

Pulmonary Tuberculosis Preventive Practices and Its Determinants among Residents in Communities in Orlu, Imo State, Nigeria

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ABSTRACT

Background: Pulmonary Tuberculosis (PTB) is a global infectious disease with significant public health consequences and despite the fact that it is curable; PTB control still poses serious challenges to World's population health. It now ranks alongside Human immunodeficiency virus/Acquired immunodeficiency syndrome (HIV/AIDS) as a leading cause of mortality worldwide, almost killing twice as more men than women in 2014 alone.

Aim: To assess the knowledge, attitudes, preventive practices and its associated factors in the control of pulmonary tuberculosis in communities in Orlu Local Government Area (LGA), Imo State.

Methods: The study design was a cross sectional descriptive type involving 425 participants who were selected using a multi stage sampling technique. Data was collected using a pretested, semi structured, interviewer administered questionnaire. Data was analyzed using computer software (SPSS-IBM version 20). Data was presented in frequency tables and summary indices while chi-square was used to test associations between variables. P- Value was ≤ 0.05 .

Results: Despite 100 percent awareness about pulmonary tuberculosis (PTB), only 26% and 31% respectively knew that a bacterial organism causes tuberculosis, and overcrowding, facilitates its transmission. The proportion with good knowledge, attitude, and practice about PTB control were, 72.5%, 14.5%, and 32.2% respectively. There was a statistically significant relationships between the level of preventive practices and knowledge ($p < 0.0001$), attitudes ($p < 0.0001$), age ($p < 0.05$), gender ($p < 0.05$),

marital status ($p < 0.0001$), religion ($p < 0.0001$), occupation ($p < 0.0001$) and gender of the household head ($p < 0.0001$).

Conclusion: Improving not only the individual, but the community's understanding of PTB will instill a culture and encourage compliance in the practice of preventive measures in the control of PTB.

Keywords: Knowledge, attitudes, preventive practices, tuberculosis, Owerri, Nigeria

INTRODUCTION

Pulmonary tuberculosis (PTB) is an infectious disease that poses a serious threat to the world's population. Despite the current advances in PTB control and the fact that it can be cured, it still remains a significant public health threat with tuberculosis now ranking alongside Human immunodeficiency virus / Acquired immunodeficiency syndrome (HIV/AIDS) as a leading cause of mortality worldwide, almost killing twice as more men than women in 2014 globally. [1] In the same year, more significantly was the fact that, out of the 9.6 million people with tuberculosis globally, 1.2 million were co-infected with HIV, of which, the African region accounted for 74% of the cases. [1] The South-East Asia and Western Pacific Regions collectively accounted for 58% of the world's TB cases in 2014. The African Region had 28% of the world's cases, but the most severe burden relative to population (281 incident cases per 100 000 population on average, more than double the

global average of 133). India, Indonesia and China had the largest numbers of cases having 23%, 10% and 10% of the global total, respectively. [1] According to the 2012 National TB prevalence survey, Nigeria had the fourth highest TB burden in Africa with TB being classified as a significant public health problem in Nigeria. Similarly in 2014, Nigeria was still reported, as one of the high burden countries that stood out, as one of the six countries in the World having the largest number of incident cases. It was observed that despite the fact that each Local Government Area in Nigeria had at least two Directly Observed Therapy Short course (DOTS) centres, the services did not appear to have penetrated the communities and furthermore by 2015, none of the Millennium Development Goal (MDG) TB targets for incidence, prevalence and mortality were met. [1,2]

According to the WHO report 2015, though the contribution of community referrals to PTB notification in Nigeria was not available, it was observed that among the high burden countries of the World, Nigeria had the lowest rates of case detection and this was attributed to under diagnosis and failure to recognize PTB signs and symptoms. [1] This probably amongst other factors, may be contributing to the low PTB case notifications observed, of which the South Eastern zone was reported to have the lowest in the country (41 per 100,000). [2]

Incorrect knowledge, awareness and myths about PTB can result in presumptive PTB patients being unaware of their disease or hiding their disease from members of the community due to fear of stigmatization and discrimination. [3-5] As a consequence, the lack of knowledge of PTB within the communities could contribute to prolonged delay in seeking care especially in developing countries and therefore, the assessment of knowledge and attitudes within these communities will identify the gaps and enable the development of appropriate advocacy, communication and

social marketing (ACSM), strategies that combat stigma, discrimination and increase case detection through behavioural change. [6,7]

