



Research Article

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Prevalence and Socio-Demographic Determinants of Tuberculosis and HIV Co-infection Among Patients Attending Tertiary Hospitals in Imo State, Nigeria

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Abstract

Tuberculosis (TB) and Human Immunodeficiency Virus (HIV) co-morbidity are still major public health problems internationally, especially in developing countries like Nigeria where the double burden of infectious illnesses remains a concern to the population health and the healthcare systems. This study assessed the socio-demographic variables and prevalence of TB/HIV co-morbidity among patients attending selected tertiary hospitals in Imo State, Nigeria.

The study was led by five research questions and five hypotheses. The investigation employed a descriptive cross-sectional research approach. The study was carried out the Federal Teaching Hospital, Owerri and the Imo State University Teaching Hospital, Orlu both in Imo State, Nigeria. The study employed the consecutive sampling technique to choose a sample size of three hundred and forty-four (344) respondents from the study population. Data was collected using a standardised questionnaire “Tuberculosis and HIV Co-Morbidity Questionnaire (THIVCMQ)”. The instrument consisted of five clusters tailored to answer the unique objectives and research concerns of the study. The questionnaire was validated by professionals for face and content validity. The reliability was tested using the Cronbach Alpha reliability method. The result was a reliability coefficient of 0.88, which represents high internal consistency and suitability for the study.

Descriptive statistics such as frequencies and percentages were utilised to answer the study questions, and Chi-square statistics were used to evaluate the hypotheses at a 0.05 level of significance. The study was carried out with ethical approval and informed consent procedures. The results indicated a significant prevalence rate of 61.9% of TB/HIV co-infection among patients attending the selected tertiary institutions between 2022 and 2025. The frequency of co-infection was highest among the age group of 38 – 47 years accounting for 45.1% of the respondents. Educational status was particularly important since responders with West African Senior School Certificate (WASSC) formed 50% of the co-infected population. Additionally, 75% of the respondents had a monthly income of less than ₦70,000, showing that poverty and low socioeconomic level were major contributors to the rising incidence of TB/HIV co-morbidity.

The study showed that poverty, unemployment and low educational attainment are the key socio-demographic variables impacting the prevalence of TB/HIV co-morbidity in Imo State. The study also found reasonably good levels of adherence to suggested treatment protocols among patients with co-infection. Based on the findings, the study has recommended to expand coverage of antiretroviral therapy, improved socio-economic empowerment programmes, intensified health education campaigns and compulsory uptake of Tuberculosis Preventive Therapy (TPT) for all contacts of active TB/HIV index cases to reduce transmission and improve treatment outcomes.

Keywords: Prevalence, Socio-Demographic Determinants, Tuberculosis, HIV Co-Morbidity, Tertiary Hospitals, Imo State, Nigeria.



INTRODUCTION

Tuberculosis (TB) and Human Immunodeficiency Virus (HIV) co-morbidity is one of the most important public health challenges globally. This is especially the case in sub-Saharan Africa where the burden of infectious diseases remains disproportionately high. TB/HIV interaction is a terrible synergistic epidemic that has dramatically increased morbidity and mortality in impacted countries. Nigeria is one of the countries with the highest burden of TB and HIV internationally and continues to face major hurdles in the control of the dual pandemic despite continued public health efforts and international support programs [1]. Tuberculosis is a chronic infectious illness caused by *Mycobacterium tuberculosis*, an aerobic, non-spore producing, non-motile, acid fast bacillus. It typically affects the lungs, resulting in pulmonary TB, but it may also affect other organs of the body in extra-pulmonary forms[2]. Infection is acquired mostly by inhalation of droplet nuclei emitted from the coughs, sneezes, sputum or talking of infected persons. The Federal Ministry of Health said that the main reservoirs and sources of infection in communities are the untreated pulmonary TB patients. Tuberculosis affects people of all ages and both sexes, but most of the world's cases are documented in adults[3]. Human Immunodeficiency Virus (HIV), the cause of Acquired Immunodeficiency Syndrome (AIDS), progressively destroys CD4+ T cells and impairs the immune system, diminishing the body's ability to fight infections and diseases. As immunity fades, people become more prone to opportunistic illnesses such as tuberculosis, candidiasis, recurring bacterial infections, and pneumocystis pneumonia. Among these opportunistic diseases, TB remains the greatest cause of morbidity and mortality in people living with HIV[4].

