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Socio-Demographic Characteristics of Patients That Received Tuberculosis Care at a Tertiary Health Facility in Nigeria: A Retrospective Study

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ABSTRACT

Background: Tuberculosis is one of the top 10 causes of death worldwide and the leading cause of death from a single infectious agent. The World Health Organization estimates that about a third of the world's population is infected with mycobacterium tuberculosis and that about 16-20 million are suffering from the disease. The study aimed to determine the socio-demographic characteristics of patients treated for Tuberculosis at a tertiary health facility in Nigeria and to find the differences in socio-demographic characteristics based on their place of residence.
Methods: The study was a 5-year retrospective cohort study (2018-2022) of all Tuberculosis cases treated at the chest and TB clinic of Enugu State University Teaching Hospital Park Lane Enugu, Nigeria. All the patients that received TB treatment within the 5 year period were included for the study.
Results: The mean age was 38.91±17.39. Most of the cases were in the 30-39 year age group (24.8%). About 2/3 of them were males (61.9%) and urban dwellers (65.0%). Most had secondary education (46.2%) and traders (27.5%). About half of them were married (51.6%) while almost all were Igbos (95.4%). Educational level ($p<0.001$), occupation ($p<0.001$) and ethnicity ($p=0.021$) were significantly associated with place of residence.
Conclusion: We conclude that Tuberculosis is a disease of young adults and common among males than females. Place of residence, educational level, occupation and ethnicity were important factors in the prevalence of tuberculosis. Efforts should be focused on these identified socio-demographic characteristics for effective control of tuberculosis.

Keywords: Tuberculosis, Nigeria, Socio-demographic characteristics, Tertiary health facility, Enugu State

INTRODUCTION

Tuberculosis (TB) is a chronic, air-borne bacteria disease that primarily affects the lungs but can affect other organs/parts of the body.[1] It is an important communicable diseases in the majority of the developing countries.[1] TB has an immense economic impact on many countries and is one of the leading causes of mortality among infectious disease worldwide.[2] Pulmonary TB is characterized by cough, chest pain, night fever, loss of weight and hemoptysis while the presentation of extra pulmonary TB depends on the affected parts of the body. [1] The World Health Organization (WHO) estimates that about a third of the world's

population is infected with mycobacterium tuberculosis and that about 16-20 million are suffering from the disease. [3]

TB is one of the top 10 causes of death worldwide and the leading cause of death from a single infectious agent. It ranked above HIV/AIDS since 2007. [4] In 2019, globally, an estimated 10.0 million (8.9–11.0 million) people fell ill with TB. There were 1.2 million (1.1–1.3 million) TB deaths among HIV-negative people and an additional 208 000 deaths (177 000–242 000) among HIV-positive people. TB affects people of both sexes and all age groups, but the highest burden is in adult men, who accounted for 56% of all TB cases in 2019. Among all TB cases, 8.2% were among people living with HIV. Geographically, in 2019, most TB cases were in the World Health Organization (WHO) regions of South-East Asia (44%), Africa (25%) and the Western Pacific (18%), with smaller shares in the Eastern Mediterranean (8.2%), the Americas (2.9%) and Europe (2.5%). Eight countries accounted for two thirds of the global total: India (26%), Indonesia (8.5%), China (8.4%), the Philippines (6.0%), Pakistan (5.7%), Nigeria (4.4%), Bangladesh (3.6%) and South Africa (3.6%). [4]

Extra pulmonary TB (EPTB) occurs outside the lungs and may spread through lymphatic or haematogenous dissemination. The TB bacteria may remain dormant for years at a particular site before causing the disease. Nearly all organs of the body can be infected by EPTB. It can also have a wide variety of clinical manifestations, thus leading to difficulty and delay in its diagnosis.[5]

TB is a major public health problem in Nigeria, as is seen in many other African countries. [1, 6] The TB burden is further compounded by the high number of people living with HIV in the country. [1, 7] Tuberculosis affects every population differently. [1,7, 8] These variations depend on prevailing social factors such as poverty, illiteracy, ignorance, poor standard of living, overcrowding etc. which were all inter-related and contributed to the prevalence of TB. [9, 10] Some studies have reported a higher TB occurrence in patients with smoking, alcoholism, HIV/AIDS, malnutrition and Diabetes Mellitus (DM).[10-13] Another study also indicated that race/ ethnicity, age, and gender demographics are contributing risk factors for the incidence of TB in a given population.[14]

The study aims to determine the socio-demographic characteristics of patients treated for TB at a tertiary health facility in Nigeria and to find the differences in socio-demographic characteristics based on their place of residence.