Generally in developing countries, PTB notifications are passive and therefore it is essential to have an effective alliance between the patients and communities for timely diagnosis and favourable treatment outcomes by empowering the communities through appropriate and adequate knowledge of PTB. [8]

The effectiveness of DOTS within the community is probably determined by the health seeking behaviour of the patients which is influenced by their communities, demographic characteristics, knowledge of PTB and beliefs. [9] So having a basic, correct and appropriate PTB knowledge with a clear community understanding of the disease and also knowing that treatment is free, would more likely heighten PTB awareness, community concern and foster community participation. [10] This will consequently reduce stigmatization, discrimination and thereby encourage, promote health seeking behaviour and actions towards PTB control. [11]

Therefore this study assessed the knowledge, attitudes, preventive practices and its associated factors in the control of pulmonary tuberculosis in communities in Orlu Local Government Area (LGA), Imo State, Nigeria.

METHODOLOGY

Study Area

The study was conducted within communities in Orlu Local Government Area (LGA) of Imo State, South East, Nigeria. Orlu LGA is predominantly a semi-urban area covering 133sq km with an estimated population of 142,792 according to the 2006 census. [12] The LGA is made up of 10 autonomous communities and 18 council wards.

Study Population/Study design/Selection criteria

The study population comprised of all adults in Orlu LGA of Imo State and the study design used, was a cross sectional descriptive survey. Inclusion criteria was; any individual aged 18 years and above residing in Orlu LGA and the exclusion criteria was; any selected individual that had not resided in Orlu for at least one year prior to the commencement of this survey.

Sample Size Estimation

The minimum sample size was calculated using the Cochran formula ($n = Z^2 pq/d^2$).^[13]

When n = minimum sample size, Z = Standard normal deviate corresponding to 5 % significant level, p = proportion of a target population estimated to have a certain knowledge, attitude and practice,^[11] $q = 1 - p$, d = tolerable error of margin set at 0.05.

The sample size calculated for the survey including non- response rate was 425 participants.

Sampling Technique

The sampling technique used to select the adult individuals from each household was the multistage sampling technique. The first stage involved the selection of 5 communities from the 10 communities that make up Orlu LGA using simple random sampling by balloting. The second stage involved the selection of one council ward from each of the 5 communities using simple random sampling by balloting. The third stage involved the selection of enumeration areas from the council wards. Two enumeration areas (EA) from each of the five wards were selected using simple random sampling by balloting.

In each enumeration area, a prominent location was identified and moving in a particular direction, each consecutive household was enrolled until 42 households were selected from each enumeration area. From each household, one respondent above, the age of 18 years old was selected and interviewed. If that individual did not consent or had not resided in Orlu for up to one year, then the next adult individual was selected. Any

household without an adult present at the time of the survey was skipped.

Data Collection and Analysis

Data was collected with a pretested, semi structured, interviewer administered questionnaire. The questionnaire comprised 4 sections; section one: the socio-demographic characteristics, section two: the awareness and knowledge of PTB prevention in the community, section three: the attitude towards prevention of PTB, section four; preventive practices and control of PTB. Medical students were trained in the data collection process and were recruited as research assistants. Data was collected from the respondents by face to face interview.

The level of awareness and knowledge of PTB prevention was determined by scoring the questions that assessed awareness and knowledge. For a single response question, a correct answer was scored 1; a false answer was scored 0 and for a multiple response question, each correct answer was scored 1 and up to a maximum of 5 correct answers, a subtotal score of 5 was allocated. The total maximum score for all the correct answers for assessing the level awareness and knowledge was 60. The level of attitude was determined by scoring questions that assessed positive and negative attitudes. For positive attitudes, from 'strongly agree' to 'strongly disagree' a score of 5 through to 1 was allocated accordingly and for negative attitudes, from 'strongly agree' to 'strongly disagree' a score of 1 through to 5 was also allocated. The total maximum score for all the appropriate attitudinal response for assessing the level of attitude was 75. The level of preventive practice was determined by scoring questions and their responses that assessed practice as follows; always = 4, sometimes=2, rarely=1 and never=0. The total maximum score for assessing the level preventive practice was 60. The aggregate score for each respondent according to the level of knowledge, attitude and practice was translated to a percentage and assessed

against a scale of 0-49% for poor, 50-69% for fair and 70% or more as good.