The global association of TB and HIV is a huge public health problem, as each disease accelerates the progression of the other. One of the major risk factors for HIV infection is the reactivation of latent TB infection into active illness. HIV positive persons exposed to *Mycobacterium tuberculosis* are predicted to be about thirty-seven times more likely to acquire active TB illness than HIV negative individuals[5]. In 2023, an estimated 1.25 million people died from tuberculosis, including over 161 000 persons living with HIV. These data highlight the disastrous impact of TB/HIV co-infection on global health systems[6]. Nigeria is still one of the ten countries with the highest burden of TB and TB/HIV co-infection in the world. The country is estimated to report over 150,000 new cases of TB/HIV co-infection every year[7]. Despite the establishment of tuberculosis control programmes, antiretroviral medication initiatives and joint TB/HIV care, the burden of co-morbidity is still frighteningly high. The two infections are still fuelled by poor healthcare infrastructure, poverty, inadequate awareness, delayed diagnosis, stigma, and limited access to healthcare services, particularly in rural and underserved communities[8].

Efforts to improve the surveillance of TB/HIV co-morbidity and risk factors are critical for successful disease control and management[9]. Socio-demographic factors such as age, gender, educational status, economic level, occupation, marital status and place of residence have been found to play crucial roles in the prevalence and outcome of TB/HIV co-infection. People with poor socioeconomic situations are generally more vulnerable to infection due to overcrowding, poor nutrition, limited access to health care, and diminished health-seeking behavior[10]. Similarly, the poor level of education may contribute to lack of understanding of preventive actions and compliance to treatment protocols[11]. The World Health Organization recognises that health outcomes are affected not just by biological factors but also by social and economic determinants such as living conditions, employment, quality of life, access to healthcare, and educational opportunities[12]. Therefore, knowing the socio-demographic variables associated with TB/HIV co-morbidity is critical in establishing targeted interventions and policies to reduce disease burden and improve patient outcomes[13].

In addition, TB prevention in PLHIV continues to be an important component of public health strategies[14]. Unfortunately, TB and HIV often co-exist, forming a synergistic relationship, worsening clinical results and increasing mortality rates. The National Tuberculosis and Leprosy Control Programme mentioned that despite huge investments in the control measures for TB and HIV, Nigeria still experiences poor treatment outcomes in co-infected individuals [15].

The burden of TB/HIV co-morbidity is not excluded in Imo State. However, there is a lack of empirical data that particularly addresses the prevalence and socio-demographic drivers of TB/HIV co-infection among patients visiting tertiary healthcare institutions in the state. This lack of localised data hampers evidence-based planning and interventions that are specific to the population's requirements. Against this backdrop, this study was undertaken to explore the prevalence and socio-demographic factors of tuberculosis and HIV co-morbidity among patients attending selected tertiary hospitals in Imo State, Nigeria. The study aims to generate important baseline data to aid healthcare policymakers, public health practitioners and stakeholders in the building of effective intervention programmes intended to reduce the incidence of TB/HIV co-infection and improve healthcare outcomes in the state and abroad.

MATERIALS AND METHODS

Research Design

A cross-sectional descriptive survey design was adopted for this study. The design was considered appropriate because it enabled the researcher to assess the prevalence and socio-demographic determinants of Tuberculosis (TB) and Human Immunodeficiency Virus (HIV) co-morbidity among patients attending selected tertiary healthcare institutions in Imo State,

Nigeria. The design also facilitated the collection of data from respondents at a single point in time without manipulation of variables.

Area of the Study

The study was conducted in two tertiary healthcare institutions in Imo State, Nigeria, namely the Federal Teaching Hospital, Owerri (FTHO), and the Imo State University Teaching Hospital (IMSUTH), Orlu. These hospitals were selected because they serve as major referral centres for the diagnosis, treatment, and management of Tuberculosis and HIV/AIDS within the state and neighbouring regions. Both hospitals operate specialized units for TB and HIV care, including Chest Clinics and Heart-to-Heart Units, where patients receive antiretroviral therapy, tuberculosis treatment, counselling, and follow-up care.

Population of the Study

The target population for the study comprised adult patients aged 18 years and above who had been diagnosed with TB and HIV co-morbidity and were receiving treatment at the Federal Teaching Hospital, Owerri, and Imo State University Teaching Hospital, Orlu.

The estimated adult population within the study area was approximately 2,862,000 individuals. However, the accessible population for this study consisted specifically of patients diagnosed with both TB and HIV co-morbidity attending the selected tertiary healthcare institutions during the study period.

