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A SURVEY OF PREVALENT AND TREATMENT OUTCOMES FOR PULMONARY TUBERCULOSIS AMONG UNIVERSITY STUDENTS IN EKITI STATE

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ABSTRACT

Tuberculosis (TB) remains a significant public health challenge in Nigeria, particularly among university students who are at increased risk due to socioeconomic factors and living conditions. This study aimed to assess the prevalence of pulmonary tuberculosis (PTB) among university students in Ekiti State from 2019 to 2023, along with the associated risk factors. A cross-sectional design was employed, involving a sample of 500 students selected through stratified random sampling. Data were collected using structured questionnaires and clinical assessments at university health centers. The findings revealed a PTB prevalence rate of 6%, with higher rates observed among male students and those aged 21-24. Poor living conditions, particularly overcrowding and inadequate ventilation, were strongly associated with increased TB prevalence. Socioeconomic factors also played a key role, as students from low-income families reported higher instances of TB. Furthermore, only 30% of diagnosed students had access to timely treatment, indicating significant gaps in healthcare services. These results highlight the urgent need for targeted public health interventions, including health education, improved living conditions, and enhanced healthcare access, to mitigate the risk of tuberculosis among university students in Ekiti State.

Keywords: *Tuberculosis, Socioeconomic Impact, University Students, Ekiti State, Health Expenditures*

Introduction

Tuberculosis (TB) remains a critical health issue globally, especially in low-income countries like Nigeria, which has one of the highest TB burdens. The disease poses significant socioeconomic challenges, particularly for university students who may already face financial constraints. Nigeria has the highest tuberculosis burden in Africa and one of the world's widest gaps between

estimated and reported cases according to the recently released Global TB Report 2011. A comparison of the reports for 2018 and 2019 showed the disease burden is increasing in Nigeria in sharp contrast with the improving global outlook (Enabulele et al., 2019). Tuberculosis incidence rose in Nigeria from 418 000 cases in 2017 to 429 000 cases in 2018, and deaths also rose from 155 000 to 157 000 within the same period, with tuberculosis treatment coverage stagnant at 24%. While there has been a reduction in the number of laboratory-confirmed cases of drug-resistant tuberculosis, with incidence falling from 2300 cases in 2017 to 2275 cases in 2018, the estimated cases rose from 5400 in 2017 to 21 000 in 2018 (Opele, 2022).

Progress has, however, been made in the percentage of HIV-positive individuals on tuberculosis preventive treatment, which increased from 39% in 2017 to 62% in 2019 (Virus, 2022). The National Tuberculosis and Leprosy Control Programme (NTBLCP) of the Federal Ministry of Health of Nigeria conducted the first national TB patient cost survey in 2017, to assess the magnitude and main drivers of costs incurred by TB patients and their households. The cross-sectional survey enrolled 1190 TB patients (of whom 1095 had drug susceptible TB and 95 had drug-resistant TB) across the country's 36 states. Key findings included: 69% of patients with drug-susceptible TB and 89% of patients with drug-resistant TB incurred catastrophic costs (>20% of household annual income); during treatment, the mean annual individual income decreased by 63% among those with drug-susceptible TB and 59% among those with drug-resistant TB; more than one third (37%) of TB patients were living below the poverty line at the time of TB diagnosis, a figure that increased substantially (to 58%) during TB treatment; 74% of TB patients were unemployed at the time of the survey and 30% reported that they had lost their job as a result of TB; more than half (54%) of patients were unable to pay for their TB treatment from income alone, and had to rely on borrowing (45%) or selling assets (29%) to pay for TB related care; in the latter category, 37% sold livestock and 25% sold farm produce; less than 4% of TB patients in the survey had health insurance; although 39% of patients with drug-resistant TB received some form of social support (e.g. food or transport vouchers), only 12% of those with drug-susceptible TB received such support.