Data was cleaned and validated manually, and analysed using Software Package for Social Sciences (SPSS-IBM) version 20. Descriptive statistics (frequency tables and summary indices) were generated. Chi-square was used to test association between categorical variables. P value of ≤ 0.05 was considered significant.

Ethical Considerations

Ethical approval was obtained from the research committee of the Department of Community Medicine, Imo State University, Owerri, and Imo State. All authors hereby declare that the study was therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

RESULTS

Four hundred and twenty five questionnaires were administered, with one questionnaire to each adult individual per household. Four hundred and twenty two questionnaires were correctly filled giving a response rate of 99.3%.

Socio-demographic Characteristics of Respondents (Table 1)

The mean age of the respondents were 36 ± 9.6 years with more than half of the respondents, male (56.4%) being within 18-40 years of age. There were more males, (54.9%) than females, (45.1%) and most of the households, (73%) were headed by males. Majority of the respondents belong to the Igbo ethnic group, (98.5%) with 43% of them belonging to the Catholic faith. Close to half of the respondents were married, (48.3%) with a maximum of two people within the household occupying a room (49.3%) and most of the rooms have a maximum of two windows per room, (71%). Majority of the respondents (75%) had either a secondary or tertiary education and were traders, public servants or students (67%).

Table 1: Socio-demographic Characteristics of Respondents (n=422)

| Variable | Category | Frequency (%) |
|------------------------|---------------------|---------------|
| Age (years) | 18-30 | 104(24.6) |
| | 31-40 | 134(31.8) |
| | 41-50 | 150(35.5) |
| | >50 | 34(8.1) |
| Mean age | 36.0 \pm 9.6 | |
| Gender | Male | 232(54.9) |
| | Female | 190(45.1) |
| Tribe | Igbo | 416(98.5) |
| | Non Igbo | 6(1.5) |
| Marital Status | Married | 204(48.3) |
| | Single | 144(34.2) |
| | Living with Partner | 40(9.4) |
| | Widowed | 18(4.3) |
| | Divorced/Separated | 16(3.8) |
| Level of Education | None | 34(8.1) |
| | Primary | 71(16.8) |
| | Secondary | 197(46.6) |
| | Tertiary | 120(28.5) |
| Religion | Catholic | 182(43.2) |
| | Pentecostal | 96(22.7) |
| | Orthodox | 84(19.9) |
| | Others | 60(14.2) |
| Occupation | Traders | 102(24.1) |
| | Public servants | 98(23.2) |
| | Students | 82(19.4) |
| | Professionals | 78(18.4) |
| | Others | 62(14.7) |
| Household head | Male | 307(72.7) |
| | Female | 115(27.3) |
| No. of people per room | 1 | 122(28.9) |
| | 2 | 208(49.3) |
| | 3 | 76(18.0) |
| | >3 | 16(3.8) |
| No of windows per room | 1 | 80(18.9) |
| | 2 | 298(70.6) |
| | >2 | 44(10.5) |

Awareness and Knowledge of respondents about PTB Prevention (Table 2)

All the respondents (100%) were aware of PTB and the sources of information for the majority of the respondents were from health personnel, (72%) and radio, (62%). Majority of the respondents knew that coughing out blood (82%) and weight loss (70%) were symptoms of PTB and that chest x-ray (85%) and sputum examination (71%) were methods of diagnosis. Also majority of them knew that PTB is treatable, (98%) for a duration of 6-8 months, (68%) using prescription drugs (98%) from Government hospitals (95%). But only about 26.1% of the respondents knew that PTB is caused by a bacterial organism, 31.0% and 26.1% knew that its transmission is facilitated by overcrowding and poorly ventilated conditions respectively with 28.9% of them being aware that BCG vaccination is a method of PTB prevention.