Inclusion Criteria

Participants eligible for inclusion in the study were:

- a. Patients diagnosed with TB and HIV co-morbidity.
- b. Patients aged 18 years and above.
- c. Patients currently receiving treatment and care at the Chest Unit and Heart-to-Heart Unit of the Federal Teaching Hospital, Owerri, and Imo State University Teaching Hospital, Orlu.
- d. Patients who voluntarily gave informed consent to participate in the study.

Exclusion Criteria

The following categories of individuals were excluded from the study:

- a. Patients who were absent during the period of data collection.
- b. Patients who were critically ill or physically unable to respond to the questionnaire.

Sample Size and Sampling Technique

To ensure adequate representation and inclusiveness, a sample size of three hundred and forty-four (344) respondents was selected for the study using the consecutive sampling technique.

Consecutive sampling was adopted based on the principle of recruiting every eligible participant who met the inclusion criteria and presented at the study centres during the data collection period until the required sample size was attained. The technique was considered appropriate because it ensured wider coverage of eligible TB/HIV co-infected patients receiving care at the selected hospitals.

The first step involved identifying the variable of interest, which comprised patients diagnosed with TB and HIV co-morbidity. Eligible participants were consecutively recruited in the exact order of their attendance at the treatment centres until the desired sample size of 344 respondents was reached.

Ethical Consideration and Informed Consent

The study strictly adhered to ethical principles guiding research involving human participants. Ethical approval for the study was obtained from the Health Research Ethics Committees of the Federal Teaching Hospital, Owerri, and Imo State University Teaching Hospital, Orlu, Imo State.

Instrument for Data Collection

Data for the study were collected using a structured questionnaire developed by the researcher based on the objectives of the study and relevant literature. The instrument was titled "*Tuberculosis and HIV Co-Morbidity Questionnaire (THIVCMQ)*."

The questionnaire consisted of five (5) sections, with each section addressing a specific research question and objective of the study. The instrument contained items on prevalence of TB/HIV co-morbidity, socio-demographic characteristics, and other variables relevant to the study. The socio-demographic section comprised nine (9) items covering variables such as age, gender, educational status, occupation, marital status, and income level.

The questionnaire items were carefully structured in simple and clear language to enable respondents to select appropriate responses with ease. Copies of the questionnaire were administered to TB/HIV co-infected patients attending the treatment centres during the study period.

Validity of the Instrument

Validity refers to the extent to which an instrument accurately measures what it is intended to measure. To establish face and content validity of the questionnaire, draft copies of the instrument were submitted to three experts for review and assessment. One expert was drawn from the Department of Educational Foundations (Measurement and Evaluation), while two experts were from the Department of Public Health, Imo State University, Owerri.

The experts were provided with the study title, objectives, and research questions to guide their evaluation. The public health experts examined the relevance, clarity, and appropriateness of the questionnaire items in relation to the objectives of the study, while the measurement and evaluation expert assessed the suitability of the research design, language structure, and organization of the instrument.

Suggestions, corrections, and recommendations made by the experts were carefully incorporated into the final version of the questionnaire to improve clarity, consistency, and content accuracy. The researcher’s supervisor further reviewed the instrument and made additional inputs before approval of the final draft.

Reliability of the Instrument

The reliability of the instrument was established through a pilot study using the single administration method. Twenty (20) copies of the questionnaire were administered to TB and HIV patients at the Federal Teaching Hospital, Abakaliki (FETHA), Ebonyi State, which was outside the study area.

Data obtained from the pilot study were analyzed using the Statistical Package for Social Sciences (SPSS). Reliability was computed using the Cronbach Alpha statistical method. A reliability coefficient of 0.88 was obtained, indicating a high level of internal consistency and confirming that the instrument was reliable, adequate, and suitable for the study.

Data Collection

Data were collected using the Direct Delivery Method (DDM), a face-to-face approach facilitated by trained health workers who served as research assistants in the selected hospitals. Three research assistants were engaged in each hospital to assist with questionnaire administration.

Statistical Analysis

Data obtained from the structured questionnaires were coded, organized, and analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0.

Descriptive statistics, including frequencies and percentages, were used to answer the research questions and present the findings in tables. Inferential statistics involving Chi-square analysis were used to test the null hypotheses formulated for the study.

The level of significance was set at 0.05. Decision for hypothesis testing was based on the SPSS output, such that if the calculated p-value (Sig.) was less than 0.05, the null hypothesis was rejected; otherwise, the null hypothesis was accepted.