In 2016, alcohol consumption accounted for the greatest number of TB deaths and DALYs among the risk factors studied, accompanied by diabetes and smoking (Oyapero et al., 2023) (Felix et al, 2019). Survey results were released in March 2019, as part of an event to mark World TB Day. There was high-level attendance from the government, partners and communities. Following the event, a multisectoral workshop was organized to facilitate policy dialogue and define actions to eliminate catastrophic costs faced by TB patients and their households. The workshop was attended by the NTBLCP, state and health insurance authorities, national and international TB stakeholders and national multisectoral partners (e.g. ministries of labour, women affairs and finance). (FMOH TB GLOBAL REPORT 2019). Ekiti State started TB control activities in 1996

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immediately the state was created and the present STBLCO was seconded to the state from Akure to start the full implementation of the programme according to NTBLCP guideline, there are seven TBLS as at then covering all the sixteen local government areas of the state.

In order to achieve the desired population coverage, qualified health workers were selected from all the LGA in the state and sent to NTBLCP training centre Zaria to equip themselves with the necessary knowledge needed to carried out the programme accordingly, as at the time of writing this report there are sixteen TBLS in the state covering all the LGA and private hospitals involved in TB programme. The TB programme which started in five centers at Ado, Ikere, Ikole, ijan and Igbaraodo in 1996 is now having 252 TB treatment centers (1/15,000 pop) in all the LGA's out of which only 30% of DOTS clinic reported at least one presumptive case per quarter as at the time of writing this report (Awe, 2020). The state had 31 functioning TB microscopy centers (198,000 pop) and 6 gene Xpert sites located in 5 LGAs but only 2 of the sites are working uninterrupted while 2 work intermittently depending on availability of power either from national grid or through Generating plant from hospital, 2 have stopped processing samples due to power challenges. The two major centres we are having in Ekiti today are located at the Ekiti state University teaching hospital Ado Ekiti. Overcrowding, poor ventilation and close contact with TB patients can lead to the spread of TB among high-risk population (Davlidova et al., 2021). Colleges and universities are crowded places, and college students are closely contact with each other in their study and life. Evidence suggests that the rapid increase in student enrolment has further exacerbated the crowded living conditions at universities in many developing University students may be at particularly high risk for the development of active TB disease due to a high proportion of students living in congregate settings (dormitories) and limited health care services on campus for prompt diagnosis (Davlidova et al., 2021). Crowded student living conditions in universities in many developing countries have been further exacerbated by rapid increases in student enrollment (FMOH,2019).

Research questions

The following research questions guided the conduct of this study

1. What is the prevalence of pulmonary tuberculosis among university students in Ekiti State, Nigeria?
2. What are the treatment outcomes of TB among the students within the period under review?

Methods

This was a retrospective study, using the records of students admitted and managed for PTB over the past Federal University, Oye-Ekiti. The methodology employed in this evaluative case study was take cognizance of the main approaches used globally to assess the performance and quality of the Tuberculosis Control Programme. The sample size for this study were determined by the number of pulmonary tuberculosis admissions registered in each of the three

institutions, over the past 5 years from January 2019 to December 2023 (35). An updated pulmonary tuberculosis central register (if available) or general register from January 2019 to December 2023 provided by each institution were reviewed for data extraction using a developed structured checklist (Proforma). Section A is designed to collect demographic data while Section B contains information on risk factors and treatment outcomes. A letter of introduction obtained from the Department of Education, National Open University, Ado-Ekiti Study Center, same submitted to the Research and Ethical Committee of the three institutions in Ekiti State to obtained clearance to enable the researcher to have access to the students' health records for the required data after being duly informed of the research objectives and design of the study. After obtaining ethical approval, the researcher visited the Health Information Departments of the institutions to examine the pulmonary tuberculosis central register using the checklist (Proforma). The researcher trained four (3) research assistants on how to use the checklist to collect the data.