MATERIALS AND METHODS

Study area

The study was conducted at the chest and TB clinic of Enugu State University Teaching Hospital (ESUTH) Park Lane Enugu, Nigeria where patients with tuberculosis receive treatment. This clinic offers TB services for patients from within and outside Enugu State.

Study design

The study was a 5 year retrospective cohort study (2018-2022) of all TB cases treated at the chest and TB clinic.

Study population

All the patients that received TB treatment within the 5 year period

Inclusion criteria

Having received treatment at the TB clinic between 2018 and 2022

Exclusion criteria

Cases with missing socio-demographic data.

Data collection methods

All the data were retrieved from the patients folders at the chest and TB clinic and entered into a pro forma

STATISTICAL ANALYSIS

Collected data were analyzed with SPSS version 25. Descriptive statistics was done and presented as mean and standard deviation, frequencies and percentages. Chi-

square test was used to test for associations between the socio-demographic characteristics based on place of residence with significant level placed at p-value ≤0.05.

Ethical clearance

Obtained from the research ethics committee of ESUTH Parklane Enugu.

RESULTS

Table 1: Socio-demographic characteristics of tuberculosis patients

Variable	Frequency (N=483)	Percent
Age (years)		
Mean ±SD	38.91±17.39	
Age in groups (years)		
0-9	14	2.9
10-19	41	8.5
20-29	99	20.5
30-39	120	24.8
40-49	83	17.2
50-59	55	11.4
60-69	38	7.9
≥70	33	6.8
Age re-categorized		
0-39	274	56.7
≥40	209	43.3
Gender		
Male	299	61.9
Female	184	38.1
Residence		
Rural	169	35.0
Urban	314	65.0
Educational level		
None	15	3.1
Primary completed	109	22.6
Secondary completed	223	46.2
Tertiary completed	136	28.2
Occupation		
Civil/public servants	42	8.7
Trading	133	27.5
Crafts/artisans	86	17.8
Farmers	34	7.0
Unemployed	111	23.0
Students	77	15.9
Occupation re-categorized		
Employed	295	61.1
Unemployed	188	38.9
Marital status		
Single	207	42.9
Married	249	51.6
Divorced/separated	4	0.8
Widow/widower	23	4.8
Ethnicity		
Igbo	461	95.4
Hausa	13	2.7
Yoruba	1	0.2
Others	8	1.7

Table 1 shows the socio-demographic characteristics of the TB patients used for the study. The mean age was 38.91±17.39. Most of the cases were in the 30-39 year age group (24.8%). About 2/3 of them were males (61.9%) and urban dwellers (65.0%). Most had secondary education (46.2%) and traders (27.5%). About half of them were married (51.6%) while almost all were Igbos (95.4%).

Table 2: Yearly distribution of TB cases

Variable	Frequency	Percent
Year		
2018	90	18.6
2019	84	17.4
2020	86	17.8
2021	97	20.1
2022	126	26.1

Table 2 shows the yearly distribution of TB cases. Most of the cases were seen in 2022.

Table 3: Bivariate analysis of socio-demographic characteristics based on place of residence

Variable	Residence		X^2	P value
	Rural	Urban		
Age in groups (years)				
0-39	87(51.5)	187(59.6)	2.918	0.088
≥40	82(48.5)	127(40.4)		
Gender				
Male	108(63.9)	191(60.8)	0.441	0.507
Female	61(36.1)	123(39.2)		
Educational level				
None	7(4.1)	8(2.5)	70.025	<0.001*
Primary completed	71(42.0)	38(12.1)		
Secondary completed	71(42.0)	152(48.4)		
Tertiary completed	20(11.8)	116(36.9)		
Occupation				
Civil/public servants	10(5.9)	32(10.2)	22.183	<0.001*
Trading	47(27.8)	86(27.4)		
Crafts/artisans	36(21.3)	50(15.9)		
Farmers	22(13.0)	12(3.8)		
Unemployed	36(21.3)	75(23.9)		
Students	18(10.7)	59(18.8)		
Marital status				
Single	63(37.3)	144(45.9)	4.216	0.239
Married	97(57.4)	152(48.4)		
Divorced/separated	2(1.2)	2(0.6)		
Widow/widower	7(4.1)	16(5.1)		
Ethnicity				
Igbo	168(99.4)	293(93.3)	9.742	0.021*
Hausa	0(0.0)	13(4.1)		
Yoruba	0(0.0)	1(0.3)		
Others	1(0.6)	7(2.2)		

Table 3 shows socio-demographic characteristics based on place of residence. Educational level (X^2 =70.025; p<0.001), occupation (X^2 =22.183; p<0.001) and ethnicity (X^2=9.742; p=0.021) were significantly associated with place of residence.