Table 2: Awareness and Knowledge about PTB prevention

| Variable | Category | Frequency (%) |
|--|--|---------------|
| Awareness of PTB (n=422) | Yes | 422(100.0) |
| | No | 0(0.0) |
| *Sources of Information (n=422) | Health personnel | 304(72.0) |
| | Radio | 260(61.6) |
| | Television | 212(50.2) |
| | Newspaper | 188(44.5) |
| | Books | 176(41.7) |
| | Seminars | 152(36.0) |
| | School | 150(35.5) |
| | Churches | 70(16.6) |
| | Post bills | 68(16.1) |
| | Neighbours | 56(13.2) |
| *Causes of PTB (n=422) | Others | 52(12.3) |
| | Bacterial organism | 110(26.1) |
| | Dirty air | 102(24.2) |
| | Smoke | 96(22.7) |
| | Bad water | 89(21.1) |
| | Dirty environment | 60(14.2) |
| *Transmission of PTB (n=422) | Viral organism | 51(12.1) |
| | Overcrowded conditions | 131(31.0) |
| | Poorly ventilated house | 110(26.1) |
| | Living with TB patient | 106(25.1) |
| | Coughing by TB patient | 102(24.2) |
| | Inhalation of infected particles | 48(11.4) |
| | Eating from same plate | 43(10.2) |
| | Blood and fluid contact | 35(8.3) |
| | Ingestion of infected particle | 30(7.1) |
| | Ingestion of unpasteurized milk | 26(6.2) |
| *Methods of preventing PTB (n=422) | Covering mouth when coughing | 146(34.6) |
| | BCG Immunization | 122(28.9) |
| | Adequate treatment of TB patient | 110(26.1) |
| | Avoid overcrowding | 86(20.4) |
| | Good environmental sanitation | 85(20.1) |
| | Isolation of TB patient | 62(14.7) |
| | Avoid spitting in open space | 36(8.5) |
| | TB screening when cough exceeds 2 weeks. | 26(6.2) |
| *Method of diagnosis of PTB (n=422) | Chest X-ray | 360(85.3) |
| | Sputum exam | 300(71.1) |
| | Blood exam | 168(39.8) |
| | Stool exam | 72(17.1) |
| | Secretion exam | 72(17.1) |
| | Abdominal aspirate exam | 32(7.6) |
| *Symptoms of PTB(n=422) | Coughing out blood | 348(82.4) |
| | Weight loss | 293(69.9) |
| | Chronic coughing | 240(56.8) |
| | Chest pain | 232(54.9) |
| | Generalized body weakness | 200(47.3) |
| | Night sweat | 188(44.5) |
| | Loss of appetite | 156(36.9) |
| | Low grade fever | 92(21.8) |
| | Vomiting/diarrhoea | 64(15.1) |
| | Can PTB be treated? (n=422) | Yes |
| No | | 10(2.4) |
| *Methods of treatment (n=412) | Prescribed drugs | 404(98.1) |
| | Herbal drugs | 152(36.9) |
| | Drugs from chemist | 84(20.4) |
| | Drugs from prayer house | 12(2.9) |
| *Where is treatment received? (n=412) | Government hospital | 390(94.7) |
| | Private hospital | 120(29.1) |
| | Herbal home | 64(15.5) |
| | Health centre | 44(10.7) |
| | Chemist | 20(4.9) |
| | Prayer house | 14(3.4) |
| Length of treatment (n=412) | 2 weeks | 7(1.7) |
| | 2 months | 58(14.1) |
| | 6-8 months | 280(68.0) |
| | >1 year | 67(16.3) |

*Multiple responses

Attitude of respondents towards PTB prevention (Table 3)

Majority of the respondents were of the opinion that people should not be kept

together with PTB patients (96%) or live in crowded homes (75%) or spit indiscriminately in open places (70%). Similarly, the majority of the respondents were also of the opinion that people should cover their mouths with handkerchief when coughing (74%) and that, family, community and health personnel should be involved in the monitoring of presumptive PTB patients (81%).

On the other hand, a quarter of the respondents either disagrees or was undecided that all persons with chronic cough should be diagnosed in the hospital. Also about 30% of the respondents either agree or are undecided that BCG vaccination is not necessary for PTB prevention. Furthermore, about 25% and 22% were either undecided or agree respectively, that herbal drugs should be taken for a better cure. Table 3

Table 3: Attitudes towards PTB prevention (n=422)