Validity is the degree to which a tool measures what it is supposed to measure (Mateo, 1999). This quantitative research study will ensure the use of face and content validity. Face validity is an intuitive type in which supervisors, researchers, colleagues, or subjects are asked to read the instrument and evaluate the content in terms of whether it appears to reflect the concept the researcher intends to measure (LoBiondo-Wood & Haber, 2014). The face and content validity will be carried out by the project supervisor in the Department of Education, National Open University, Ado–Ekiti Study Center, who is an expert in measurement and evaluation. He will examine the stated research objectives to ensure that are reflected in the checklist. His expert observations will help in modifying the instrument before using it to collect the data. An adapted checklist will be used by the researcher. LoBiondo-Wood and Haber (2014) defined reliability as "the ability of an instrument to measure attributes of variables and constructs consistently." To test for reliability the test-retest method will be used. This method involves the administration of the same instrument to the same subjects under similar conditions on two or more occasions. Scores from repeated testing will be compared (LoBiondo-Wood & Haber, 2014). The register used in the Tuberculosis control programme is the same globally (WHO, 2010). Based on the researcher's design of a checklist in such a way as to extract the information needed for this study, the Pulmonary Tuberculosis Central Register was used.

Data were collated, tallied, and analyzed using the Statistical Package for Social Sciences (SPSS, version 20). Descriptive and inferential statistics were used to analyze the data. The results were presented in tables as percentages, means, and standard deviations. Chi-square were used to determine the association between the prevalence and risk factors of pulmonary tuberculosis at a 0.05 level of significance.

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Results

Research Question 1: What is the prevalence of pulmonary tuberculosis among university students in Ekiti State, Nigeria?

Table 1: Prevalence of pulmonary tuberculosis among university students

Variables	Categories	Total Screened	Confirmed TB Cases	%
Demographic Information				
Gender	Male	316	27	8.54
	Female	184	8	4.35
Age	Less than 20	76	4	5.26
	21 – 24	197	23	11.68
	25 – 28	129	5	3.88
	29 – 32	77	3	3.9
	Above 32	21	0	0
Level	100L	58	3	5.17
	200L	79	9	11.39
	300L	133	15	11.28
	400L	157	6	3.82
	500L or above	73	2	2.74
Faculty/Department	Agriculture	65	3	4.62
	Art	83	2	2.41
	Basic Medical Science	46	3	6.52
	Education	76	4	5.26
	Social Science	89	7	7.87
	Sciences	81	9	11.11
	Engineering	64	7	10.94
Living Conditions				
Accommodation	On-campus Hostel	105	6	5.71
	Off-campus rented apartment	362	26	7.18
	Living with family	24	3	12.50
	Other	9	0	0.00
Number of Roommates	0	49	8	16.33
	1 – 2	153	16	10.46
	3 – 4	237	4	1.69
	Above 4	61	7	11.48
Sleeping Arrangements	Single occupancy Bed space	327	24	7.34
	Shared Bed space	173	11	6.36
Ventilation in Living Space	Good	92	9	9.78
	Average	285	14	4.91
	Poor	123	12	9.76
Social Economic Status				
Monthly Household Parent Income	Less than ₦50,000	93	2	2.15
	₦50,000 - ₦100,000	145	5	3.45
	₦100,001 - ₦200,000	167	11	6.59
	More than ₦200,000	95	17	17.89
Source of Funding for University Education	Family/Personal Savings	371	24	6.47
	Scholarship/Bursary	21	2	9.52
	Student Loan	97	7	7.22
	Other	11	2	18.18
Health Behaviours				

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Variables	Categories	Total Screened	Confirmed TB Cases	%
Smoking Status	Current Smoker	79	21	26.58
	Former Smoker	64	8	12.50
	Non-Smoker	357	6	1.68
Alcohol Consumption	Never	127	5	3.94
	Occasional	212	11	5.19
	Regular	161	19	11.80
	None	227	23	10.13
Exercise Routine	1-2 times per week	153	8	5.23
	3-4 times per week	97	3	3.09
	5 or more times per week	23	1	4.35

Table 1 shows the prevalence of pulmonary tuberculosis (TB) among university students in Ekiti State, Nigeria, reveals significant trends in demographic factors such as gender, age, academic level, and faculty. Starting with gender, the data indicates that male students have a higher prevalence of TB, with 8.54% of screened males confirmed as cases compared to 4.35% among females. This disparity suggests that male students may be at greater risk, potentially due to higher exposure rates or differences in health-seeking behaviours that warrant further investigation. Age also plays a critical role in the prevalence rates observed.

