RESEARCH ARTICLE

Knowledge, Attitude and Practices of Patients as Regard to Tuberculosis in Aba, Southeast Nigeria: Implications for Tuberculosis Control Efforts

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ABSTRACT

Objectives: Knowledge about tuberculosis (TB) and the perceived risk to individuals, families, and communities in Nigeria may increase the tendency of care-seeking with greatest importance. This study was aimed to determine the level of knowledge about TB in Aba, Nigeria; and its association with the attitude and practices of patients towards TB.

Methods: Data on socio-demographic characteristics, and questions regarding the etiology, transmission, prevention, treatment of TB, beliefs about TB and healthcare-seeking behavior were collected cross-sectional from 288 adult patients from November 2017 to March, 2018 in Living Word and Seventh Day Adventist Hospitals, Aba. Participants were patients who indicated willingness by filling a consent form and were at least 18 years old. Data collected were analyzed using Chi-squared test and multiple regression models.

Results: One-hundred eighty-eight (65.2%) of the study population had adequate knowledge about TB. The sources of knowledge were health workers (136 participants, 47.2%), Media (76, 26.4%), Friends (28, 9.7%), Family (28, 9.7%) and others (40, 13.9%). Their knowledge about TB was associated with level of education (α value= 0.05) but not with tendency to seek care from nearest facilities before hospital. The length of time they spent before visiting the hospital when they had TB symptoms was associated with their level of knowledge about TB, level of education, sex and severity of symptoms.

Conclusions: Level of knowledge about TB in the study area still needs to be improved. Means of creating awareness about TB should be diversified and the stop TB program strengthened. *J Microbiol Infect Dis 2020; 10(1):24-30.*

Keywords: *Tuberculosis, Knowledge, Practice, Delay, Care-seeking*

INTRODUCTION

Knowledge, attitudes and practices (KAP) research has been the primary intervention strategy for tuberculosis (TB) control worldwide since 1970 [1]. Several studies have shown that, the level of KAP in individuals was linked to efficient management of illness, response to medical treatment, and promotion of one's own health [2–5]. Lower KAP level had been considered as one of the main indicators of poor health, inefficient health care use, low screening rate, and maladaptive disease preventive behavior [6–8]. Even in Nigeria studies have shown evidences in this regard.

In 2010, a study done in the Federal Capital Territory, Abuja demonstrated that many patients exhibited Multiple and delayed care-seeking attitudinal tendencies before reporting TB cases to the DOTS center. In that study, patient delay was shown to be associated with unsatisfactory levels of knowledge of TB and multiple care-seeking before reporting at the DOTS center [9]. In Enugu, it was also reported that low level of patients' knowledge about TB is strongly associated with patient delay and also low TB case detection rates and poor patient management [10]. According to a study in Delta state, significant gaps in knowledge about TB (especially regarding multiple drug resistant TB) were found to exist among health workers and this could have some effect on patient compliance and treatment outcome [11]. The importance of knowledge and positive attitudes

in improving TB case detection, patients' compliance and treatment outcome cannot be overemphasized.

In Nigeria, TB still constitutes a huge public health challenge despite the implementation of the directly observed treatment short course (DOTS) strategy since 1993, adoption of the World Health Organization (WHO) Stop TB strategy in 2006 and availability of DOTS facilities in all the Local Government Areas in the country [12] and also the efforts of some non-government organizations such as Reproductive and Family Health, Global Fund, FHI 360. Stigma, poor knowledge of TB and cultural beliefs contribute to poor health seeking behavior, delay or failure of access to these health services [10-13].

Increased awareness and early detection/ treatment of TB cases are therefore important for reducing transmission, morbidity and mortality associated with TB [14]. To the best of our knowledge, there is no such study to analyze the KAP towards TB in Aba. So, the authors felt the necessity of conducting this study to determine the level of knowledge about TB in Aba, a city in southeast Nigeria, and its association with the attitude and practices of patients as regard to TB disease.

