs and symptoms and treatment barriers of the disease. This level of awareness was facilitated by the mass media. However, awareness of TB can be improved further by the schools through incorporating disease causes, mode of transmission, signs and symptoms and disease prevention mechanisms in school curricula. It was further shown that as a result of lack of knowledge and awareness about TB, many patients were stigmatized. Effort should be made by health workers to educate the public about TB since this will reduce stigmatization and also improve the compliance of the patients to medication. Health care workers should ensure that patients and their families understand the benefits of early TB treatment. In addition, adequate number of DOTs should be made available in the study area.

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