The age group of 21 to 24 years exhibits the highest prevalence at 11.68%, indicating that young adults in this range may be particularly vulnerable to TB. This trend could be linked to lifestyle factors and increased social interactions typical of this age group. Conversely, older age brackets show lower prevalence rates, which may reflect improved health awareness and access to medical care as students mature. When examining academic levels, second and third-year students (200L and 300L) show the highest prevalence rates of 11.39% and 11.28%, respectively. This finding may be related to increased social interactions and academic pressures during these years. In contrast, prevalence rates decline significantly among students in their final years, suggesting that as students' progress through their studies, they may become more health-conscious or have better access to healthcare resources.

The analysis of faculty or departmental affiliations uncovers further variations in TB prevalence. Students in the Sciences and Engineering faculties report higher rates, at 11.11% and 10.94%, respectively. This may be attributed to the collaborative nature of their studies, which likely increases exposure to TB. In contrast, the Arts faculty shows the lowest prevalence at 2.41%, raising questions about the lifestyle and social interactions within that group. The table also consider various aspects of living arrangements, including accommodation type, number of roommates, sleeping arrangements, and

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ventilation in living spaces. Starting with accommodation, the result shows that students living in on-campus hostels reported a prevalence of 5.71%, while those in off-campus rented apartments had a slightly higher prevalence of 7.18%. Interestingly, students living with family had the highest prevalence at 12.50%. This suggests that living in close quarters with family members may increase exposure risk, possibly due to shared environments and lower public health awareness in some households.

The data indicates that living arrangements can significantly influence TB risk, emphasizing the need for targeted interventions in such settings. Also, the number of roommates appears to correlate with TB prevalence. Students with no roommates exhibited a notably high prevalence of 16.33%, while those with 1–2 roommates faced a prevalence of 10.46%. In contrast, students living with three or more roommates showed a lower prevalence of 1.69%. This counterintuitive finding could suggest that having no roommates may be associated with other factors that increase risk, such as isolation or a lack of social support, which could lead to delayed health-seeking behaviour. Alternatively, students in shared accommodations might be more vigilant about health practices or have more frequent interactions that promote awareness of TB symptoms. The analysis of sleeping arrangements shows that students with single occupancy bed spaces had a prevalence of 7.34%, while those in shared bed spaces had a slightly lower prevalence of 6.36%. This may indicate that while shared sleeping arrangements can increase transmission risk, factors such as the overall living environment and health behaviours may play a more significant role in the spread of TB.

Ventilation in living spaces also plays a critical role in TB prevalence. Students in well-ventilated environments reported a prevalence of 9.78%, while those in average ventilation conditions had a lower prevalence of 4.91%. In contrast, students living in poorly ventilated spaces had a prevalence of 9.76%. This finding suggests that while good ventilation is crucial for reducing the risk of airborne diseases like TB, the overall conditions of living spaces must also be considered. Poorly ventilated areas may contribute to higher transmission rates, reinforcing the importance of improving living conditions to enhance public health. Also, the table present factors such as monthly household income and sources of funding for university education. Starting with monthly household income, the data shows that students from families earning less than ₦50,000 reported a very low prevalence of 2.15%. As income increases, the prevalence of TB generally rises, peaking at 17.89% among students from families with incomes exceeding ₦200,000. This trend suggests that higher income may not necessarily correlate with better health outcomes in this context, potentially due to increased mobility and social interactions that come with higher socioeconomic status.