METHODS

Study Site and Population.

Aba is a cosmopolitan city in Abia State and the second largest commercial city of south eastern Nigeria [15,16]. The study population consisted of patients attending the two major health facilities in the city for respiratory tract infections: (Living Word Mission Hospital and Seventh Day Adventist Hospital). A total of 288 consenting adult patients were included in the study. Consenting patients were asked to fill a structured questionnaire for data collection in order to determine their levels of knowledge, attitude and practice in care seeking and management of TB. Data were collected and analyzed anonymously using SPSS version 20.0. The hospitals indicated for this study were chosen because they were among the largest and most renowned hospitals in Aba and were most likely to provide a substantial number of participants with relevance to this study. As such, in the thinking of the investigators, sampling them was expected to give a good representation of the study area.

Study design

This was a cross-sectional study, aimed to analyze the KAP towards to TB in order to increase TB screening and case detection rate in southeast Nigeria. Only patients attending the hospitals for respiratory tract infections and not previously diagnosed with TB were included in this study. Willingness to participate in the study (indicated by signing of the informed consent form) and aged 18 years and above was the criteria for participation. Patients who were previously diagnosed with TB or who were unwilling to participate in the study were excluded.

Sample Size Determination

Sample size was determined using Cochran's minimum size determination formula [17].

$$n=Z^2(p)(1-p)/e^2$$

The formula provided that 288 sample was sufficient for this study.

Data Collection

Data were collected using simple-structured standardized KAP questionnaire. The questionnaire was designed in English language following the WHO guidelines [18] and was translated into the local Igbo language spoken in southeast Nigeria. The questionnaire was divided into two parts. Part one addressed the socio-demographic characteristics of the respondents. The second part addressed the aspects related to TB knowledge, attitude, and practices. Briefly, questions regarding the etiology, transmission, prevention, and treatment of TB, beliefs, feelings about TB, source of information and healthcare seeking behavior were included. The data collection was done by trained data collectors (trained nurses, front desk officers and the investigators) who administered the questionnaires.

Statistical Analysis

Data analysis was performed using SPSS version 20.0. Descriptive statistics was used to report frequencies and proportions. Analyses related to relationships were done using multiple logistic regression models [19]. Chi-squared test was used to determine significance of relationship between variables. A p-value of <0.05 for 95% confidence interval was

considered statistically significant [20]. Dependent variables analyzed were "Knowledge about TB", "Length of time spent before going to the hospital when they have symptoms of TB" and "Tendency to seek help in other facilities before going to the hospital when they have symptoms of TB". A study participant's score on "Knowledge about TB" was determined as the total number of questions answered correctly about the cause, transmission, symptoms, and treatment of TB. The questions were scored on a scale of 13 and scoring a minimum of 10 was considered as having adequate knowledge. The index of "Length of time spent before going to the hospital when they have symptoms of TB" was computed as the average number of weeks it took a participant to go to the hospital when they had any of the following symptoms of TB: Cough, Blood in sputum, Weight loss, Fever, Night sweat, Body weakness, and Chest pain. Staying for longer than two weeks (on the average) before going to hospital for treatment was considered delay. The index for "Tendency to seek help in other facilities before going to the hospital when they have symptoms of TB" was determined as the number of other "facilities" the participants tended to patronize in such situations, before going to the hospital. The facilities are personal medication, patent medicine store (Chemist), spiritual house (Church, Mosque, Shrine, Prayer house) or Trado-medical center. Visiting these other facilities for treatment before visiting the hospital when presenting with TB symptoms was considered as multiple care seeking tendency.

Ethical Consideration

Approval for this study was given by the ethical committees of the two hospitals and informed written consent was taken from each of the respondents involved in the study. The research protocol was approved by the ethics research committee of Federal University of Technology Owerri Nigeria.