| Variable | Category | Frequency (%) |
|--|-------------------|---------------|
| Cover mouth with handkerchief When coughing | Strongly agree | 195(46.2) |
| | Agree | 115(27.3) |
| | Undecided | 84(19.9) |
| | Disagree | 18(4.3) |
| | Strongly disagree | 10(2.4) |
| No matter the circumstances Keep people together with PTB | Strongly agree | 0(0.0) |
| | Agree | 5(1.2) |
| | Undecided | 11(2.6) |
| | Disagree | 199(47.2) |
| | Strongly disagree | 207(49.1) |
| Does not matter to live in Crowded homes | Strongly agree | 7(1.7) |
| | Agree | 19(4.5) |
| | Undecided | 79(18.7) |
| | Disagree | 116(27.5) |
| | Strongly disagree | 201(47.6) |
| Advice people not to spit in Open places | Strongly agree | 106(25.1) |
| | Agree | 188(44.5) |
| | Undecided | 101(23.9) |
| | Disagree | 10(2.4) |
| | Strongly disagree | 17(4.0) |
| Herbal drugs should be taken For a better cure | Strongly agree | 45(10.7) |
| | Agree | 49(11.6) |
| | Undecided | 106(25.1) |
| | Disagree | 121(28.7) |
| | Strongly disagree | 101(23.9) |
| BCG immunization is not Necessary for TB prevention | Strongly agree | 37(8.8) |
| | Agree | 45(10.7) |
| | Undecided | 42(10.0) |
| | Disagree | 101(23.9) |
| | Strongly disagree | 197(46.7) |
| All persons with chronic cough Should be diagnosed in hospital | Strongly agree | 142(33.6) |
| | Agree | 173(41.0) |
| | Undecided | 48(11.4) |
| | Disagree | 31(7.4) |
| | Strongly disagree | 28(6.6) |
| Family community and health Personnel should monitor patients | Strongly agree | 251(59.5) |
| | Agree | 90(21.3) |
| | Undecided | 45(10.7) |
| | Disagree | 18(4.3) |
| | Strongly disagree | 18(4.3) |

Preventive practices of respondents to PTB control (Table 4)

Majority of the respondents always cover their mouths when coughing in public places, (63%), never or rarely spit into closed containers and dispose neatly, (59%) or go to the hospital when coughing for more than 2 weeks (70%). Similarly, majority of respondents always or

sometimes open their room windows for cross ventilation, (95%), avoid over crowded rooms and gatherings, (89%) and also encourage their household to be vaccinated with BCG, (80%)

Majority of the respondents' also reported that, rarely or never were the PTB patients isolated for treatment in the community, (59%) or does the community

announce or search for those persistently coughing, (73%) or discuss how to prevent infectious diseases like PTB, (69%). Though majority of the respondents (58.7%)

reported that sometimes or always, the community advocate for BCG vaccination for everybody.

Table 4: Preventive practices of respondents to PTB control (n=422)

| Variable | Category | Frequency (%) |
|--|-----------|---------------|
| Isolation of PTB patients In community for treatment | Always | 46(10.9) |
| | Sometimes | 128(30.3) |
| | Rarely | 115(27.3) |
| | Never | 133(31.5) |
| I cover my mouth when coughing In public or open places | Always | 267(63.3) |
| | Sometimes | 113(26.8) |
| | Rarely | 42(10.0) |
| | Never | 0(0.0) |
| I go to hospital or persuade others when coughing > 2 weeks | Always | 93(22.0) |
| | Sometimes | 34(8.1) |
| | Rarely | 166(39.3) |
| | Never | 129(30.6) |
| I spit into closed containers Or toilets and dispose neatly | Always | 115(27.3) |
| | Sometimes | 57(13.5) |
| | Rarely | 189(44.8) |
| | Never | 61(14.5) |
| I open my room windows for Cross ventilation | Always | 270(64.0) |
| | Sometimes | 129(30.6) |
| | Rarely | 23(5.5) |
| | Never | 0(0.0) |
| I avoid over crowded rooms places And gatherings | Always | 153(36.3) |
| | Sometimes | 221(52.4) |
| | Rarely | 48(11.4) |
| | Never | 0(0.0) |
| I encourage my household to Be vaccinated with BCG | Always | 244(57.8) |
| | Sometimes | 92(21.8) |
| | Rarely | 65(15.4) |
| | Never | 21(5.0) |
| Community discusses how to Prevent infectious diseases | Always | 95(22.5) |
| | Sometimes | 35(8.3) |
| | Rarely | 137(32.5) |
| | Never | 155(36.7) |
| Community announces and Searches for those coughing Persistently | Always | 51(12.1) |
| | Sometimes | 65(15.4) |
| | Rarely | 170(40.3) |
| | Never | 136(32.2) |
| Community advocates for BCG Vaccination for everybody | Always | 102(24.1) |
| | Sometimes | 146(34.6) |
| | Rarely | 129(30.6) |
| | Never | 45(10.7) |

Table 5: Levels of Knowledge, Attitude and Practice of PTB Preventive measures

| Variable | Category | Frequency (%) |
|----------------------|--------------|---------------|
| Knowledge | Poor (0-50) | 24(5.7) |
| | Fair (51-70) | 92(21.8) |
| | Good (>70) | 306(72.5) |
| Attitude | Poor (0-50) | 169(40.0) |
| | Fair (51-70) | 192(45.5) |
| | Good (>70) | 61(14.5) |
| Preventive practices | Poor (0-50) | 74(17.5) |
| | Fair (51-70) | 212(50.2) |
| | Good (>70) | 136(32.2) |

Levels of Knowledge, Attitudes and Preventive Practices of respondents to PTB control (Table 5)

Though majority of the respondents had a generally good level of knowledge about PTB, (73%), yet lower proportions of them had good attitude (14.5%) and practice

of preventive measures (32.2%) towards PTB control.