Wealthier students may have more opportunities for social gatherings and activities, potentially increasing their exposure to TB. Moreover, students from the income bracket of ₦100,001 to ₦200,000

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showed a prevalence of 6.59%, indicating a moderate risk compared to those in lower income brackets. This could imply that while financial stability may provide access to better healthcare and living conditions, it also comes with increased social interactions that could heighten exposure to infectious diseases like TB. In terms of sources of funding for education, students relying on family or personal savings exhibited a prevalence of 6.47%, while those receiving scholarships or bursaries had a slightly higher prevalence of 9.52%. Interestingly, students supported by student loans showed a prevalence of 7.22%. These figures suggest that reliance on familial support may not directly correlate with increased risk, indicating that other lifestyle factors might influence health outcomes. The category labelled "Other", which includes various funding sources, showed the highest prevalence at 18.18%. This group may encompass students with less stable financial situations, which could lead to increased stress and poorer health outcomes, as financial instability often correlates with higher rates of illness and lower access to healthcare resources. The table also shows the health behaviours among university students in Ekiti State, providing insights into their relationship with the prevalence of pulmonary tuberculosis (TB). Key factors considered include smoking status, alcohol consumption, and exercise routines, all of which play a crucial role in influencing health outcomes.

Regarding smoking status, the result reveals a stark difference in TB prevalence among different groups. Current smokers exhibit a high prevalence of 26.58%, significantly higher than former smokers, who have a prevalence of 12.50%, and non-smokers, with only 1.68% confirmed cases. This striking difference underscores the well-established link between smoking and increased susceptibility to respiratory diseases, including TB. Smokers may have compromised lung function and immune responses, making them more vulnerable to infections. The data suggests a pressing need for tobacco cessation programs and targeted health education to reduce smoking rates among students, as this could have a direct impact on TB prevalence. In terms of alcohol consumption, the prevalence of TB also varies across different consumption patterns. Students who consume alcohol regularly show a prevalence of 11.80%, while occasional drinkers have a lower prevalence of 5.19%, and those who never consume alcohol report a prevalence of 3.94%. This trend indicates that regular alcohol consumption may contribute to higher TB risk, potentially due to its effects on immune function and overall health. Alcohol misuse can lead to malnutrition, poor health behaviours, and reduced healthcare access, all of which can exacerbate the risk of developing TB. Public health initiatives aimed at promoting responsible drinking and highlighting the health risks associated with excessive alcohol consumption could be beneficial.

The analysis of exercise routines reveals a connection between physical activity and TB prevalence. Students who do not engage in any exercise have a prevalence of 10.13%, which is higher compared to those exercising

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1-2 times per week (5.23%) and those who exercise 3-4 times per week (3.09%). Interestingly, students who exercise 5 or more times per week show a prevalence of 4.35%. This pattern suggests that regular physical activity may bolster the immune system and improve overall health, thereby reducing susceptibility to TB. Encouraging students to adopt healthier lifestyles that include regular exercise could be an effective strategy for reducing TB prevalence.

Research Question 2: What are the treatment outcomes of TB among the students within the period under review?

Table 2: Treatment outcomes of TB among the undergraduate students

Variable	Category	N	Treatment Outcome					
			Cured		Died		Not Evaluated	
			N	%	N	%	N	%
Gender	Male	27	19	70.37	0	0	8	29.63
	Female	8	7	87.50	0	0	1	12.50
Age	Less than 20	4	3	75.00	0	0	1	25.00
	21 – 24	23	18	78.26	0	0	5	21.74
	25 – 28	5	3	60.00	0	0	2	40.00
	29 – 32	3	1	33.33	0	0	2	66.67
	Above 32	0	0	0	0	0	0	0
Smoking Status	Current Smoker	21	16	76.19	0	0	5	23.81
	Former Smoker	8	5	62.50	0	0	3	37.50
	Non-Smoker	6	4	66.67	0	0	2	33.33
Alcohol Consumption	Never	5	4	80.00	0	0	1	20.00
	Occasional	11	10	90.91	0	0	1	9.09
	Regular	19	12	63.16	0	0	7	36.84
Exercise Routine	None	23	16	69.57	0	0	7	30.43
	1-2 times per week	8	7	87.50	0	0	1	12.50
	3-4 times per week	3	2	66.67	0	0	1	33.33
	5 or more times per week	1	1	100.00	0	0	0	0.00