RESULTS

Socio-demographic Characteristics:

A summary of the socio-demographic characteristic is shown in Table 1. Of the 288 patients that participated in the study, 124 (43.1%) were male. The mean age of participants was 38.9 year; 176 (61.1%) of them

had tertiary education and majority of them had informal forms of jobs (mainly self-employed business people etc.) described in the table as informal occupation. 17.7% were single, 80.6% were married and 1.7% were widowed.

Knowledge about TB

In all, 207 (72.2%) of the study population knew the cause of TB to be bacteria and the most well-known mode of transmission and spread of TB among the study population is coughing and sneezing (80.6%). 12 of the respondents (4.2%) knew that drinking raw milk could be a cause of transmission of TB. 83.3% of the participants (240) knew that prolonged coughing beyond two weeks is a symptom of TB; 61.1% knew weight loss also be a symptom of TB but only 96 (33%) could associate TB with night sweats. Regarding treatment of TB, 232 (80.6%) believe that the best approach toward TB treatment is getting drugs from the hospital, but 28 (9.7%) believe that a mixture of African tradition medicine and the usual orthodox medicine from hospitals will give better results. 4 (1.4%) would rather go for a purely traditional approach for treatment while 12 (4.2%) think a spiritual approach (prayers and religious rituals) will best treat TB. 136 (47.2%) of the participants got to know about TB through health workers, during visits to the hospital, 76 (26.4%) got their knowledge about TB from media (television, social media, radio), 28 (9.7%) knew about TB through friends and acquaintances, another 28 (9.7%) got theirs through family members while 40 (13.9%) learnt about TB in gatherings/outreaches like in markets, community halls and churches (Table 2).

Analytical Statistics

Table 3 shows knowledge of participants about TB and the predictor variables, sex, age, and level of education. From the table, there was no association between sex (p= 0.355) and knowledge of patients about TB. But their knowledge about TB was rather associated with their age and level of education (p= <0.05). Patients' tendency to attend other facilities before attending the hospital when they have symptoms of TB was shown to be associated with their financial capability (p= 0.017) and the perceived length of time they have to spend in the hospital before getting medical attention (hospital waiting time, p= 0.005). These are

shown in Table 4. In this study, the tendency to patronize other facilities before visiting the hospital for treatment is referred to as multiple care seeking (MCS). Among the patients of this study, there was no relationship between multiple care seeking tendency and the predictors sex (p = 0.527), age (p = 0.324), knowledge about TB (p = 0.907), level of education (p = 0.923), severity of symptoms (p = 0.066) and distance of patient's home from hospital (p = 0.299).

Table 1. Socio-demographic characteristics of the participants.

Age	
<40	120 (41.7)
≥40	96 (33.3)
Education	
Non Tertiary	112 (38.9)
Tertiary	176 (61.1)

Non-tertiary= Primary or Secondary School

The predictors for length of time a patient spends before seeking care in the hospital when they have symptoms of TB are shown in Table 5. Gender (p = 0.001), level of knowledge about TB (p = 0.001), multiple care-seeking tendency (0.010), severity of symptoms (p = 0.048) and distance of patients' homes from hospital (p = 0.001) were associated with the length of time they spend before seeking care in the hospital when they have symptoms of TB. Average length of time spent by patients before seeking help in the hospital was 1.667 weeks and Females (on the average) were likely to spend 0.112 weeks more than males before attending hospital when they presented with symptoms of TB.

DISCUSSION

In this study, 188 (65.2%) of the participants (n=288) had adequate knowledge about TB. This level of knowledge is higher than 41% reported in Abuja, Nigeria [14]. The major source of information about TB 47.2% was health-workers which is consistent with reports from similar studies [14, 21]. In contrast, 76 (26.4%) of respondents cited the mass media as their main source of information on TB, as was observed in a study in Abuja [14]. This low rate could suggest inadequate coverage on TB advertisement through the mass media, a

channel of communication potential to reach several people at the same time.