RESULTS

Table 1 Result of the patients diagnosed with TB, or HIV or both TB/HIV co-morbidity between December, 2022 and December, 2025

	Frequency	Percent	Valid Percent	Cumulative Percent
HIV	94	27.3%	27.3%	27.3
TB/HIV	213	61.9%	61.9%	89.2
TB	37	10.8%	10.8%	100.0
Total	344	100%	100%	

Table 1 of research question one (1) revealed that the prevalence of TB and HIV co-morbidity level among patients. 27.3% of patients (respondents) were diagnosed with HIV only. Hence, 10.8% of patients (respondents) were diagnosed with TB only, while 61.9% of patients (respondents) were diagnosed with both TB/HIV co-morbidity. This indicated that there is a high percentage of both TB/HIV co-morbidity among patients attending selected tertiary hospitals in Imo State between 2022 and 2025. Therefore, there is a great prevalence of TB/HIV co-morbidity among patients attending selected tertiary hospitals in Imo State.

Table 2. Percentage analysis of socio-demographic factors characterised with TB and HIV co-morbidity.

S/No.	Items	Both HIV/TB	One or cured	Total %
1.	Age			
	18-27 years	6.4% (22)	3.5% (12)	9.9% (34)
	28-37 years	8.7% (30)	6.4% (22)	15.1% (52)
	38-47 years	29.7% (102)	15.4% (53)	45.1% (155)
	48-57 years	11.3% (39)	8.7% (30)	20.1% (69)
	58-67 years	5.8% (20)	4.1% (14)	9.9% (34)
	Total	62% (213)	38% (131)	(100%) 344
2.	Gender			
	Male	31.1% (107)	18.9% (65)	50.0% (172)
	Female	30.8% (106)	19.2% (66)	50.0% (172)
	Total	62% (213)	38% (131)	(100%) 344
3.	Marital Status			
	Single	18.9% (65)	11.3% (39)	30.2% (104)
	Married (monogamous)	31.4% (108)	18.6% (64)	50.0% (172)
	Divorced	8.7% (30)	6.1% (21)	14.8% (51)
	Separated	2.9% (10)	2.0% (7)	4.9% (17)
	Total	62% (213)	38% (131)	(100%) 344
4.	Education			
	No formal education	9.0% (31)	6.1% (21)	15.1% (52)
	Primary	3.2% (11)	1.7% (6)	4.9% (17)
	Secondary	32.3% (111)	17.7% (61)	50.0% (172)
	Tertiary	17.4% (60)	12.5% (43)	29.9% (103)
	Total	62% (213)	38% (131)	(100%) 344
5.	Occupation			
	Student	3.2% (11)	1.7% (6)	4.9% (17)
	Public/Civil Servant	11.3% (39)	8.7% (30)	20.1% (69)
	Trader/Business person	47.4% (163)	27.6% (95)	75.0% (258)
	Total	62% (213)	38% (131)	(100%) 344
6.	Income			
	< 70,000	47.7% (164)	27.6% (95)	75.3% (259)
	70,000-119,000	2.9% (10)	2.0% (7)	4.9% (17)
	120,000-169,000	5.8% (20)	4.1% (14)	9.9% (34)
	270,000-319,000	5.5% (19)	4.4% (15)	9.9% (34)
	Total	62% (213)	38% (131)	(100%) 344
7.	Religion			
	Christianity	61.9% (213)	38.1% (131)	100.0% (344)
	Total	62% (213)	38% (131)	(100%) 344

S/No.	Items	Both HIV/TB	One or cured	Total %
8.	Residential Area			
	Urban	29.4% (101)	20.3% (70)	49.7% (171)
	Rural	32.6% (112)	17.7% (61)	50.3% (173)
	Total	62% (213)	38% (131)	(100%) 344
9.	Household			
	1 – 3	32.8% (113)	37.3% (128)	70.1% (241)
	4 – 6	14.8% (51)	9.9% (34)	24.7% (85)
	7 – 9	3.5% (12)	1.7% (6)	5.2% (18)
	Total	51% (176)	49% (168)	(100%) 344

Table 2: the findings of the study revealed the following:

Age: the respondents with age bracket of 38 - 47 constitute 45.1% for HIV/TB patients as the highest number of co-morbidity, followed by 48 – 57 with 20.1 % while 18 – 27 and 58 – 67 with 9.9% respectively indicated the lowest number of co-morbidity. Those between the ages of 38 - 57 is where the majority lies and above 57years is relatively low and below 27years were the lowest in number.