Factors Associated with Preventive Practices in the control of PTB (Table 7)

The following socio-demographic factors were significantly associated with preventive practices in the control of PTB within the studied communities; Age ($p < 0.05$), Gender ($p < 0.05$), Marital status, ($p < 0.0001$), Religion, ($p < 0.0001$), Occupation, ($p < 0.0001$) and Gender of household head, ($p < 0.0001$) while on the other hand, the level of education was not significantly associated ($p > 0.05$). Table 6

Furthermore, the levels of knowledge ($p < 0.0001$) and attitude

($p < 0.0001$) were significantly associated with preventive practices in the control of PTB within the communities.

Table 6: Socio-demographic factors and Preventive Practices in PTB control

| TB preventive practice | | | | | | |
|---------------------------|-----------------|------------------|------------------|-----------------|--------------|----------------|
| Variable | Poor (%) | Fair (%) | Good (%) | Total (%) | χ^2 df | p-value |
| Age(Yrs) | | | | | | |
| 18-30 | 18(17.5) | 57(55.3) | 29(28.2) | 104(100) | 15.09 | 60.020 |
| 31-40 | 26(19.5) | 66(49.4) | 42(31.1) | 134(100) | | |
| 41-50 | 21(14.5) | 82(54.7) | 47(31.3) | 150(100) | | |
| >50 | 9(26.5) | 7(20.6) | 18(52.9) | 34(100) | | |
| Total | 74(26.5) | 212(50.3) | 136(32.2) | 422(100) | | |
| Gender | | | | | | |
| Male | 47(20.3) | 102(43.9) | 83(35.8) | 232(100) | 8.232 | 0.016* |
| Female | 27(14.2) | 110(57.9) | 53(27.9) | 190(100) | | |
| Total | 74(17.5) | 212(50.3) | 136(32.2) | 422(100) | | |
| Marital Status | | | | | | |
| Married | 33(16.2) | 107(52.5) | 64(31.4) | 204(100) | 50.27 | 80.000 |
| Single | 13(9.0) | 86(59.7) | 45(31.3) | 144(100) | | |
| ¹ LWP | 10(25.0) | 13(32.5) | 17(42.5) | 40(100) | | |
| Widowed | 8(44.4) | 2(11.2) | 8(44.4) | 18(100) | | |
| ² D/S | 10(62.5) | 4(25.0) | 2(12.5) | 16(100) | | |
| Total | 74(17.5) | 212(50.3) | 136(32.2) | 422(100) | | |
| Level of Education | | | | | | |
| None | 5(14.7) | 18(52.9) | 11(32.4) | 34(100) | 11.77 | 60.067 |
| Primary | 9(12.7) | 29(40.8) | 33(46.5) | 71(100) | | |
| Secondary | 43(21.8) | 97(49.2) | 57(28.9) | 197(100) | | |
| Tertiary | 17(14.2) | 68(56.0) | 35(29.2) | 120(100) | | |
| Total | 74(17.5) | 212(50.3) | 136(32.2) | 422(100) | | |
| Religion | | | | | | |
| Catholic | 54(29.7) | 96(52.7) | 32(17.6) | 182(100) | 57.75 | 60.000 |
| Pentecostal | 8(8.4) | 56(58.3) | 32(33.3) | 96(100) | | |
| Orthodox | 6(7.1) | 38(45.3) | 40(47.6) | 84(100) | | |
| Others | 6(10.0) | 22(36.7) | 32(53.3) | 60(100) | | |
| Total | 74(17.5) | 212(50.3) | 136(32.2) | 422(100) | | |
| Occupation | | | | | | |
| Traders | 23(22.5) | 30(29.4) | 49(48.1) | 102(100) | 34.76 | 80.000 |
| Public servants | 19(19.5) | 47(47.9) | 32(32.6) | 98(100) | | |
| Students | 8(9.8) | 48(48.9) | 26(26.5) | 82(100) | | |
| Professionals | 6(7.7) | 54(69.2) | 18(23.1) | 78(100) | | |
| Others | 8(12.9) | 43(69.4) | 11(17.7) | 62(100) | | |
| Total | 74(17.5) | 212(50.3) | 136(32.2) | 422(100) | | |
| Household Head | | | | | | |
| Male | 54(17.6) | 135(43.9) | 118(38.5) | 307(100) | 22.27 | 20.000* |
| Female | 20(17.4) | 77(66.9) | 18(15.7) | 115(100) | | |
| Total | 74(17.5) | 212(50.3) | 136(32.3) | 422(100) | | |