Table 2. Knowledge of the participants about Tuberculosis (n=288).

Variable	Proportion (%)
Cause	
Bacteria	208 (72.2)
Cold	72 (25)
Poor nutrition	36 (12.5)
Smoking	136 (47.2)
Alcohol	68 (23.6)
Dust	84 (29.2)
Poor sanitation	84 (29.2)
Transmission and Spread	
Cough and sneeze	232 (80.6)
Sharing drinking Utensils	144 (50)
Heredity	36 (12.5)
Body contact & clothing	20 (6.9)
Drinking raw milk	12 (4.2)
Mother to child	68 (23.6)
Other Factors	
Overcrowding	232 (80.6)
Depressed immunity	208 (72.2)
Symptoms	
Prolonged cough	240 (83.3)
Blood stained sputum	140 (48.6)
Weight loss	176 (61.1)
Fever	128 (44.4)
Night Sweats	96 (33.3)
Body weakness	136 (47.2)
Chest pain	172 (59.7)
Treatment	
Spiritual	12 (4.2)
Traditional approach	4 (1.4)
Modern/Orthodox approach	232 (80.6)
Traditional and orthodox	28 (9.7)
Unanswered	12 (4.2)
Knowledge and Info Source	
Health workers	136 (47.2)
Media	76 (26.4)
Friends/Acquaintances	28 (9.7)
Family members	28 (9.7)
Gatherings/seminars	40 (13.9)

Table 3. Factors Associated With Knowledge of Participants about TB.

Variables	Inadequate n=100 (%)	Adequate n=188 (%)	OR (CI)	p-value
Gender (M)	32 (32.0)	92 (48.9)	0.491 (0.295-0.816)	0.355
Age				
<40	56 (56.0)	64 (34.0)	1.275 (1.007-1.615)	0.013
≥40	12 (12.0)	84 (44.6)		
Education				
Non-tertiary	60 (60.0)	52 (27.7)	0.255 (0.153–0.425)	0.001
Tertiary	40 (40.0)	136 (72.3)		

Non-tertiary= Primary or Secondary school, CI= 95% Confidence Interval, OR= Odds Ratio

Table 4. Factors associated with tendency to seek care in other facilities before going to hospital when having symptoms of TB.

Variable	No MCS, n=152 (%)	MCS, n=136 (%)	OR (CI)	p-value
Gender (M)	62 (40.8)	62 (45.6)	0.822 (0.515-1.312)	0.527
Age (<40)	71 (46.7)	49 (36.0)	1.510 (0.896-1.314)	0.324
Knowledge (Yes)	94 (61.8)	94 (69.1)	0.724 (0.444-1.181)	0.907
Education (Non-tertiary)	71 (46.7)	41 (30.1)	0.492 (0.303-0.800)	0.923
*Severity of Symptoms (Yes)	83 (54.6)	81 (59.6)	0.817 (0.511-1.305)	0.066
*Financial Capabilities (Yes)	45 (29.6)	47 (34.6)	0.796 (0.485-1.308)	0.017
*Distance of Home from Hospital (Yes)	12 (7.8)	4 (2.9)	2.829 (0.890-8.990)	0.299
*Hospital Waiting Time (Yes)	12 (7.8)	4 (2.9)	2.829 (0.890-8.990)	0.005

MCS= Multiple care seeking tendency, OR= Odds Ratio, CI= 95% Confidence Interval, *Prioritized considerations before going to hospital for treatment

Table 5. Factors associated with length of time spent before going to the hospital for treatment when having symptoms of TB