Gender: it was indicated that females are equal in number with their male counterparts for HIV/TB patients as the highest number of co-infection occurrences which is 50% each. This implied that both male and female are prone to/with equal chances of HIV/TB co-infection. Hence, sample size is selected based on HIV/TB co-morbidity not on gender based.

Marital Status: 172 respondents who were married in monogamous unions represented the largest group 50.0%, followed by 104 single individuals which was 30.2% of the sample size. Smaller proportions were observed among the divorced 14.8% and separated 4.9%. Marital status therefore appears to play a role, with married individuals forming the majority of those affected.

Education: majority of the patients had attained secondary education with West African Senior Certificate (WASSC) had 50% of HIV/TB co-infection occurrences. Followed by people that attended higher institutions which constitute 29.9% while those with First School Leaving Certificate (FSLCE) had the lowest percentage which is 4.9% of HIV/TB co-infection occurrences. For others with no formal education represented 15% in this category. The implication is that the majority of the patients with HIV/TB co-morbidity occurrences were not educated while some of them are still in school. These also narrowed down to the level of poor education in our society thereby influencing the increasing rate of HIV/TB co-morbidity occurrence.

Occupational status showed strong variation. Traders/business persons dominated the sample (75.0%, 258), followed by public/civil servants (20.1%, 69). Students accounted for the smallest proportion (4.9%, 17). This highlights the vulnerability of individuals engaged in trading and business activities.

Occupation: Occupational status showed strong variation. Traders/business persons dominated the sample (75.0%), followed by public/civil servants which represented only 20.1%. Students accounted for the smallest proportion (4.9%). This highlights the vulnerability of individuals engaged in trading and business activities. It is a clear indication of low employment rate in our society today despite the risk of patients with HIV/TB co-morbidity. These had shown a high level of unemployment rate in our society thereby influencing the increasing rate of HIV/TB co-morbidity and death.

Income: majority of patients earned less than ₦70,000 monthly which represents 75.3% of the respondents. Other income brackets contributed much smaller proportions, those within the income level of ₦120,000 - ₦169,000 and ₦170,000 - ₦319,00 represented 9.9% of the respondents respectively. The lowest is within the income level of ₦70,000–119,000 which accounted for only 4.9% of the respondents. This underscores the strong association between low income and TB/HIV comorbidity. It has shown a high level of poverty rate in our society thereby influencing the increasing rate of HIV/TB co-morbidity occurrence.

Religion: it was revealed that respondents identified as Christians which is 100.0% of the sample size. This is a clear indication that Christians dominates in the area of the study. Religion therefore did not serve as a differentiating factor in this study.

Residential Area: It was also revealed that respondents residing in rural areas were 173 which is 50.3% of the respondents which are slightly higher than those in urban areas (49.7%, 171). This suggests that rural residence may be linked to increased vulnerability, possibly due to limited healthcare access. The implication is that, the environment of the patient is also a risk factor to TB/HIV co-morbidity.

Household Size: Patients from smaller households (1–3 members) formed the majority (70.1%), followed by those from medium-sized households (4–6 members) which represented 24.7% of the sample size. Larger households (7–9 members) contributed the least (5.2%). This is a clear indication that household size has little or no influence with HIV/TB infections rate in our society today notwithstanding the risk of more than four (4) children. Also, these will expose the need for human capacity development and/or skill acquisition programme in our country this difficult time to improve live.

Based on the findings of the study it was therefore revealed that socio-demographic factors like age (38–47 years), marital status (married), secondary education, trading/business occupation, low income (<₦70,000), rural residence, and small household size (1–3 members) were the most significant socio-demographic factors associated with TB/HIV comorbidity. Gender and religion did not show differentiating effects. The findings highlight the intersection of socio-economic disadvantage and health vulnerability in shaping TB/HIV comorbidity patterns of TB and HIV co-morbidity of patients attending selected tertiary hospitals in Imo State.