* Statistically Significant. 1- Living with partner, 2- Divorced or Separated

Table 7: Association between levels of Knowledge Attitude and TB Preventive Practices

| TB preventive practice | | | | | | |
|------------------------|-----------------|------------------|------------------|-----------------|--------------|----------|
| Variable | Poor (%) | Fair (%) | Good (%) | Total (%) | χ^2 df | p-value |
| Knowledge | | | | | | |
| Good | 43(14.1) | 158(51.6) | 105(34.3) | 306(100) | 25.76 | 4 |
| Fair | 18(19.6) | 48(52.2) | 26(28.2) | 92(100) | | |
| Poor | 13(54.2) | 6(25.0) | 5(20.8) | 24(100) | | |
| Total | 74(17.5) | 212(50.3) | 136(32.3) | 422(100) | | |
| Attitudes | | | | | | |
| Good | 6(9.9) | 21(3.4) | 34(55.7) | 61(14.5) | 33.91 | 4 |
| Fair | 22(11.5) | 108(56.2) | 62(32.3) | 192(100) | | |
| Poor | 46(27.2) | 83(49.1) | 40(23.7) | 169(100) | | |
| Total | 74(17.5) | 212(50.3) | 136(30.3) | 422(100) | | |

* Statistically Significant

DISCUSSION

This study assessed the knowledge, attitudes, preventive practices and its associated factors in PTB control within communities in Orlu LGA, of Imo State,

Nigeria. Subsequently it was revealed that majority of the respondents with respect to the control of PTB, had a generally good level of knowledge (73%), a poor to fair level of attitude (86%) and a fair to good

level of preventive practices (82%); with the level of preventive practices being significantly associated with level of knowledge, level of attitude, age, gender, marital status, religion, occupation and the gender of the household head.

In the present study, all the respondents were aware of PTB and the main sources of information for the majority of the respondents, were from health personnel and radio stations. This high level of awareness of PTB appear to be related to the campaign efforts of health personnel and the dissemination of PTB information through radio, which most households within the communities have, and probably listen to. This observation is consistent with a number of studies that have either reported a high level of awareness among 90% or more of their respondents or reported that health personnel and radio are their main sources of information. [14-17] Similarly, a study by Esmael et al., [9] reported that, health workers and radio were acting as a successful means of disseminating information about TB, even though, a lower awareness level (67%) about PTB was observed in the study when compared to ours..

Despite the fact that the aggregate score of the general level of knowledge for a majority of the respondents in this present study was high (73%), it was observed that only close to 30% or less, of the respondents knew that PTB is caused by a bacterial organism and that its transmission is facilitated by overcrowding, poor ventilation and close contact with a coughing PTB patient. On the contrary, with respect to knowing the causation of PTB, a study in Nigeria by Asuquo et al., [15] reported that up to 65% of the respondents correctly identified bacteria as the cause of PTB. Nevertheless, it still appears that the information of PTB received by individuals within the communities may not be adequate, corrector probably understood, as there seems to be a number of misconceptions, as a sizable proportion of

our respondents,(20-25%) reported that dirty air, smoke and bad water are causes of PTB. Also close to 40% of the respondents reported that blood examination is a method of diagnosis and herbal drugs, a method of treatment. The information disseminated may not be specific as a much higher proportion of the respondents in the same study report that 'coughing out blood'(82%) as against 'chronic coughing'(57%) is a symptom of PTB. These misconceived ideas due to inadequate, inappropriate and incorrect information can pose as barriers to prevention, case detection and treatment compliance.^{18, 19} Furthermore, these misconceptions observed in this study, were similar to findings reported from other studies. [6, 10, 11, 16-19]