Variable	No Delay, n=276 (%)	Delay, n=12 (%)	OR (CI)	p-value
Gender (M)	120 (43.5)	4 (33.3)	1.538 (0.453-5.230)	0.001
Age (<40)	120 (43.5)	0 (0)	0.001 (0.001)	0.799
Education (Non-tertiary)	108 (39.1)	4 (33.3)	0.778 (0.229-2.646)	0.555
Knowledge (Adequate)	100 (36.2)	0 (0)	0.001 (0.001)	0.001
Multiple Care seeking Tendency (Yes)	131 (47.4)	5 (41.7)	1.265 (0.392-4.082)	0.010
*Severity of Symptoms (Yes)	150 (54.3)	8 (66.7)	0.650 (0.191-2.210)	0.048
*Financial Capabilities (Yes)	88 (31.9)	4 (33.3)	0.936 (0.275-3.192)	0.081
*Distance of Home from Hospital (Yes)	16 (5.8)	0 (0)	74560367.303 (0.001)	0.001
*Hospital Waiting Time (Yes)	16 (5.8)	0 (0)	74560368.069 (0.001)	0.412

MCS= Multiple care seeking tendency, OR= Odds Ratio, CI= 95% Confidence Interval, *Prioritized considerations before going to hospital for treatment

However, health education alone through the mass media may not be enough to reach and influence all potential TB presumptive cases. Also, 28 (9.7%) of the respondents obtained information on TB from friends and relatives. This evidence showed that friends and family members were also the source of getting information on TB. This indicates the use of

diverse media is helpful for sensitizing the communities in more details. If some patients/respondents depend on information that friends and relatives give, there would be need to sensitize communities on TB to prevent misinformation such as those about TB having some link with the spiritual.

Communities should be well aware of typical TB symptoms such as prolonged coughing and hemoptysis, unexplained weight loss, night sweats, chest pain and fever and the need to report at appropriate DOTs centers (in good time) for proper treatment and care. They should also understand the need for proper ventilation in homes, offices, in vehicles et cetera. The news about anti TB programs such as the WHO stop TB program, the National Tuberculosis and Leprosy Control   should be widely propagated and people should be made to understand that such programs are available and their services obtainable in DOTs centers. Their treatment regimens are actually free of cost although in some facilities subsidized payments may have to be made for laboratory investigations.

Knowledge about TB was related with age and level of education. This is in correlation with reports by Onyeonoro et al. [22] although contrary to reports by Biya et al. [9]. Among the participants of this study, age, level of education of subjects and consideration of severity of symptom had no influence on multiple care-seeking tendency, but sex (p=0.044), financial capability (p=0.017) and perceived length of time of waiting before receiving attention in hospital (0.010) had. 'Multiple care-seeking tendency' here implies the tendency to try other options for treatment before attending a hospital. As reported in some studies, majority of the patients in this study would first try medication from patent medicine stores (private medicine vendors [9] [10] due to it being apparently a cheaper, less time consuming and more easily accessible option compared to going to the hospital, and avoiding the rigours of waiting in the queue for consultation and laboratory procedure (verbal interview of a participant). Based on this finding, there may be need to involve patent medicine vendors in the referral chain of TB patients [9]. There appeared to be a relationship between length of time patients spent before going to hospital when they have

symptoms of TB and the predictors, sex, level of knowledge about TB, multiple care seeking tendency, severity of symptoms and distance of home from hospital. A similar case of relationship between patient delay and multiple care-seeking tendencies was reported by Biya et al [9]. In their reports, Onyeonoro et al., and Biya et al., demonstrated an association between patient delay and knowledge about TB [9, 22]. Results from this study apparently agree with these reports.

Conclusion

Level of knowledge about TB in the area studied still needs to be improved. Means of creating awareness about TB should be diversified and the National Tuberculosis and Leprosy Control Program (NTLCP) should be emphasized. Although not investigated, it is possible that if more patients knew that TB drugs were administered (almost free) and that DOTs centers exist in different hospital including specialized hospitals, then financial capability and hospital waiting time might not be much consideration as to cause delay in their decision to attend hospital with symptoms of TB. This study had limitations, especially of resources. Sampling more subjects and facilities was therefore not feasible. A larger population size and more evenly distributed sampling method may give results more suitable for a better inference on the area studied.

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