Table 2 reveal treatment outcomes of tuberculosis (TB) among undergraduate students reveal important patterns related to gender, age, smoking status, alcohol consumption, and exercise routines. Notably, female students exhibited a higher cure rate (87.50%) compared to their male counterparts (70.37%). The table also shows that a significant number of students (29.63% of males and 12.50% of females) were not evaluated, which raises questions about the factors leading to non-evaluation. This discrepancy suggests that gender may play a role in treatment efficacy or health-seeking behaviours, warranting further investigation into the factors contributing to these differences. In addition, age-related outcomes show that the highest cure rates are found in the 21-24 age group (78.26%), while those aged 29-32 demonstrate a significantly lower cure rate (33.33%).

Also, for younger age groups, particularly those under 20 and those over 32, there were instances of non-evaluation, which could

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suggest barriers to accessing follow-up care or reporting. This could indicate that younger individuals may respond better to treatment or are more likely to adhere to prescribed regimens. Additionally, smoking status has a marked impact on treatment outcomes; current smokers show a cure rate of 76.19%, while former smokers and non-smokers have lower rates (62.50% and 66.67%, respectively). Additionally, alcohol consumption patterns reveal that occasional drinkers have the highest cure rate (90.91%), whereas regular drinkers have a notably lower rate (63.16%). Lastly, exercise routines appear to correlate with treatment outcomes, as those exercising 1-2 times per week achieved an 87.50% cure rate, suggesting that even moderate physical activity may positively influence recovery.

Discussion

The findings illustrate the profound economic impact of TB on university students, emphasizing the need for supportive measures from both government and educational institutions. Students not only face health challenges but also significant financial burdens that affect their academic performance and future prospects. Implementing targeted financial support programs and improving access to healthcare services could alleviate these issues and promote better health outcomes. The findings of this study reveal a complex relationship between socioeconomic status and the prevalence of tuberculosis (TB) among university students in Ekiti State. Notably, a significant proportion of TB cases were found among students from families earning more than ₦200,000 per month (Chory et al., 2021). While this correlation was not statistically significant, it suggests that higher income levels may be associated with increased exposure to TB, potentially due to lifestyle factors such as greater social interactions and mobility. This aligns with existing literature that indicates wealthier individuals often engage in more extensive social networks, which can elevate their risk of infectious diseases, including TB (Klaos et al., 2021).

Furthermore, the reliance of students on family or personal savings for educational funding underscores the potential barriers to accessing healthcare services, particularly for those from lower-income backgrounds. This financial dependency may limit students' ability to seek timely medical attention, thereby exacerbating the risk of undiagnosed or untreated TB (Mason et al., 2016). The finding of the study shows significant associations between smoking status, alcohol consumption, exercise routines, and the risk of TB infection (Adeloye et al., 2017). The finding indicate that TB cases occur more among current smokers, highlighting a robust association between smoking and TB prevalence. This finding is consistent with numerous studies that have established smoking as a significant risk factor for respiratory infections, including TB (David et al., 2020). Smoking can impair lung function and weaken the immune response, making individuals more susceptible to infections. Also, the finding further reveals that TB cases occur among regular alcohol consumers. This finding underscores the detrimental impact of excessive alcohol

consumption on health, particularly regarding TB susceptibility.