It was also observed in the present study that a majority of the respondents reported that PTB was treatable (98%), for a duration of 6-8 months (68%) using prescription drugs (98%) from Government hospitals (95%) and this further highlights the fact that the information received by the individuals within the communities appear to be unevenly specific, where certain aspects of PTB control are disproportionately known more than other aspects. A number of studies have reported similar observations, with respect to the majority respondents knowing that, PTB is a treatable or curable disease and that prescription drugs are used in its treatment. [9,10,15-17] On the other hand, the knowledge of the duration of treatment of up to 6-8 months by 68% of the respondents in the present study was not consistent with other studies that reported, less than 50% of the respondents, knowing the minimum treatment duration of PTB. [10, 17,20]

In the present study, the opinions of the respondents with respect to the prevention and treatment of PTB vary to different degrees when compared to other studies conducted in different communities and this is not unusual as attitude is a reflection of knowledge which is linked to personal beliefs and previous personal

experiences. Majority of the respondents in this study were of the opinion that PTB can be prevented if people don't live together with PTB patients (96%) or don't live in crowded homes (75%) or don't spit indiscriminately in open places (70%) or cover their mouths with handkerchief when coughing (74%) or vaccinate with BCG (71%) and these observations were not consistent with other studies such as Chinnakali et al.,^[17] in urban slums where only 45%, 1%, 51% and 61% of the respondents respectively were of the opinion that isolation of PTB patients, avoiding overcrowding, the use of handkerchief when coughing and BCG vaccination will prevent disease. Similarly, Khalil et al.,^[10] in a rural area, also reported that 2.3%, 30%, 25% and 9.1% of the respondents respectively were of the opinion that staying separate from PTB patients, proper sputum disposal, covering mouth with handkerchief when coughing and BCG vaccination can prevent PTB. Furthermore, it was observed that 22% of the respondents in the present study were of the opinion that herbal drugs can be used to treat and cure PTB, even though this observation was consistent with a study in Ethiopia^[11] that reported 21% of the respondents with the same opinion, the contrary, was the case in another study also done in Ethiopia^[16] and in Nigeria^[15] that reported 11% and 2.3% of respondents respectively having the same opinion. These misconceptions are worrisome as they could lead low PTB detection rates in the communities, poor control practices and compliance to drug treatment with attendant increase in PTB burden, morbidity and mortality indices which are already prevalent in Nigeria.

In the present study, the level of preventive practices of the majority of respondents were observed as fair to good with the levels of knowledge and attitude significantly associated with it. Practices refer to the ways in which people demonstrate their knowledge and attitude

through their actions;^[21] and this linkage seems apparent in this study where a majority of respondents on an individual level, always (63%) or sometimes (27%) cover their mouth in public places when coughing, always (64%) or sometimes (31%) open their room windows for cross ventilation, always (36%) or sometimes (52%) avoid overcrowded places or gatherings and always (58%) or sometimes (22%) encourage their households to be vaccinated with BCG. These preventive practices observed, which are mainly on an individual level, seem to have contributed positively to the observed level of preventive practices in the present study that appear to be significantly associated with the respondent's age, gender, marital status, religion, occupation and gender of the household head. Some of these socio-demographic factors have been found to affect tuberculosis management and treatment compliance^[22-33] and most of their effects can be modified through proper, well targeted, and consistent health education and promotion.

Conversely, even though a majority of the respondents (81%) were of the opinion that the community should be involved in the monitoring of presumptive PTB patients, the observations of preventive practices on a community level in the present study, appear not to be congruent with the individual practices; where the community rarely (27%) or never (32%) are involved in isolating PTB patients for treatment or the community rarely (33%) or never (37%) discusses how to prevent infectious diseases or the community rarely (40%) or never (32%) announces or searches for those coughing persistently or the community sometimes (35%) or rarely (31%) advocating for everyone to be vaccinated with BCG. Community understanding of PTB prevention and control is considered critical and as a consequence, the involvement of the community will reduce stigma, discrimination and several misconceptions

associated with PTB, therefore decreasing the impact on social relations and improving case detection, health seeking behaviour and ultimately, reducing PTB burden in the communities.

CONCLUSION

Improving the individual and especially community's collective understanding of PTB control through the development and implementation of ACSM strategies that provide targeted, adequate, appropriate and correct knowledge regarding PTB disease and its consequences will foster positive attitudes and instil a culture that encourages the adoption and compliance of preventive practices in the control of PTB and other infectious diseases both at the individual and community levels within the communities.

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