DISCUSSION

Results of this study revealed that 27.3% of the respondents were diagnosed with HIV infection solely whereas 10.8% were diagnosed with Tuberculosis (TB) only. But the proportion of responders diagnosed with co-infection of TB and HIV was greater (61.9%). This indicates a very high frequency of TB/HIV co-morbidity among patients attending selected tertiary hospitals in Imo State between 2022 and 2025. The significant burden of co-infection reported in this study indicates the ongoing public health issue of the dual epidemic of TB and HIV in low-resource settings such as Nigeria. The TB/HIV co-morbidity prevalence identified in this study may be attributable to the synergistic interaction that exists between the two diseases. HIV infection impairs the immune system, making the body more vulnerable to opportunistic illnesses such as tuberculosis. People living with HIV are therefore at far higher risk of having active TB disease than HIV-negative people. The data also demonstrate that TB continues to be a major opportunistic infection in people living with HIV, emphasising the necessity of integrated TB/HIV screening, diagnosis and treatment services in health care settings[16]. The study also found no statistically significant difference in the prevalence of TB and HIV co-morbidity in the respondents. This indicates that the burden of co-infection crosses across different demographic categories in the study population and is still a common problem that need urgent public health attention. The findings are congruent with the study by [17] on the incidence of tuberculosis among HIV/AIDS seropositive patients attending Federal Medical Centres in Abia State, Nigeria who also reported high rates of TB among HIV-positive patients. The consistency in findings could be explained by the relative socio-economic and health care situations in the South-Eastern area of Nigeria.

The present study adds more credence to the idea that routine TB screening should be linked with HIV screening programmes to allow for early diagnosis and early treatment initiation. Early diagnosis of tuberculosis in HIV-positive patients is critical to reduce disease progression, avoid complications and improve treatment results. In reference [18], screening for TB and HIV at the same time results in early detection of co-infection and plays a major role in disease control.

The study results also revealed that socio-demographic variables such as poverty, unemployment, poor educational status, age, sex, marital status, income level and place of residence were substantially associated with the incidence of TB/HIV co-morbidity among the respondents. The survey indicated that a considerable percentage of the respondents earned less than ₦70,000 monthly, pointing to a high prevalence of poverty in the studied population. Poor health outcomes remain strongly associated with poverty, with people with limited income often living in conditions of poor nutrition, poor living conditions, overcrowding and reduced access to quality healthcare services, and thus at risk of infectious diseases such as TB and HIV[19].

Likewise, the high percentage of unemployment seen among respondents may have contributed to the higher burden of co-morbidity. Unemployment is often linked to financial difficulties, psychological stress, poor healthcare-seeking behaviour, and inability to pay for transportation and treatment related costs. These variables can negatively impact adherence to treatment and access to preventative health services[20].

The results also showed that the prevalence of TB/HIV co-infection was higher among those with low educational status. Low education level people may have lower knowledge of disease transmission, preventative tactics, treatment adherence, and frequent medical screening necessity. Health literacy is a key determinant of individual health behaviours and health care utilisation. Hence low educational status may lead to delayed diagnosis and inadequate disease management. The study also showed that the most impacted age group by TB/HIV co-morbidity was the productive and economically engaged age group. This is worrying especially because infection among people in the working and reproductive age group has substantial socio-economic consequences including reduced productivity, greater dependence on healthcare and financial burden on families and society.

Socio-demographic parameters were found to characterise TB/HIV co-morbidity among patients attending selected tertiary institutions in Imo State. There was no statistically significant connection between socio-demographic variables and TB/HIV co-morbidity. This data indicates that TB/HIV co-infection is still a large scale public health problem affecting

people from different socio-demographic groups.

The findings of this study are in agreement with the study conducted by [21] on socio-demographic factors of TB/HIV co-infection among patients on Directly Observed Treatment Short Course (DOTS) in a General Hospital in Imo State, Nigeria. Also, the study found poverty, inadequate education and socio-economic vulnerability as major variables in the burden of TB/HIV co-infection. Tuberculosis and HIV infections remain a severe concern to public health in sub-Saharan Africa, despite ongoing poverty, ineffective healthcare systems and unawareness campaigns [22].

The findings thus underscore the urgent need for improved public health initiatives to reduce the incidence of TB/HIV co-morbidity. Intensified public awareness programs, increased access to healthcare, greater coverage of antiretroviral medication and implementation of integrated TB/HIV services are needed. Further, tailored intervention efforts should be directed especially to men, unmarried, urban and persons belonging to sexually active, productive and reproductive age groups who are disproportionately affected by the disease burden.

CONCLUSION

The results of this study revealed that the prevalence of TB/HIV co-morbidity is significant among patients attending some chosen tertiary hospitals in Imo State Nigeria. The high rate of co-infection is a great public health issue, especially in resource-limited settings where poverty, poor healthcare infrastructure and poor socio-economic factors continue to facilitate the spread of infectious illnesses.

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