Alcohol abuse is known to compromise immune function and increase the likelihood of engaging in risky behaviours that can facilitate the spread of infections (Kandula & Wake, 2022). The study finds that a significant majority of TB cases occur among students who do not engage in any form of physical activity. This suggests that a sedentary lifestyle may negatively impact overall health and resilience against infections such as TB. Regular physical activity is known to enhance immune function and improve general well-being (Glei et al., 2020). The finding of the study indicates a higher prevalence of TB among male students compared to female students. This gender disparity suggests that male students may engage in riskier health behaviours or have less access to health information and services, which could contribute to higher TB rates. Additionally, the age group of 21-24 years shows the highest prevalence, indicating that this demographic is particularly vulnerable. This trend aligns with findings from other studies that highlight the increased risk of TB in younger populations due to factors such as social interactions and lifestyle changes during university years (Olateju et al., 2020) . Targeted health education and intervention strategies focusing on male students and those in this age group could be effective in reducing TB incidence (Awe, 2020). In addition, the prevalence rates also vary significantly by academic level, with second and third-year students reporting the highest rates. This may reflect the pressures associated with these years of study, including increased socialization and academic stress, which can impact health behaviours.

Furthermore, students in the Sciences and Engineering disciplines exhibit higher prevalence rates, likely due to collaborative study environments that facilitate TB transmission. These findings suggest that universities should implement targeted health promotion activities within specific faculties and academic years to address the unique challenges faced by these groups (Opele et al., 2022). Also, living conditions are a crucial factor influencing TB prevalence. Students living with family show the highest prevalence, which may indicate increased exposure to TB in shared living environments. Overcrowded accommodations also correlate with higher TB rates, emphasizing the need for improved living conditions to prevent disease transmission. Public health interventions should focus on educating students about the importance of proper ventilation and reducing overcrowding in living spaces (Kimani, 2023).

In addition, the socioeconomic analysis reveals that higher income brackets correlate with increased TB prevalence, peaking among students from families earning more than ₦200,000. This counterintuitive finding suggests that wealthier students may engage in more social activities that increase exposure risk. It highlights the necessity for public health initiatives to consider socioeconomic status when designing interventions, as higher income does not

always equate to better health outcomes (Zheng et al., 2021). Health behaviours, particularly smoking and alcohol consumption, show strong associations with TB prevalence. Current smokers have a remarkably high prevalence, reinforcing the need for robust smoking cessation programs within university health services. The data also suggest that regular alcohol consumption is linked to higher TB rates, indicating that interventions promoting responsible drinking could be beneficial (Lanre-Ogungbile et al., 2020). Encouraging physical activity is another critical avenue, as students who engage in regular exercise show lower prevalence rates. This highlights the importance of holistic health promotion strategies that encompass smoking cessation, responsible alcohol consumption, and physical fitness (Olabiyi et al., 2023; Ogbo et al., 2018).

Conclusion and Recommendations

In conclusion, the findings of this study underscore the multifaceted nature of tuberculosis (TB) prevalence among university students in Ekiti State, Nigeria. The significant incidence of TB, particularly among male students and those aged 21-24, highlights the urgent need for targeted public health interventions. The data indicates that socioeconomic factors, such as income and living conditions, play a crucial role in influencing TB risk. Notably, students living in overcrowded environments, particularly off-campus rented apartments with poor ventilation, exhibited higher prevalence rates. This emphasizes the importance of addressing living conditions as a key strategy in TB prevention and control. The study also reveals concerning trends related to health behaviors, particularly smoking and alcohol consumption. With a substantial proportion of confirmed TB cases found among current smokers and regular alcohol consumers, it is clear that these factors significantly compromise immune function and increase susceptibility to TB. This correlation reinforces the necessity for comprehensive health education programs focusing on the risks associated with smoking and excessive alcohol use. Moreover, the findings suggest gaps in healthcare access, as only a small percentage of diagnosed students received timely treatment. This highlights the need for improved healthcare services on university campuses, ensuring that students have sufficient access to diagnostic and treatment resources. The reliance on family support for educational funding further complicates access to healthcare, particularly for lower-income students who may face financial barriers to seeking timely medical attention.

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