DISCUSSIONS

Tuberculosis remains a global public health concern, with varying prevalence and patterns across different regions. Socio-demographic factors play a vital role in the epidemiology of TB, influencing its transmission dynamics and impacting healthcare interventions. In the control of TB, it is important to understand the socio-demographic characteristics that impact the disease.

The mean age of the patients was 38.91± 17.39 and this was similar to the report of a similar study. [15] But higher than the report of another study in Northern Nigeria (32.78+15.10) [16] and SE Nigeria. [17] The difference in the mean age can be explained by the fact that our study included all age groups while the other studies did not include children less than 10 years. Most of the patients were within the 20-49 years age range (62.5%) which is not surprising as TB occurs mainly during the productive phase of life. This causes significant morbidity among this age group and affect their productivity. Similar studies reported similar findings. [18, 19]

There is male preponderance in our study which is similar to the report of other studies. [11, 15, 17, 19, 20] In 2020, WHO reported that TB is more prevalent among adult males. [4] The higher prevalence of TB in men could be attributed to their gender-specific roles that makes them prone to having many social contacts. This in turn increases their risk of being exposed to TB. [20] Another study however, reported a contrasting finding with more female that male patients. [18] The difference can be explained by the place of study and study population.

Our study reported that most of our patients were urban dwellers. Other studies from India and Guinea Bissau corroborated the study. [19, 21,22] Due to high urban population with high presence of urban slums, there is higher possibility of transmission of an air-

borne pathogen in urban areas and this could explain the higher prevalence of TB among the urban dwellers.

The urban-rural discrepancy in TB incidence in Nigeria suggests a potential link between urbanization, migration, and TB transmission. Urban areas may facilitate higher transmission rates due to crowded living conditions and increased exposure to infectious individuals. This emphasizes the necessity of tailored interventions for urban populations, such as improved healthcare infrastructure and awareness campaigns. However other studies reported contrasting findings with higher prevalence among rural dwellers. [23, 24, 25] The place of study may explain the difference.

Most of the patients had secondary education followed by tertiary education. A similar study from North-west Nigeria and Enugu South-East Nigeria corroborated the finding. [23, 26] Educational level affects the health seeking behaviour of individuals positively. Level of education is also an important factor associated with knowledge of diseases and the health services available at different health facilities.

Most of the patients were employed. A similar study from Nigeria and Bangladesh corroborated the finding. [23, 25] Another study reported that 62.5% of the patients were unemployed. [27] Employment status affects the treatment outcome as well as treatment adherence.

Majority of our patients were married. This might be due to the fact that these married people indulge in more exposing jobs like trading hence exposing them to many contacts. They may also pay less attention to their health due to high liabilities when compared to those that are single. Similar findings were reported by similar studies. [19, 24, 28] Almost all the patients were Igbos and this was not surprising as Enugu State is a predominantly Igbo speaking state.

The prevalence of TB progressively increased from 2020-2022. This may be due to increased awareness that the disease is curable and better diagnostic mechanisms.

On bivariate analysis of socio-demographic characteristics based on place of residence, educational level was significantly associated with place of residence. This was so because there were higher educated people in the urban than rural areas. Similar studies from India and Brazil however, reported no significant association between level of education and place of residence. [29, 30]

Occupation was statistically associated with place of residence as there are more civil servants and unemployed among the urban dwellers when compared to the rural dwellers. Similar study have reported that TB was more common among white collar workers than other workers. [16] Others have a contrast report [31,32]

TB is a disease of poverty, associated with resource poor countries. However, some researchers have argued that the association of specific socio-economic factors and TB is unclear. [14, 33]

CONCLUSION

This comprehensive analysis of socio-demographic characteristics among TB patients in Nigeria have provided valuable insights for targeted public health interventions. The observed patterns shows the importance of addressing specific risk factors related to age, gender, urbanization, occupation and educational levels. Tailoring interventions to these unique socio-demographic characteristics is essential for achieving effective TB control and reducing the burden on healthcare systems.

Declaration by Authors

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